BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

BP PRODUCTS NORTH AMERICA, INC.,	)	
Petitioner,	)	
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	PCB 2025-061
Respondent.	)	

NOTICE OF FILING

To: See Attached Service List (Via Electronic Filing)

PLEASE TAKE NOTICE that the undersigned filed today with the Office of the Clerk of the Illinois Pollution Control Board by electronic filing the following NOTICE OF FILING, CERTIFICATE OF SERVICE, CERTIFICATE OF RECORD ON APPEAL, and RECORD ON APPEAL, copies of which are attached hereto and hereby served upon you.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: /s/ Mallory Meade

Mallory Meade, #6345981
Assistant Attorney General
Environmental Bureau
500 South Second Street
Springfield, Illinois 62706
(217) 299-8343
mallory.meade@ilag.gov

Dated: April 16, 2026

SERVICE LIST

Alexander J. Bandza
Barnes & Thornburg
1 N Wacker Dr #4400
Chicago, Illinois 60606
abandza@btlaw.com

Carol Webb
Hearing Officer
Illinois Pollution Control Board
1021 North Grand Avenue East
P.O. Box 19274
Springfield, IL 62794-9274
carol.webb@illinois.gov

CERTIFICATE OF SERVICE

The undersigned hereby certifies that on April 16, 2026, before 5:00 PM, she caused to be served by electronic mail, a true and correct copy of the following instruments entitled NOTICE OF FILING, CERTIFICATE OF SERVICE, CERTIFICATE OF RECORD ON APPEAL, and RECORD ON APPEAL to:

Alexander J. Bandza
Barnes & Thornburg
1 N Wacker Dr #4400
Chicago, Illinois 60606
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Hearing Officer
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This email transmission contains 2214 pages.

/s/ Mallory Meade
mallory.meade@ilag.gov
Assistant Attorney General
Environmental Bureau

Under penalties as provided by law pursuant to Section 1-109 of the Code of Civil Procedure, the undersigned certifies that the statements set forth in this Certificate of Service are true and correct, except as to matters therein stated to be on information and belief and as to such matters the undersigned certifies as aforesaid that she verily believes the same to be true.

/s/ Mallory Meade
Assistant Attorney General
Environmental Bureau

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

BP PRODUCTS NORTH AMERICA, INC.,	)	
Petitioner,	)	
v.	)	
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	PCB 2025-061
Respondent.	)	

CERTIFICATE OF RECORD ON APPEAL

Respondent, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY ("Illinois EPA"), in accordance with the procedural rules of the Illinois Pollution Control Board ("Illinois PCB") as set forth in 35 Ill. Adm. Code 105.212 and 105.116, files as its Record in this cause the Illinois EPA's record of determination regarding the issuance of a RCRA permit to Petitioner, BP PRODUCTS NORTH AMERICA, which is attached and consists of the following documents:

PAGES	DOCUMENT		DATE
R000002 - R000532	1	RCRA Part B Permit Renewal Application	11/30/2019
R000534	2	USEPA/IEPA Corrective Action Quarterly Call Agenda	1/13/2020
R000536 - R000541	3	Email from Rob Watson to Mark Crites, et. al., titled "USEPA A3 Project" bundled with attachments	3/2/2020
R000543 - R000545	4	A3 Meeting Notes	5/1/2020

R000546 - R000624	5	RCRA Review Note Checklist and bundled attachments	11/2020 - 9/2024
R000626 - R000663	6	RCRA Post-Closure Permit Application Completeness and Technical Review Checklist	11/20/2020
R000665 - R000672	7	Groundwater Unit Completeness Review and bundled attachments	11/20/2020 - 11/24/2020
R000674 - R000686	8	A3 Project – Illinois EPA Sites – Summary and Recommendations	2/2021
R000688 - R000691	9	Email from Jennifer Dodds to Rob Watson & Takako Halteman titled "A3 Project – Access Request Letter" and bundled attachments	2/1/2022
R000693 - R000695	10	Email thread between Takako Halteman and Finnegan McCurdy, et. al., regarding Public Notice Comments with bundled attachments	8/24/2023
R000696 - R000698	11	Email thread from Shilpa Patel to Takako Halteman, et. al., titled "[External] RE: IL A3 Project Next Steps"	11/27/2023
R000700 - R000702	12	Email thread between Omar Faruk and Starlet Wright titled "RE: [External] Re: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)"	3/1/2024
R000704 - R000705	13	Email from Curtis Sampson to Michelle Knapp, et., al., titled "RE: Permit mod for bp Wood River Main Plant Facility"	5/1/2024
R000707 - R000815	14	Email from Starlet Wright to Takako Halteman, et. al., titled "[External] bp Wood River - resubmittal of Main Plant Area 2 ELUCs" with bundled attachments	5/1/2024
R000817 - R000820	15	Email thread from Omar Faruk to Takako Halteman, et. al., titled "RE: Permit mod for bp Wood River Main Plant Facility"	5/29/2024
R000822 - R000824	16	Letter from Illinois EPA to Environmental Justice Policy Distribution List titled "BP Products North America Inc.- Main Plant (Illinois EPA BOL ID# 1191150001) Resource Conservation and Recovery Act Corrective Action Only Permit (B-147R2)"	6/4/2024
R000826 - R000831	17	Email from Omar Faruk to Michelle Knapp, et. al., titled "Listed NOD for BP Permit Renewal Application"	6/12/2024
R000833 - R001296	18	bp Main Plant Property RCRA Permit Renewal Application Section F – Corrective Action	8/2/2024

R001298 - R001302	19	BOL Permit Section RCRA Tracking Sheet	8/30/2024
R001304 - R001471	20	BP Products North American Inc./ Main Plant (Log No: B-147R2) ADMINISTRATIVE RECORD Index for Draft Permit Decision - Correspondence	4/10/2020 - 8/30/2024
R001472 - R001501	21	Email from Takako Halteman to Omar Faruk titled "FW: bp—Wood River" with bundled attachments	9/10/2024
R001502 - R001543	22	Email from Takako Halteman to Omar Faruk titled "FW: BP Wood River discussion" with bundled attachments	9/10/2024
R001545 - R001547	23	Email thread from Omar Faruk to Michelle Knapp, et. al., titled "RE: BP Main Plant area"	9/24/2024
R001549 - R001590	24	Email thread from Omar Faruk to Shawntay Dial, et. al., titled "bp Wood River Main Plant draft permit comments" with bundled attachments	11/13/2024
R001592 - R001601	25	Email from Takako Halteman to Omar Faruk titled "More on BP Comments" with bundled attachments	12/6/2024
R001603 - R001609	26	Agenda USEPA-Illinois EPA Corrective Action Quarterly Call December 9, 2024 · 11:00am – 12:00pm (Microsoft Teams)	12/9/2024
R001611 - R001612	27	Email thread from Omar Faruk to Takako Halteman titled "FW: bp Wood River - upcoming Land Reuse Investigation Report"	12/10/2024
R001614 - R001615	28	Email thread from Takako Halteman to Omar Faruk titled "FW: bp Wood River - upcoming Land Reuse Investigation Report"	12/10/2024
R001617 - R001793	29	Email from Takako Halteman to Omar Faruk titled "BP permit revisions" with bundled attachments	4/2/2025
R001795 - R002207	30	Final Corrective Action Permit	4/29/2025

I, Omar Faruk, of the Illinois EPA, hereby certify that the documents of the Record on Appeal filed in the above referenced matter and summarized in the above Index are complete to the best of my knowledge, information, and belief.

BY: s/ Omar Faruk

Omar Faruk, EIT
Environmental Protection Engineer
RCRA Unit, Permit Section
Bureau of Land
Illinois EPA

Respectfully submitted,

KWAME RAOUL,
Attorney General of the State of Illinois,

MATTHEW J. DUNN, Chief
Environmental Enforcement/Asbestos
Litigation Division

By: /s Mallory Meade

Mallory Meade
Assistant Attorney General
Illinois Attorney General's Office
Environmental Bureau
500 South Second Street Springfield, IL 62706
(217) 299-834

DOCUMENT

1

SEE LARGE FORMAT MAP OR PLAN SHEET

DOCUMENT DESCRIPTION:

Tie #:		
Document ID #:		
Site #:	1191150001	
Site Name:	BP Products North America/Main Plant	
Cat #:	24D	RCRA Permit (Administrative Records)
Document Date:	11/30/2019	
Permit #:		
Log #:		
Keyword:		
Comment:	Large Maps/Drawings	

	Type or Description of Plan/Drawing	SEE COLOR	Date of Plan	Figure/ Diagram
1.	Facility + 1000 Feet Topographic map with surrounding Land Use	NO	07/03/24	B-5A
2.	Facility + 1000 Feet Topographic map with surrounding Land Use	NO	07/03/24	B-5C
3.	Facility + 1000 Feet Topographic map with surrounding Land Use	NO	07/03/24	B-5B
4.	BP Amoco main plant and Korea Tank Farm	NO	07/29/24	1 of 2
5.	BP Amoco main plant and Korea Tank Farm	NO	07/29/24	2 of 2
6.				
7.				
8.				
9.				
10.				
11.				
12.				

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
November 2019

Facility Name : **BP Main Plant**
Log No. : **B-147R2**
State ID No. : **1191150001**
USEPA No. : **ILD980700967**

Date Application Received : _____
Revision No. : _____
Reviewer : _____
Review Dates : _____

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**	Y		Exhibit A-1b	
A.2	**Certification Using the LPC-PA23 Form**	Y		Exhibit A-2	
A.2.1	Facility Certification	Y		Section A, p.1; Exhibit A-2	
A.2.2	Technical Information Certification	Y		Section A, p.1; Exhibit A-2	
A.2.3	39i Certification	Y		Section A, p.1; Exhibit A-2	
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**	Y		Section A, p.1	
A.3.1	No information Claimed Exempt from Public Disclosure	Y		Section A, p.1	
A.3.2	Trade Secrets Claims			N/A	
A.3.3	Exempt or Exempt In-Part Data Claims			N/A	
A.3.4	Privileged Information			N/A	
A.4	**Public Participation: Facility Mailing List & Information Repositories**	Y		Section A, p.1	
A.4.1	Facility Mailing	Y		Section A, p.1; Exhibit A-3	

IEPA - Division of Records Management
Releasable
MAY 09 2025
Reviewer: SAB

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.4.2	Identification of Repositories	Y		Section A, p.2	
A.4.3	Contents of Repository	Y		Section A, p.2	
A.4.4	Public Notice of Repository Availability	Y		Section A, p.2	
B	**Facility Description**	**XX**	**XX**		
B.1	**General Facility Description**	Y		Section B, p.1	
B.1.1	Operation of Facility	Y		Section B, p.1	
B.1.2	Hazardous Waste Management Units at the Facility	Y		Section B, p.1	
B.1.3	Solid Waste Management Units at the Facility	Y		Section B, p.3, Table B-1, Figure B-4	
B.2	**Topographic Map**	Y		Section B, p.3, Figure B-1	
B.2.1	Facility + 1 mile	Y		Section B, p.3, Figure B-1	
B.2.2	Facility + 1000 feet	Y		Section B, p.3, Figures B-5A, B-5B, B-5C	
B.3	**Location Standards**	Y		Section B, p. 4	
B.3.1	Seismic Standard	Y		Section B, p. 4	
B.3.2	Floodplain Standard	Y		Section B, p. 4; Exhibit B-3	
B.3.3	Facilities in the 100-year Floodplain	Y		Section B, p. 4	
B.3.3.1	Engineering Analysis and Structural/Engineering Study	Y		Section B, p. 4	
B.3.3.2	Procedures to Remove Waste	Y		Section B, p. 4	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)	Y		Section B, p. 4	
B.4	**Operating Record**	Y		Section B, p. 4	
C	**Groundwater Monitoring**	**XX**	**XX**		
C.1	**Exemption from Groundwater Protection Requirements**	Y		Section C, p.1	
C.1.1	Waste Piles			N/A	
C.1.2	Landfills			N/A	
C.1.3	No Migration			N/A	
C.2	**Interim Status Groundwater Monitoring Data**	Y		Section C, p.2	
C.3	**Historical Hydrogeological Summary**	Y		Section C, p.2	
C.4	**Topographic Map Requirements**	Y		Section C, p.4	
C.5	**Contaminant Plume Description**	Y		Section C, p.4	
C.6	**Detection Monitoring Program**	Y		Section C, p.5	
C.6.1	Indicator Parameters, Waste Constituents, Reaction Productions to be Monitored			N/A	
C.6.2	General Monitoring Program Requirements			N/A	
C.6.3	Groundwater Monitoring System			N/A	
C.6.4	Description of Sampling and Analysis Procedures			N/A	
C.6.5	Evaluation of Groundwater Surface			N/A	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.6.6	Background Quality			N/A	
C.6.7	Statistical Evaluations			N/A	
C.6.8	Statistically Significant Increases			N/A	
C.7	**Compliance Monitoring Program**	Y		Section C, p.5	
C.7.1	Description of the Monitoring Program			N/A	
C.7.1.1	Waste Description			N/A	
C.7.1.2	Concentration Limits			N/A	
C.7.1.3	Compliance Point			N/A	
C.7.1.4	Compliance Period			N/A	
C.7.2	Alternate Concentration Limits			N/A	
C.7.2.1	Adverse Effects on Groundwater Quality			N/A	
C.7.2.2	Potential Adverse Effects on Hydraulically Connected Surface Water Quality			N/A	
C.7.3	General Monitoring Program Requirements			N/A	
C.7.4	Groundwater Monitoring System			N/A	
C.7.5	Description of Sampling and Analysis Procedures			N/A	
C.7.6	Background Quality			N/A	
C.7.7	Statistical Evaluations			N/A	
C.7.8	Evaluation of Groundwater Surface			N/A	
C.7.9	Annual Appendix I			N/A	
C.7.10	Statistically Significant Increases			N/A	
C.8	**Corrective Action Program**	Y		Section C, p.5	
C.8.1	Description of Corrective Action Program	Y		Section C, p.12	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.8.1.1	Characterization of Contaminated Groundwater	Y		Section C, p.12	
C.8.1.2	Concentration Limits	Y		Section C, p.13	
C.8.1.3	Compliance Point	Y		Section C, p.13	
C.8.1.4	Compliance Period	Y		Section C, p.13	
C.8.1.5	Construction Detail	Y		Section C, p.13	
C.8.1.6	Effectiveness of Corrective Action	Y		Section C, p.14	
C.8.2	Alternate Concentration Limits	Y		Section C, p.14	
C.8.2.1	Adverse Effects on Groundwater Quality	Y		Section C, p.14	
C.8.2.2	Potential Adverse Effects on Hydraulically-Connected Surface Water Quality	Y		Section C, p.14	
C.8.3	Corrective Action Plan	Y		Section C, p.14	
C.8.4	Groundwater Monitoring Program	Y		Section C, p.14	
C.8.4.1	General Monitoring Program Requirements	Y		Section C, p.14	
C.8.4.2	Groundwater Monitoring System	Y		Section C, p.14	
C.8.4.3	Description of Sampling and Analysis Procedures	Y		Section C, p.14	
C.8.4.4	Background Quality	Y		Section C, p.15	
C.8.4.5	Statistical Evaluations	Y		Section C, p.15	
C.8.4.6	Evaluation of Groundwater Surface	Y		Section C, p.15	
C.8.4.7	Extension of Compliance Period	Y		Section C, p.15	
C.8.4.8	Effectiveness of Corrective Action	Y		Section C, p.15	
C.8.4.9	Evaluation of the Corrective Action Program	Y		Section C, p.16	
C.9	**Reporting Requirements**	Y		Section C, p.16	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
D	**Procedures to Prevent Hazards**	**XX**	**XX**		***This section is not required for Corrective Action Only permits***
D.1	**Security**			N/A	
D.1.1	Waiver from the Security Requirements			N/A	
D.1.2	Restricting Entry to the Facility			N/A	
D.1.3	Warning Signs			N/A	
D.2	**Equipment Requirements**			N/A	
D.2.1	Waiver			N/A	
D.2.2	Internal Communications			N/A	
D.2.3	External Communications			N/A	
D.2.4	Emergency Response Equipment			N/A	
D.2.5	Water for Fire Control			N/A	
D.2.6	Personnel Protection Equipment			N/A	
D.2.7	Testing & Maintenance of Emergency Equipment			N/A	
D.2.7.1	Equipment Testing			N/A	
D.2.7.2	Schedule			N/A	
D.2.8	Equipment and Power Failure			N/A	
D.3	**Inspection Requirements**			N/A	
D.3.1	Inspection Log			N/A	
D.3.1.1	Items Inspected			N/A	
D.3.1.2	Types of Problems			N/A	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
D.3.1.3	Inspection Frequency			N/A	
D.3.2	Repair Log			N/A	
D.3.3	24 Hour Reporting			N/A	
E	**Post-Closure Requirements**	**XX**	**XX**		***This section is not required for Corrective Action Only permits***
E.1	**Information Regarding the Unit(s) Closed as a Landfill**			N/A	
E.1.1	General Information Regarding the Unit to Receive Post-Closure Care			N/A	
E.1.2	Geology and Hydrogeology Around/ Beneath the Unit			N/A	
E.1.3	Characterization of Waste/ Contaminated Soil Present in the Landfill Unit			N/A	
E.1.4	Initial Closure Activities			N/A	
E.1.5	Details Associated with the Closed Unit			N/A	
E.2	**Contact Person**			N/A	
E.3	**Operation of the Leachate Collection System**			N/A	
E.3.1	Quality of Leachate in the Leachate Collection System			N/A	
E.3.2	Leachate Collection System Within the Landfill			N/A	
E.3.3	Leachate Collection System Outside the Landfill			N/A	
E.3.4	Management of Leachate Collection System			N/A	
E.3.5	Summary of Leachate Management Program Conducted to Date			N/A	

R000009

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.4	**Operation of the Leak Detection System**			N/A	
E.4.1	Description of the Leak Detection System Within the Landfill			N/A	
E.4.2	Description of the Leak Detection System Outside the Landfill			N/A	
E.4.3	Management of Leachate Accumulating in the Leak Detection System			N/A	
E.4.4	Recent Operation of the Leak Detection System			N/A	
E.5	**Operation of the Gas Monitoring/ Collection System**			N/A	
E.5.1	Detailed Description of the Landfill Gas Collection System			N/A	
E.5.2	Landfill Gas Monitoring Plan			N/A	
E.5.3	Landfill Gas Disposal/ Processing System			N/A	
E.5.4	Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems			N/A	
E.6	**Post-Closure Inspection Plan**			N/A	
E.6.1	Inspection Log			N/A	
E.6.1.1	Items Inspected			N/A	
E.6.1.2	Types of Problems			N/A	
E.6.1.3	Inspection Frequency			N/A	
E.6.2	Repair Log			N/A	
E.6.3	24-Hour Reporting			N/A	
E.7	**Post-Closure Monitoring Plan**			N/A	
E.7.1	Facility Controls			N/A	
E.7.2	Surveys and Corrective Action			N/A	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.7.2.1	Provide the Following			N/A	
E.7.3	Leachate Collection System (LCS)			N/A	
E.7.3.1	Leachate Quality			N/A	
E.7.3.2	Leachate Quantity			N/A	
E.7.3.3	Leachate Reporting			N/A	
E.7.4	Leak Detection System (LDS)			N/A	
E.7.4.1	LDS Leachate Quantity			N/A	
E.7.4.2	Action Leakage Rate (ALR)			N/A	
E.7.5	Groundwater Monitoring System			N/A	
E.7.6	Gas Collection System			N/A	
E.7.6.1	Gas Quality			N/A	
E.7.6.2	Gas Quantity			N/A	
E.7.6.3	Summary of Results from the Gas Collection/ Monitoring System			N/A	
E.8	**Post-Closure Maintenance Plan**			N/A	
E.8.1	Procedures, Equipment & Materials			N/A	
E.8.3	Frequency			N/A	
E.9	**Survey Plat**			N/A	
E.10	**Notice in Deed and Certification**			N/A	
E.11	**Post Closure Cost Estimate**			N/A	
E.12	**Financial Assurance Mechanism for Post-Closure Care**			N/A	
E.13	**State Mechanisms**			N/A	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
F	**Corrective Action (CA)**	**XX**	**XX**		
F.1	**Identification of Solid Waste Management Units (SWMUs)**	Y		Section F, p.3; Table F-1, Figure F-1	
F.2	**Characterization of the SWMUs**	Y		Section F, p.3	
F.3	**Characterization of Releases from SWMUs**	Y		Section F, p.3	
F.4	**Information Required for Renewal Applications**	Y		Section F, p.3	
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program	Y		Section F, p.3	
	(1) Chronology of all CA related correspondence between USEPA & facility			N/A	
	(2) Copies of all letters received from USEPA regarding CA			N/A	
	(3) Copies of all letters regarding CA sent to USEPA			N/A	
	(4) Detailed discussion of each SWMU			N/A	
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation			N/A	
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program	Y		Section F, p.3-55	
	(1) Chronology of all corrective action efforts completed to date	Y		Section F, p.3-55	
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence	Y		Section F, p.3-55	
	(3) Detailed discussion of each SWMU	Y		Section F, p.3-55	

R000012

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort	Y		Section F, p.3-55	
F.5	**Proposed Interim Measures to be Conducted**	Y		Section F, p.55-57; Exhibit F-1	
F.6	**Cost Estimate for Required Corrective Action**	Y		Section F, p.57; Exhibit F-2	
F.7	**Financial Assurance for Corrective Action**	Y		Section F, p.57; Exhibit F-3	

R000013

RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

IEPA COMMENT	BP RESPONSE
1. GENERAL COMMENTS	
a. Provide a list of acronyms for the permit renewal application.	An acronym list has been added after the application cover page.
b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).	A copy of the complete/updated renewal application will be mailed to the required Region V address, Attn: Norberto Gonzales.
c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program. i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved. ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.	Sections C and F and associated figures, tables, and exhibits have been revised as follows: i. The following previously submitted permit modification requests have been incorporated into Section C of the permit application: i) Statistical Evaluation Reporting (6/03/2020); ii) G047 Well Abandonment (9/23/2020); iii) Groundwater Optimization and Contaminant Control (2/28/2023); and iv) Cone of Depression (COD) Well Replacements (1/16/2024). The following previously submitted permit modification requests have been incorporated into Section F (Exhibit F-1) of the permit application: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024). ii. Section C has been updated to reflect the following Illinois EPA approval letters: i) Main Plant Groundwater Optimization (1/19/2023); and ii) Main Plant Well Replacements (1/19/2023).

R000014

IEPA COMMENT	BP RESPONSE
iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.	iii. Section C.8 text and Figures C-4, C-5a, and C-5b have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Section F.4.2.11 and Figure F-2 have been revised to clearly describe and/or illustrate the vertical parceling in Area 12 (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).
iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim."	iv. The references to "interim" have not been removed from the Section C introductory text as a final remedy has not been selected for the Main Plant Property.
2. Exhibit A-1b, Hazardous Waste Permit Part A Form	
a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.	Exhibit A-1b has been revised to i) reflect the Liability Manager change from Sasa Jazic to Michelle Knapp under Item #1, and ii) add the current RCRA permit under Item #4. Additionally, Section A.2.3 and Exhibit A-1a were revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp.
b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.	The figure for Item #10 has been revised to delineate and label all existing structures and SWMUs. Additionally, the figure for Item #9 has been revised to include the SWMUs, existing structures, and the approximate dimensions of both. There are no sites for future treatment, storage, or disposal areas.
3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification	
Update the information on the 39(i) Certification, Section B for the new liability manager.	Exhibit A-2 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp in Section B of the 39(i) Certification and Sections II and IV of the LPC-PA23 Form.

R000015

IEPA COMMENT	BP RESPONSE
4. Exhibit A-4, Public Notice Letter	
Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated.	Exhibit A-4 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp. Additionally, Section 8.4.4 and Exhibit A-3 was revised to include / reference the mailing list provided by Illinois EPA in an email dated June 24, 2024.
5. Exhibit B-1	
Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.	Exhibit B-1 has been revised by a professional land surveyor licensed to practice in Illinois to reflect all vertical parceling exceptions. A legal description of the three-dimensional parcel above elevation 408 ft MSL sold to KMPH has also been added to Exhibit B-1. Additionally, Section B.1.1 has been updated to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).
6. Section B.2.2	
Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).	The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B-5C) have been revised along with Section B.2.2. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the *Information Required in an Application for a RCRA Post-Closure Permit*. Figures B-5B and B-5C have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Exhibit B-2 has been revised to include an updated wind rose diagram dated June 25, 2024, including data from June 1, 2014, through June 25, 2024.

R000016

IEPA COMMENT	BP RESPONSE
7. Section C.3	
Revise Section C.3 to also identify the groundwater classification.	The groundwater classification is already noted in Section C.3 under the subheadings "Perched Groundwater Zones" (Class II: General Resource Groundwater) & "Uppermost Aquifer" (Class I: Potable Resource Groundwater).
8. Section C.4	
a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically: i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate with the exceptions listed in Comment 8.b below; and ii. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comments 8.b and 9 below.	The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B-5C) have been revised. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the *Information Required in an Application for a RCRA Post-Closure Permit*. Figures B-5B and B-5C have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Additionally, Figure C-2 illustrating the current groundwater monitoring well network has been renamed Figure C-2a, and new Figure C-2b illustrating the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023 has been added. Figures C-3 and C-4 have also been revised to reflect the optimized groundwater corrective action monitoring program.

R000017

IEPA COMMENT	BP RESPONSE
b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s) and 703.185(c). The facility must provide additional information to present the following:	
i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area.	i. The text under subheading "Groundwater Flow Directions and Flow Rates" in Section C.3 was revised to include hydraulic conductivities for the Cahokia and Henry Formations. Section C.4 was revised to reference Section C.3 as well as Figure C-1, which illustrates the groundwater elevation contours, flow direction, compliance points, and includes notes for the average hydraulic conductivity for the Cahokia and Henry Formations and the maximum operating capacity for the COD Well System.
ii. An updated Water Well Survey (WWS) must be completed, and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site.	ii. Section C.4 was revised to reflect that a WWS was completed on June 26, 2024, for wells (groundwater extraction and injection) on and within 1,000 feet of the bp Main Plant Property. In addition to the COD wells on the bp Main Plant Property, the WWS identified six extraction wells as shown on Figure B-5A.
9. Section C.8	
Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.	Figure C-4 and Figure C-5 (which has been split into Figures C-5a and C-5b as noted under #10 below) have been revised to include a cross-section indicating the vertical parceling at 408 ft MSL. Additionally, Table C-1 has been revised to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023.

R000018

IEPA COMMENT	BP RESPONSE
10. Section C.8.1.1 and Figure C-5	
Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.	The original Figure C-5 showing Class 1 GQS exceedances for 2018-2019 is now Figure C-5a. New Figure C-5b has been added showing Class I GQS exceedances for 2021-2023. Additionally, the text in Section C.8 has been revised to include Class 1 GQS exceedances for 2021-2023 at wells located within each Land Reuse Area.
11. Section C.8.1.5	
a. Update Cone of Depression (COD) well information to reflect changes since the time of the submittal; and	Section C has been revised to reflect the installation / status of the legacy COD wells and the new COD wells installed in 2023, including well construction detail in Section C.8.1.5.
b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.	Exhibit C-2 has been revised to include available boring logs, as-built diagrams, a process flow diagram, and piping and instrumentation diagrams for the new COD wells.
12. Section C.8.4	
The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.	Section 2.2 of Exhibit C-1 has been revised to remove the reference to use of a peristaltic pump. Additionally, Appendix A of Exhibit C-1 has been updated with the current *Standard Operating Procedure (SOP) for Low-Flow Groundwater Sample Acquisition.*
13. Appendix C of Exhibit C-1	
Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.	Exhibit C-1 has been revised to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023, including Appendix C.

R000019

14. Section C.8.4.5 and Exhibit C-3	
A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies: i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program. ii. Indicate the most current version of the proposed software that will be used. iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.	There is no dispute that Class 1 GQS must be met. As noted, the proposed statistical evaluations using trend analysis will be used as a tool to aid in determining the effectiveness of the corrective action. i. Exhibit C-3 has been revised to include a more robust description of how the Mann-Kendall statistical methodology will be used to evaluate COC concentrations at Main Plant GMZ Boundary Monitoring Wells. ii. Commercially-available computer software Sanitas™ Statistical Software Version 10 (Sanitas) or the most current version of the software will be used. Sanitas programming was designed to conform to requirements of the March 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (Unified Guidance) issued by the USEPA. If licenses or access changes in the future or it is determined that another statistical program suite is preferable, then the alternative statistical program suite will be comparable in ability and utility to Sanitas. iii. The proposed handling of non-detect and estimated results is dictated by best practices from the Unified Guidance (USEPA, 2009) and built into the statistical software being used. In the case of non-detects (ND), the substitution method will be used where the ND (also denoted with a laboratory flag of < or U) value will be replaced by the reporting limit (RL) unless the percentage of NDs is less than 15% in which case the ND will be replaced by half of the RL. This substitution method ensures that the mean of datasets with a majority of detectable results is not biased high which could result in a skewed trend analysis. For datasets with more than 15% ND values, trend analyses will estimate to the RL as the confidence tails off. For estimated (J flag) values, no substitution will be completed; the estimated value provided by the analytical laboratory will be utilized.

R000020

iv. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations. 1. The March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance), must be followed and percentages of non-detections handled accordingly; and 2. Statistical requirements of 35 IAC 724.197 also apply.	iv. RLs are determined due to changes in the USEPA guidelines for the analytical method, equipment accuracy, dilution factor, and the laboratory control for the sample batch, all of which are outside of bp's control. Changes in RLs due to dilution factor were minor (factor of 1 to 5) for G023 (VOCs), G078 (VOCs), G059 (chromium and nickel), and G049 (chromium and nickel). Changes in RLs due to equipment accuracy or to comply with changes to USEPA guidelines are minor (e.g., 2,4-Dinitrophenol RL shift of 10 µg/L in 2013 to 20 µg/L by 2023 and the Class I GQS is 20 µg/L or Fluoranthene RL shift of 0.1µg/L in 2013 to 0.5 µg/L by 2023 and the Class I GQS is 0.5 µg/L) or variances due to laboratory control for the sample batch that affects every batch on a case-by-case is minor (e.g., naphthalene RL variance of 0.45 to 0.50 µg/L for sample batch for the sample event where the Class I GQS is 0.50 µg/L). These minor low-level fluctuations in RLs can cause an increase in the Mann-Kendall statistical evaluation but only for data sets in which the majority of the data being evaluated is ND; discussion of these observations and trends are presented in the Second (Third and Fourth Quarters) Semi-Annual Reports with the most current Main Plant report submittal dated February 1, 2024. As such, the statement in the October 2020 permit renewal application is considered erroneous as these low-level fluctuations do not have a substantial impact on data sets outside of those which are predominantly ND.
v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for antimony, G006 is only analyzed for arsenic, etc.	v. Table C-3 has been revised for clarification and to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023.
vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.	vi. The text in Sections C.8.4.5, C.8.4.8, C.8.4.9, and C.9 has been revised to reflect the proposed change to report statistical evaluations every 5 years in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020.

R000021

15. Section C.8.4.6	
Update Section C.8.4.6 to reflect changes since the time of the submittal.	Section C.8.4.6 has been updated to reflect that the Illinois EPA approved the Main Plant optimized groundwater corrective action monitoring program in a letter dated January 19, 2023. Accordingly, bp submitted a Class 1* Permit Modification Request to Illinois EPA dated February 28, 2023, to propose modifications to Section V of the Permit. The approved optimized groundwater corrective action monitoring program has therefore been incorporated throughout Section C of this application.
16. Section C.8.4.8	
The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.	The text has been revised to reflect the proposed change to report statistical evaluations every 5 years as part of the GMZ Re-evaluation report in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020. Potential statistically significant increases (SSIs) will also be evaluated as part of the GMZ Re-evaluation report.
17. Section C.8.4.9	
Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5.	The text has been revised to reflect that Mann-Kendall statistical methodology will be used.
18. Section C.9	
Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.5.	The text has been revised to reflect the proposed change to report statistical evaluations every 5 years as part of the GMZ Re-evaluation report in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020. Potential statistically significant increases (SSIs) will also be evaluated as part of the GMZ Re-evaluation report.
19. Section F (Groundwater Aspects)	
a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.	Section F.4.2.11 has been revised to reflect the issuance of a RCRA Permit to KMPH on March 4, 2024, and clearly describe the vertical parceling in Area 12 (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).

R000022

b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.	Exhibit F-1 has been revised to document the progression of the bioremediation pilot systems in addition to incorporating the Class 1* Permit modification requests submitted to Illinois EPA on the following dates for the annual updates to Attachment C. • 1/29/2021 • 1/31/2022 • 1/31/2023 • 1/31/2024
20. Section F.4.2	
a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.	Corrective action letters sent to the Illinois EPA and Illinois EPA responses are summarized in new Table F-3. Additionally, the status of each Land Reuse Area is summarized in new Table F-2 as requested by Illinois EPA via email on June 26, 2024.
b. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application: i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area. ii. A copy of the certified ELUC for each applicable Land Reuse Area.	i. All no further action letters are provided in new Exhibit F-4. ii. All certified ELUCs are provided in new Exhibit F-5.
21. Section F.4.2.2.2	
Provide the total size of Area 2 in the detailed description of unit.	Section F.4.2.2 has been revised to include the total size of Area 2 (43.17 acres).
22. Section F.4.2.3.2	
Provide the screening interval during field screening investigation from November 2002 to July 2003.	Section F.4.2.3.2 has been revised to reflect that soil samples were collected at approximate depths of 3 to 8 feet below ground surface.

R000023

23. Section F.6	
Revise Exhibit F-2 based on the following comments:	Exhibit F-2 has been revised as follows:
i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.	i. The labor costs on page 1 have been revised to align with the correct costs on page 2.
ii. Check for consistency between the task objective for Area 5, mentioning four remediation areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.	ii. The task objective for Area 5 on page 9 has been revised to align with the correct text in F.4.2.5.
iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.	iii. The text in F.4.2.6 has been revised to clarify five of seven remediation areas required delineation; the task objective for Area 6 on page 13 has been revised to align with the revised text.
iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.	iv. As stated in the Class 1* Permit Modification request dated December 20, 2017, the 2017 Corrective Action Cost Estimate for Financial Assurance was prepared using the Illinois EPA LUST Program Maximum Payment Amount for LUST lab rates were used for the laboratory rates.
v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.	v. A table summarizing bp Job Categories for Environmental Services has been added to Exhibit F-2.

R000024

RCRA PART B PERMIT RENEWAL APPLICATION

MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS
1191150001 - MADISON COUNTY
USEPA ILD980700967

PREPARED FOR:

BP PRODUCTS NORTH AMERICA INC.
301 EVANS AVENUE
WOOD RIVER, ILLINOIS 62095

SUBMITTED TO:

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF LAND
1021 NORTH GRAND AVENUE EAST
SPRINGFIELD, ILLINOIS 62794-9276

SUBMITTED BY:

WOOD ENVIRONMENTAL &
INFRASTRUCTURE SOLUTIONS, INC.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MISSOURI 63011

SOVEREIGN CONSULTING, INC.
111-A NORTH GOLD DRIVE
ROBBINSVILLE, NJ 08691

OCTOBER 8, 2020

REVISION SUBMITTAL DATE: JULY 29, 2024

List of Acronyms

%	percent
°C	degrees Celsius
µg/L	micrograms per liter
ALR	action leakage rate
APAC	Amoco Petroleum Additives Company
API	American Petroleum Institute
AS/SVE	Air Sparge / Soil Vapor Extraction
AST	above-ground storage tank
bgs	below ground surface
BOL	Bureau Of Land
bp	BP Products North America, Inc.
BTEX	benzene, toluene, ethylbenzene, and total xylenes
CCA	Compliance Commitment Agreement
CCR	Current Conditions Report
CERA	Current Estimated Remediation Area
cm	centimeter
COCs	constituents of concern
COD	Cone of Depression
COPC	constituents of potential concern
cPAH	carcinogenic PAH
CPSDA	Cooling Pond Sludge Disposal Area
CPT-UVOST	Cone Penetrometer Test - Ultraviolet Optical Screening Tool
DAF	dissolved air flotation
DAP	Detergent Additives Plant
DPVA	Deer Park Viewing Area
EFR	Enhanced Fluid Recovery
ELTC	Experimental Land Treatment Cell
ELUC	Environmental Land Use Control
EM	electromagnetic
FCU	Fluidized Catalytic Unit
FOC	Fraction of Organic Carbon
ft	foot or feet (Imperial unit)
GMP	Groundwater Monitoring Program
GMZ	Groundwater Management Zone
gpm	gallons per minute
GQS	Groundwater Quality Standards
HCl	Hydrochloric Acid
HDPE	high density polyethylene
HMI	Human Machine Interface
HNO_3	Nitric Acid
HRS	Hydrocarbon Recovery System

IAC	Illinois Administrative Code
ICP	Inductively Coupled Plasma
IEMA	Illinois Environmental Management Agency
Illinois EPA	Illinois Environmental Protection Agency
IRM	interim remedial measure
KMPH	Kinder Morgan Phoenix Holdings, LLC
kv	kilovolts
LCS	Leachate Collection System
LDS	Leak Detection System
LEL	lower explosive limit
LNAPL	Light Non-Aqueous Phase Liquid
LPG	Liquid Propane Gas
LQG	Large Quantity Generator
LRI	Land Reuse Investigation
LUST	leaking underground storage tank
MAP	Multipurpose Additives Plant
MEK	2-Butanone (Methyl Ethyl Ketone)
mg/kg	milligrams per kilogram
MIP	Membrane Interface Probe
ml	milliliter
MPOW	Main Plant Observation Well
MS/MSD	Matrix Spike / Matrix Spike Duplicate
MSL	Mean Sea Level
MTBE	Methyl Tertiary-Butyl Ether
NA	not available
NAICS	North American Industry Classification System
NC-SP1	North Cell of Spray Pond 1
NFA	No Further Action
NS	not surveyed
NTU	Nephelometric Turbidity unit
OFTA	Old Fire Training Area
OWS	Oil-Water Separator
PAHs	polycyclic aromatic hydrocarbons
PID	photoionization detector
PLC	Programmable Logic Controller
POTW	Publicly Owned Treatment Works
ppm	parts per million
PRS	Product Release Site
psi	pounds per square inch
QAPP	Quality Assurance Project Plan
RA	Remediation Area
RACR	Remedial Action Completion Report
RCRA	Resource Conservation and Recovery Act

REC	Recognized Environmental Conditions
RFA	RCRA Facility Assessment
RFI	RCRA Facility Investigation
ROs	remediation objectives
scfm	standard cubic feet per minute
SCDA	Southeast Corner Disposal Area
sec	second
SFP	South Flare Pit
SIWP	Supplemental Investigation Work Plan
SLAB	Spent Lead-Acid Batteries
SOP	Standard Operating Procedure
SPLP	Synthetic Precipitation Leaching Procedure
SQG	Small Quantity Generator
SSI	Statistically Significant Increase
SVOCs	Semi-Volatile Organic Compounds
SW846	Test Methods for Evaluating Solid Wastes, Physical/Chemical, Update III (1996)
SWMU	Solid Waste Management Unit
TA	Temporary Authorization
TACO	Tiered Approach to Corrective Action Objectives
TCDA	Tank Car Dumping Area
TCLP	Toxicity Characteristic Leaching Procedure
TEL	Tetraethyl lead
TPH	Total Petroleum Hydrocarbons
UMA	Uppermost Aquifer
UPI	Underground Piping Investigation
USEPA	United States Environmental Protection Agency
USGS	United States Geological Survey
VMP	Vapor Monitoring Point
VOCs	Volatile Organic Compounds
VSQG	Very Small Quantity Generator
WP	Work Plan
WRDLD	Wood River Drainage and Levee District
WWS	water well survey
WWTP	Wastewater Treatment Plant
XRF	X-ray fluorescence

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EXHIBITS

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Exhibit A-1b Hazardous Waste Permit Part A Form

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Exhibit A-4 Public Notice Letter

SECTION A – FORMS, CERTIFICATIONS, CONFIDENTIALITY, AND PUBLIC INVOLVEMENT

This Resource Conservation and Recovery Act (RCRA) Part B Permit Application (Application) for the BP Products North America, Inc. (bp) Former Wood River Refinery Main Plant Property (bp Main Plant Property) has been developed to demonstrate compliance with relevant portions of Title 35 of the Illinois Administrative Code (IAC) and the Illinois Environmental Protection Act, the applicable sections of which are listed after subpart heading (e.g., 702.121 below is a reference to 35 IAC Section 702.121).

A.1 RCRA Part A Application Form: 702.121, 702.123, 702.126(a) and (d), 703.181

Hazardous waste is not treated, stored, nor disposed of at the bp Main Plant Property. A completed RCRA Subtitle C Site Identification Form is included as Exhibit A-1a, and a completed Hazardous Waste Permit Part A Form is included at Exhibit A-1b.

A.2 Certification Using the LPC-PA23 Form: 703.182

A.2.1 Facility Certification 702.121, 703.182, 702.126, 702.126(d)

The completed, signed and sealed LPC-PA23 form that meets the requirements for Technical Information Certification is included as Exhibit A-2.

A.2.2 Technical Information Certification 703.182, Illinois Professional Engineering Act

The completed, signed and sealed LPC-PA23 form that meets the requirements for Technical Information Certification is included as Exhibit A-2.

A.2.3 39i Certification: Section 39(i) of Environmental Protection Act

The owner/operator of the bp Main Plant Property is a legal entity, BP Products North America, Inc. (bp), and Michelle Knapp, Liability Manager of BP Main Plant Property, is the authorized representative for BP.

The completed and signed 39(i) Certification for Operating a Waste Management Facility for a Legal Entity and 39(i) Certification for Operating a Waste Management Facility for an Individual are attached as Exhibit A-2.

A.3 Public Disclosure Exemption Claims and Trade Secret Claims

A.3.1 No Information Claimed Exempt from Public Disclosure

None of the information included in this Application contains any confidential data, trade secrets, or privileged information; therefore, this section and all sub-sections are not applicable.

A.4 Public Participation: Facility Mailing List & Information Repositories: Environmental Protection Act, Section 39(d), 703.193, 703.248, 705.163

A.4.1 Facility Mailing List

The facility mailing list is provided in both print and electronic forms in Exhibit A-3.

A.4.2 Identification of Repositories

All information submitted to the Illinois EPA in furtherance of this permit renewal application will be made available to the public no later than the date this permit renewal application is submitted to the Illinois EPA. The repositories will be available for review during regular office hours. The repositories will be the Wood River Municipal Office and the Wood River Public Library.

Name:	Wood River Municipal Office
Address:	111 N. Wood River Avenue Wood River, IL 62095
Contact:	Jan Sneed
Phone:	618-251-3100
Hours:	8:00AM – 5:00PM M-F

Name:	Wood River Public Library
Address:	326 E. Ferguson Avenue Wood River, IL 62095
Contact:	Lindsey Herron
Phone:	618-254-4832
Hours:	Mon-Thu 9:00 AM - 6:00 PM Fri-Sat 9:00 AM - 4:30 PM

A.4.3 Contents of Repository

The repository contents will include information submitted to the Illinois EPA related to this RCRA permit application. bp will maintain, verify and update the contents of the repository throughout the application process.

The repository will be organized and kept up to date. A comprehensive inventory of all documents in the repository will be maintained, including a brief description of each document listed. bp will visit the repository on a regular basis to ensure its organization is maintained.

A.4.4 Public Notice of Repository Availability

The public notice of the repository's availability for public review was sent to the individuals on the facility mailing list on October 9, 2020. A copy of the letter is included in Exhibit A-4. The facility mailing list was revised on June 24, 2024.

Exhibit A-1a

RCRA Subtitle C Site Identification Form

OMB# 2050-0024; Expires 04/30/2024

United States Environmental Protection Agency
RCRA SUBTITLE C SITE IDENTIFICATION FORM

1. Reason for Submittal (Select only one.)

☐	Obtaining or updating an EPA ID number for on-going regulated activities (Items 10-17 below) that will continue for a period of time.
☐	Submitting as a component of the Hazardous Waste Report for _____ (Reporting Year)
	☐ Site was a TSD facility, a reverse distributor, and/or generator of ≥ 1,000 kg of non-acute hazardous waste, > 1 kg of acute hazardous waste, or > 100 kg of acute hazardous waste spill cleanup in **one or more months of the reporting year** (or State equivalent LQG regulations)
☐	Notifying that regulated activity is no longer occurring at this Site
☐	Obtaining or updating an EPA ID number for conducting Electronic Manifest Broker activities
☑	Submitting a new or revised Part A (permit) Form

2. Site EPA ID Number

I	L	D	9	8	0	7	0	0	9	6	7

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3. Site Name

BP Wood River Main Plant Property

4. Site Location Address

Street Address **301 Evans Avenue**		
City, Town, or Village **Wood River**		County **Madison**
State **IL**	Country **USA**	Zip Code **62095**
Latitude	Longitude	☐ Use Lat/Long as Primary Address

5. Site Mailing Address ☐ Same as Location Street Address

Street Address **P.O. Box 167**		
City, Town, or Village **Wood River**		
State **IL**	Country **USA**	Zip Code **62095**

6. Site Land Type

☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other

7. North American Industry Classification System (NAICS) Code(s) for the Site (at least 5-digit codes)

A. (Primary) **562910**	C.
B.	D.

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 | OMB# 2050-0024; Expires 04/30/2024

8. Site Contact Information ☑ Same as Location Address

First Name **Michelle**	MI	Last Name **Knapp**
Title **Liability Manager**		
Street Address		
City, Town, or Village		
State	Country	Zip Code
Email **michelle.knapp@bp.com**		
Phone **847-346-7112**	Ext	Fax

9. Legal Owner and Operator of the Site

A. Name of Site's Legal Owner ☑ Same as Location Address

Full Name **BP PRODUCTS NORTH AMERICA INC.**	Date Became Owner (mm/dd/yyyy)
Owner Type ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other	
Street Address	
City, Town, or Village	
State / Country / Zip Code	
Email	
Phone / Ext / Fax	
Comments	

B. Name of Site's Legal Operator ☑ Same as Location Address

Full Name **BP PRODUCTS NORTH AMERICA INC.**	Date Became Operator (mm/dd/yyyy)
Operator Type ☑ Private ☐ County ☐ District ☐ Federal ☐ Tribal ☐ Municipal ☐ State ☐ Other	
Street Address	
City, Town, or Village	
State / Country / Zip Code	
Email	
Phone / Ext / Fax	
Comments	

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EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 |

OMB# 2050-0024; Expires 04/30/2024

10. Type of Regulated Waste Activity (at your site)

Mark "Yes" or "No" for all current activities (as of the date submitting the form); complete any additional boxes as instructed.

A. Hazardous Waste Activities

☑ Y ☐ N	1. Generator of Hazardous Waste—If "Yes", mark only one of the following—a, b, c	
☐	a. LQG	-Generates, in any calendar month, 1,000 kg/mo (2,200 lb/mo) or more of non-acute hazardous waste (includes quantities imported by importer site); or - Generates, in any calendar month, or accumulates at any time, more than 1 kg/mo (2.2 lb/mo) of acute hazardous waste; or - Generates, in any calendar month or accumulates at any time, more than 100 kg/mo (220 lb/mo) of acute hazardous spill cleanup material.
☐	b. SQG	100 to 1,000 kg/mo (220-2,200 lb/mo) of non-acute hazardous waste and no more than 1 kg (2.2 lb) of acute hazardous waste and no more than 100 kg (220 lb) of any acute hazardous spill cleanup material.
☑	c. VSQG	Less than or equal to 100 kg/mo (220 lb/mo) of non-acute hazardous waste.
☐ Y ☑ N	2. Short-Term Generator (generates from a short-term or one-time event and not from on-going processes). If "Yes", provide an explanation in the Comments section. *Note: If "Yes", you MUST indicate that you are a Generator of Hazardous Waste in Item 10.A.1 above.*	
☐ Y ☑ N	3. Treater, Storer or Disposer of Hazardous Waste—Note: Part B of a hazardous waste permit is required for these activities.	
☐ Y ☑ N	4. Receives Hazardous Waste from Off-site	
☐ Y ☑ N	5 Recycler of Hazardous Waste	
☐	a. Recycler who stores prior to recycling	
☐	b. Recycler who does not store prior to recycling	
☐ Y ☑ N	6. Exempt Boiler and/or Industrial Furnace—If "Yes", mark all that apply.	
☐	a. Small Quantity On-site Burner Exemption	
☐	b. Smelting, Melting, and Refining Furnace Exemption	

B. Waste Codes for Federally Regulated Hazardous Wastes. Please list the waste codes of the Federal hazardous wastes handled at your site. List them in the order they are presented in the regulations (e.g. D001, D003, F007, U112). Use an additional page if more spaces are needed.

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C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes. Please list the waste codes of the State hazardous wastes handled at your site. List them in the order they are presented in the regulations. Use an additional page if more spaces are needed.

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 | OMB# 2050-0024; Expires 04/30/2024

1. Additional Regulated Waste Activities (NOTE: Refer to your State regulations to determine if a separate permit is required.)

A. Other Waste Activities

☐ Y ☑ N	1. Transporter of Hazardous Waste—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Underground Injection Control
☐ Y ☑ N	3. United States Importer of Hazardous Waste
☐ Y ☑ N	4. Recognized Trader—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter
☐ Y ☑ N	5. Importer/Exporter of Spent Lead-Acid Batteries (SLABs) under 40 CFR 266 Subpart G—If "Yes", mark all that apply.
☐	a. Importer
☐	b. Exporter

B. Universal Waste Activities

☐ Y ☑ N	1. Large Quantity Handler of Universal Waste (you accumulate 5,000 kg or more) - If "Yes" mark all that apply. Note: Refer to your State regulations to determine what is regulated.
☐	a. Batteries
☐	b. Pesticides
☐	c. Mercury containing equipment
☐	d. Lamps
☐	e. Aerosol Cans
☐	f. Other (specify) _____
☐	g. Other (specify) _____
☐ Y ☑ N	2. Destination Facility for Universal Waste Note: A hazardous waste permit may be required for this activity.

C. Used Oil Activities

☐ Y ☑ N	1. Used Oil Transporter—If "Yes", mark all that apply.
☐	a. Transporter
☐	b. Transfer Facility (at your site)
☐ Y ☑ N	2. Used Oil Processor and/or Re-refiner—If "Yes", mark all that apply.
☐	a. Processor
☐	b. Re-refiner
☐ Y ☑ N	3. Off-Specification Used Oil Burner
☐ Y ☑ N	4. Used Oil Fuel Marketer—If "Yes", mark all that apply.
☐	a. Marketer Who Directs Shipment of Off-Specification Used Oil to Off-Specification Used Oil Burner
☐	b. Marketer Who First Claims the Used Oil Meets the Specifications

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EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 | **OMB# 2050-0024; Expires 04/30/2024**

D. Pharmaceutical Activities

☐ Y ☑ N	1. Operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals—if "Yes", mark only one. Note: See the item-by-item instructions for definitions of healthcare facility and reverse distributor.
☐	a. Healthcare Facility
☐	b. Reverse Distributor
☐ Y ☑ N	2. Withdrawing from operating under 40 CFR Part 266, Subpart P for the management of hazardous waste pharmaceuticals. Note: You may only withdraw if you are a healthcare facility that is a VSQG for all of your hazardous waste, including hazardous waste pharmaceuticals.

12. Eligible Academic Entities with Laboratories—Notification for opting into or withdrawing from managing laboratory hazardous wastes pursuant to 40 CFR Part 262, Subpart K.

☐ Y ☑ N	A. Opting into or currently operating under 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories— If "Yes", mark all that apply. Note: See the item-by-item instructions for definitions of types of eligible academic entities.
☐	1. College or University
☐	2. Teaching Hospital that is owned by or has a formal written affiliation with a college or university
☐	3. Non-profit Institute that is owned by or has a formal written affiliation with a college or university
☐ Y ☑ N	B. Withdrawing from 40 CFR Part 262, Subpart K for the management of hazardous wastes in laboratories.

13. Episodic Generation

☐ Y ☑ N	Are you an SQG or VSQG generating hazardous waste from a planned or unplanned episodic event, lasting no more than 60 days, that moves you to a higher generator category. If "Yes", you must fill out the Addendum for Episodic Generator.

14. LQG Consolidation of VSQG Hazardous Waste

☐ Y ☑ N	Are you an LQG notifying of consolidating VSQG Hazardous Waste Under the Control of the Same Person pursuant to 40 CFR 262.17(f)? If "Yes", you must fill out the Addendum for LQG Consolidation of VSQG hazardous waste.

15. Notification of LQG Site Closure for a Central Accumulation Area (CAA) (optional) OR Entire Facility (required)

☐ Y ☑ N	LQG Site Closure of a Central Accumulation Area (CAA) or Entire Facility.
	A. ☐ Central Accumulation Area (CAA) or ☐ Entire Facility
	B. Expected closure date: _____ mm/dd/yyyy
	C. Requesting new closure date: _____ mm/dd/yyyy
	D. Date closed : _____ mm/dd/yyyy ☐ 1. In compliance with the closure performance standards 40 CFR 262.17(a)(8) ☐ 2. Not in compliance with the closure performance standards 40 CFR 262.17(a)(8)

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PERMIT SECTION

EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 | **OMB# 2050-0024; Expires 04/30/2024**

16. Notification of Hazardous Secondary Material (HSM) Activity

☐ Y ☑ N	Are you notifying under 40 CFR 260.42 that you will begin managing, are managing, or will stop managing hazardous secondary material under 40 CFR 260.30, 40 CFR 261.4(a)(23), (24), (25), or (27)? If "Yes", you must fill out the Addendum to the Site Identification Form for Managing Hazardous Secondary Material.

17. Electronic Manifest Broker

☐ Y ☑ N	Are you notifying as a person, as defined in 40 CFR 260.10, electing to use the EPA electronic manifest system to obtain, complete, and transmit an electronic manifest under a contractual relationship with a hazardous waste generator?

18. Comments (include item number for each comment)

19. Certification I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations. **Note: For the RCRA Hazardous Waste Part A permit Application, all owners and operators must sign (see 40 CFR 270.10(b) and 270.11)**.

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy) 7/9/2024
Printed Name (First, Middle Initial Last) **Michelle Knapp**	Title **Liability Manager**
Email **michelle.knapp@bp.com**	

Signature of legal owner, operator or authorized representative	Date (mm/dd/yyyy)
Printed Name (First, Middle Initial Last)	Title
Email	

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EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 |

OMB# 2050-0024; Expires 04/30/2024

United States Environmental Protection Agency

HAZARDOUS WASTE PERMIT PART A FORM

1. Facility Permit Contact

First Name	**Michelle**	MI		Last Name	**Knapp**
Title	**Liability Manager**				
Email	**michelle.knapp@bp.com**				
Phone	**847-346-7112**	Ext		Fax	

2. Facility Permit Contact Mailing Address

Street Address	**301 Evans Avenue**		
City, Town, or Village	**Wood River**		
State **IL**	Country **USA**	Zip Code **62095**	

3. Facility Existence Date (mm/dd/yyyy)

8/1/1907

4. Other Environmental Permits

A. Permit Type	B. Permit Number	C. Description
E	950600480	CLEAN AIR ACT PERMIT
E	2020-EP-64994	WASTEWATER PERMIT
R	B147RM17&M18	RCRA PERMIT

5. Nature of Business

Former Refinery currently in the process of being remediated. Hazardous Waste is not handled, stored, transported or disposed of at the BP Main Plant property.

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EPA ID Number | I | L | D | 9 | 8 | 0 | 7 | 0 | 0 | 9 | 6 | 7 | **OMB# 2050-0024; Expires 04/30/2024**

6. Process Codes and Design Capacities

Line Number		A. Process Code			B. Process Design Capacity (1) Amount	B. Process Design Capacity (2) Unit of Measure	C. Process Total Number of Units	D. Unit Name

7. Description of Hazardous Wastes (Enter codes for Items 7.A, 7.C and 7.D(1))

Line No.		A. EPA Hazardous Waste No.				B. Estimated Annual Qty of Waste	C. Unit of Measure	D. Processes (1) Process Codes								D. Processes (2) Process Description (if code is not entered in 7.D1))

8. Map

Attach to this application a topographical map, or other equivalent map, of the area extending to at least one mile beyond property boundaries. The map must show the outline of the facility, the location of each of its existing intake and discharge structures, each of its hazardous waste treatment, storage, or disposal facilities, and each well where it injects fluids underground. Include all spring, rivers, and other surface water bodies in this map area. See instructions for precise requirements.

9. Facility Drawing

All existing facilities must include a scale drawing of the facility. See instructions for more detail.

10. Photographs

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment, and disposal areas; and sites of future storage, treatment, or disposal areas. See instructions for more detail.

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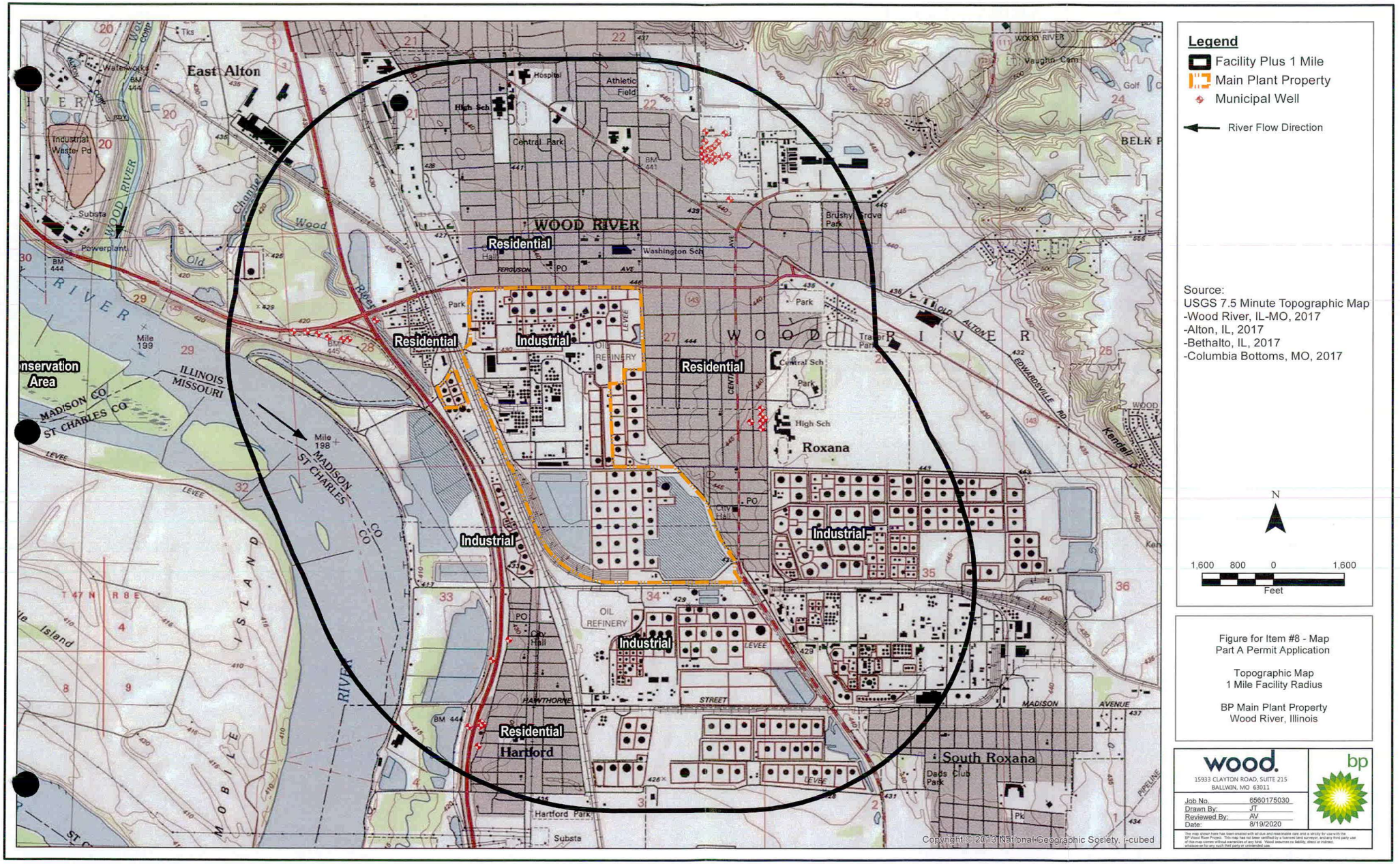
11. Comments



Legend

- Facility Plus 1 Mile
- Main Plant Property
- Municipal Well
- River Flow Direction

Source:
USGS 7.5 Minute Topographic Map
-Wood River, IL-MO, 2017
-Alton, IL, 2017
-Bethalto, IL, 2017
-Columbia Bottoms, MO, 2017

N

1,600 800 0 1,600
Feet

Figure for Item #8 - Map
Part A Permit Application

Topographic Map
1 Mile Facility Radius

BP Main Plant Property
Wood River, Illinois

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

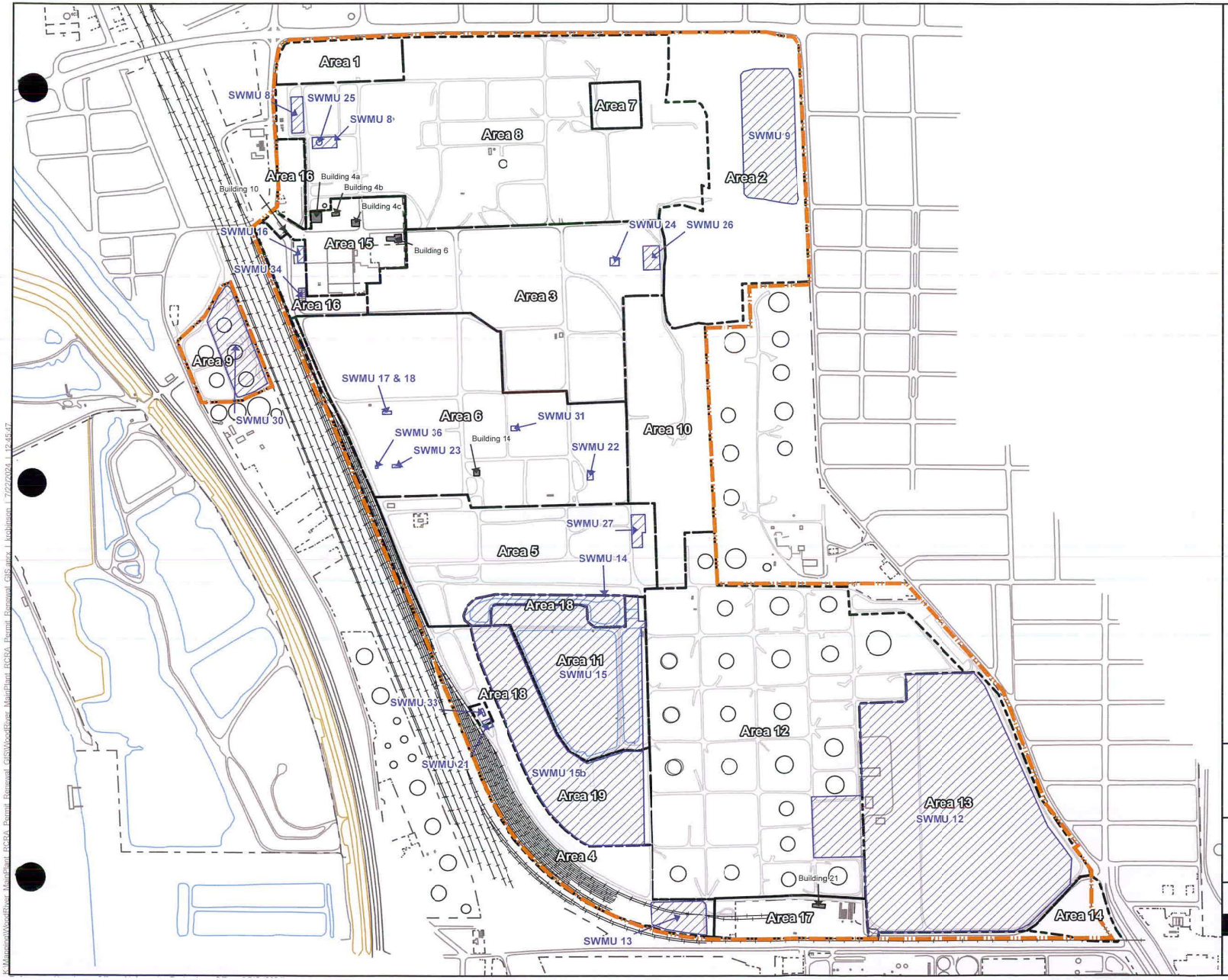
bp

Job No.	6560175030
Drawn By:	JT
Reviewed By:	AV
Date:	8/19/2020

The map shown here has been created with all due and reasonable care and is strictly for use with the BP Wood River Project. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. Wood assumes no liability, direct or indirect, whatsoever to any such third party or unintended use.

R000041

REVISION DATE: 07/09/2024



Legend

- Main Plant
- Buildings
- Main Plant Land Reuse Areas
- Solid Waste Management Unit (SWMU)

Notes:

SWMU DESCRIPTION - MAIN PLANT

SWMU 8 Three Leaded Tank Bottom Disposal Areas (100'x300')
SWMU 9 Northeast Sand Pits (750'x1,200')
SWMU 12 Southeast Disposal Area (80 acres)
SWMU 13 API Separator Sludge Landform (450'x100')
SWMU 14 North Cell/Spray Pond 1 (NC-SP1) (3.5 acres)
SWMU 15 Spray Ponds Other Than North Cell/Spray Pond1 (29.5 acres)
SWMU 16 Old API Separator (50'x120')
SWMU 17 Additives Waste Pit (45'x30')
SWMU 18 DAP Spent Filter Cake Storage (100'x100')
SWMU 21 Former APAC Waste Transfer Area (50'x75')
SWMU 22 New APAC Waste Transfer Area (50'x70')
SWMU 23 MAP Spent Filter Cake Storage Area (one 10'X100', two 10'X50')
SWMU 24 APAC Slop Oil Tank 70 (62'x62')
SWMU 25 APAC Slop Oil Tank 176 (100'X100')
SWMU 26 APAC Slop Oil Tank 189, 190, 845 and 846T (0.53 acres)
SWMU 27 APAC Slop Oil Tank 277 Area (0.51 acres)
SWMU 30 Korea Tank Farm Disposal Areas (4.24 acres)
SWMU 31 Waste Phenol Accumulation Area (25'x50')
SWMU 33 South Flare Pit (75'x25')
SWMU 34 Amoco's Sewer System (5.33'x24')
SWMU 36 Liquid Waste Collection Bin (24'x24')

BUILDING DESCRIPTIONS

4a Office Building (6545 sf)
4b Garages 9 and 10, Electrical Room (3420 sf)
4c Garages 1, 2, 3 and 4 (3260 sf)
6 Remediation Office Building (4,596 sf)
10 Guard House at Main Gate (249 sf)
14 Electrical Storage Building (1,630 sf)
21 NGL Storage, Maintenance & Office Building (2,108 sf)

N W E S

0 350 700 1,400

1 INCH = 700 FEET

FIGURE FOR ITEM #9-FACILITY DRAWING
RCRA PART A PERMIT APPLICATION

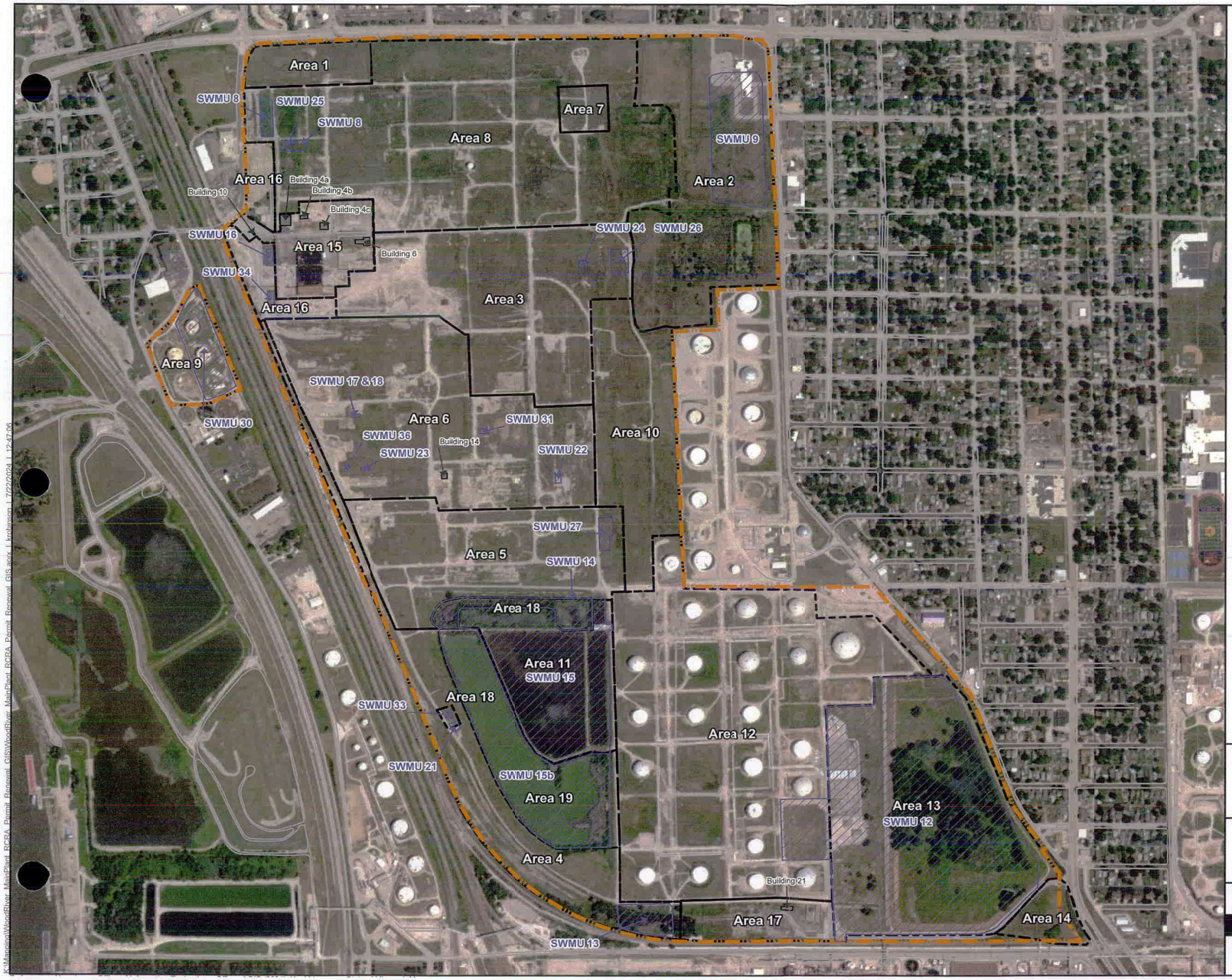
Main Plant Facility
BP Main Plant Property
Wood River, Illinois

Date: 08/19/20; Revised: 7/9/2024

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

R000042

REVISION DATE: 07/05/2024



Legend

- Main Plant
- Buildings
- Main Plant Land Reuse Areas
- Solid Waste Management Unit (SWMU)

Notes:

SWMU DESCRIPTION - MAIN PLANT

SWMU 8 Three Leaded Tank Bottom Disposal Areas (100'x300')
SWMU 9 Northeast Sand Pits (750'x1,200')
SWMU 12 Southeast Disposal Area (80 acres)
SWMU 13 API Separator Sludge Landform (450'x100')
SWMU 14 North Cell/Spray Pond 1 (NC-SP1) (3.5 acres)
SWMU 15 Spray Ponds Other Than North Cell/Spray Pond1 (29.5 acres)
SWMU 16 Old API Separator (50'x120')
SWMU 17 Additives Waste Pit (45'x30')
SWMU 18 DAP Spent Filter Cake Storage (100'x100')
SWMU 21 Former APAC Waste Transfer Area (50'x75')
SWMU 22 New APAC Waste Transfer Area (50'x70')
SWMU 23 MAP Spent Filter Cake Storage Area (one 10'X100', two 10'X50')
SWMU 24 APAC Slop Oil Tank 70 (62'x62')
SWMU 25 APAC Slop Oil Tank 176 (100'X100')
SWMU 26 APAC Slop Oil Tank 189, 190, 845 and 846T (0.53 acres)
SWMU 27 APAC Slop Oil Tank 277 Area (0.51 acres)
SWMU 30 Korea Tank Farm Disposal Areas (4.24 acres)
SWMU 31 Waste Phenol Accumulation Area (25'x50')
SWMU 33 South Flare Pit (75'x25')
SWMU 34 Amoco's Sewer System (5.33'x24')
SWMU 36 Liquid Waste Collection Bin (24'x24')

BUILDING DESCRIPTIONS

4a Office Building (6545 sf)
4b Garages 9 and 10, Electrical Room (3420 sf)
4c Garages 1, 2, 3 and 4 (3260 sf)
6 Remediation Office Building (4,596 sf)
10 Guard House at Main Gate (249 sf)
14 Electrical Storage Building (1,630 sf)
21 NGL Storage, Maintenance & Office Building (2,108 sf)

N W E S

0 350 700 1,400

1 INCH = 700 FEET

FIGURE FOR ITEM #10-PHOTOGRAPHS
RCRA PART A PERMIT APPLICATION

Aerial Photograph of Main Plant Facility
BP Main Plant Property
Wood River, Illinois

Date: 08/19/20; Revised: 7/9/2024

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

Exhibit A-2

LPC-PA23 Form and 39(i) Certification

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 1191150001 USEPA ID Number: ILD980700967

Site Name: BP Wood River - Main Plant Property

Physical Site Location (street, road, etc.): 301 Evans Avenue

City: Wood River Zip Code: 62095 County: Madison

Existing RCRA Permit (if applicable): Log No. B-147R-M-17 and M-18

II. Owner/Operator Identification

Owner Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847-346-7112

Email: michelle.knapp@bp.com

Operator Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847-346-7112

Email: michelle.knapp@bp.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

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III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number _____
- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

☐ Storage	☐ Treatment	☐ Disposal	☐ Incineration
☑ Groundwater	☑ Corrective Action	☐ UIC Class I	☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

BP Wood River Main Plant Property Part B RCRA permit renewal application

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

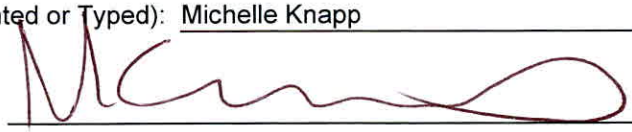
Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Michelle Knapp

Owner Signature:  Date: 7/5/24

Title: Liability Manager

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Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Michelle Knapp

Operator Signature: MC Date: 7/5/24

Title: Liability Manager

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 5th day of July 20 24

INAYAT I PRADHAN
Official Seal
Notary Public - State of Illinois
My Commission Expires Jul 5, 2026

Notary Signature: Inayat Pradhan

My commission expires on: July 5 2026

Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Print or Type): Michael J. Hoffman

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Engineer Signature: Michael J. Hoffman

Illinois License No.: 062-037839

Expiration Date of License: 11/30/2025

Engineer Phone No. 309-692-4422

Email: michael.hoffman@wsp.com

Engineer Address:

2412 W. Nebraska Ave.
Peoria, IL 61604

MICHAEL J. HOFFMAN
62-0037839
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Instructions for
RCRA Permit Application Form LPC-PA23

The following instructions are designed to aid in the completion of the RCRA Permit Application Form LPCPA23. If you have additional questions regarding the form, or the informational requirements, please contact the Illinois EPA Bureau of Land (BOL) Permit Section at 217-524-3300.

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. If an application has already been submitted to the Agency, a completed RCRA Permit Application Form must accompany all additional information that is submitted to the agency for that application. An example of "additional information" would be a response to verbal or written comments from the Agency. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

I. Site Identification

Enter all of the required information in the space provided. If you do not have an Illinois or USEPA identification number, call the Illinois EPA BOL Waste Reduction and Compliance Section at 217-785-8604 to obtain these numbers prior to completing the form.

II. Owner/Operator Identification

The terms "owner" and "operator" are defined at 35 IAC 720.110 and 702.110. If the facility has the same owner and operator, you may type in "same" under operator information. Also, if the contact person for an application is different from the owner or operator (i.e. the consultant), please indicate this in the cover letter for the application.

III. Permit Application Identification

Indicate both the type of application and the kind of waste management involved. For instance, if the application involves more than one type of waste management, check all applicable options.

IV. Signatures

The signatory requirements for permit applicants are identified at 35 IAC 702.126 and 702.151. If the facility has the same owner and operator, you may type in "same" under operator information.

Notary Public: A notary public's signature and stamp are required for both the owner and operator signatures on the form.

Engineer Certification: A professional engineer that is licensed in the State of Illinois must certify all technical information provided in a permit application. 35 IAC 703.182 describes the types of information that must be certified by a professional engineer.

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Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: BP Wood River Main Plant Property — IEPA BOL No.: 1191150001
Site Address: 301 Evans Avenue
City: Wood River — State: IL — Zip Code: 62095
Permit Numbers (if applicable): B-147R-M-17 & M-18

Owner
Owner Name: BP Products North America Inc.
Street Address: 301 Evans Avenue
City: Wood River — State: IL — Zip: 62095

Operator
Operator Name: BP Products North America Inc.
Street Address: 301 Evans Avenue
City: Wood River — State: IL — Zip: 62095

Is this 39(i) certification for the owner or the operator?

◯ Owner ◯ Operator ☑ Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Joseph Sontchi	Vice President

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B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
Michelle Knapp	Liability Manager

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if the following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

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Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Joseph Sontchi — Signature of Applicant Officer

9 July 2024 — Date

Joseph Sontchi — Printed Name

Vice President — Title

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Attachment A (1 of 1)

This Attachment must be completed for each owner or operator, and for each officer or employee identified in Section II, for whom one or more affirmative responses were included in Section III.

Name: _____ Title: _____

Status: ☐ Owner ☐ Operator ☐ Officer ☐ Employee (check all that apply)

A. Prior Findings or Convictions

1. Has there been a finding that the person named above violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ◯ Yes ◯ No

2. Has the person named above ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ◯ Yes ◯ No

3. Has there been a finding against the person named above of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ◯ Yes ◯ No

If the answer to any of the above questions is Yes, attach a copy of each final administrative or judicial determination that required an affirmative response.

B. Pending Proceedings

Is there any proceeding currently pending that could result in one of the following:

1. A conviction or finding described in subsection A, above? ◯ Yes ◯ No

2. The reversal of a conviction or finding described in subsection A, above? ◯ Yes ◯ No

If the answer to any of the above questions is Yes, please provide information about the pending proceeding, including the parties involved, the adjudicating body, the docket number, the nature of the proceeding, and the status. The box below will expand as needed. Attach additional sheets if necessary.

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Exhibit A-3

Mailing List

Alton Telegraph
219 Piasa St., PO Box 278
Alton, IL 62002

United States Senator
The Honorable Richard Durbin
230 S. Dearborn Street, Suite 3892
Chicago, IL 60604

United States Senator
The Honorable Tammy Duckworth
230 S. Dearborn Street, Suite 3900
Chicago, IL 60604

U.S. Representative, District 12
The Honorable Mike Bost
302 West State Street
O'Fallon, IL 62269

Illinois State Senator, District 56
The Honorable Erica Harriss
120 North Main Street, Suite 1B
Edwardsville, IL 62025

Illinois State Representative, District 111
The Honorable Amy Elik
192 Alton Square Mall Dr., Suite C
Alton, IL 62002

Illinois State Representative, District 112
The Honorable Katie Stuart
2105 Vandalia St., Unit 16m
Collinsville, IL 62234

USEPA - Region V, Land, Chemicals & Redevelopment Division
D. Scott Ireland, Chief
77 West Jackson Blvd., MC: LR-17J
Chicago, IL 60604

USEPA - Region V, Land, Chemicals & Redevelopment Division
Mary Setnicar, Associate Chief
77 West Jackson Blvd., MC: LL-17J
Chicago, IL 60604

USEPA - Region V, Land, Chemicals & Redevelopment Division
RCRA C&D Section Susan Mooney, Chief
77 West Jackson Blvd., MC: LL-17J
Chicago, IL 60604

USEPA - Region V, Land, Chemicals & Redevelopment Division
Public Affairs Specialist
77 West Jackson Blvd., MC: RE-19K
Chicago, IL 60604

Illinois EPA- Reg. Off. Manager, Bureau of Land
Chris Cahnovsky
1101 Eastport Plaza Drive, Suite 100
Collinsville, IL 62234

Illinois EPA- BOL Permit Reviewer, #33
Takako Halteman
1021 North Grand Avenue, East, PO Box 19276
Springfield, IL 0

Illinois EPA- Office of Community Relations, #5
Sarah Brubaker
1021 North Grand Avenue, East, PO Box 19276
Springfield, IL 0

Illinois EPA - BOL, Permits Section, #24
Kenneth E. Smith, P.E.
1021 North Grand Avenue, East, PO Box 19276
Springfield, IL 0

Illinois EPA, #24
Amy Butler
1021 North Grand Avenue, East, PO Box 19276
Springfield, IL 0

U.S. Army Corps of Engineers

U.S. Army Corps of Engineers
231 S. LaSalle Street, 15th Floor
Chicago, IL 60604

U.S. Army Corps of Engineers
St. Louis Civil Works Division
1222 Spruce Street
St. Louis, MO 63103

Office of Illinois Attorney General
Environmental Bureau South
500 S. 2nd St.
Springfield, IL 62701

Illinois Historic Preservation Agency
Preservation Services/ Archeology Sect.
1 Old State Capitol Plaza
Springfield, IL 0

Illinois Department of Natural Resources
Resource Management
One Natural Resources Way
Springfield, IL 0

Illinois Department of Natural Resources
Office of Water Resource Management
One Natural Resources Way
Springfield, IL 0

Illinois Department of Natural Resources
Div. of Natural Resource Review & Coord., Office of Realty/Env. Planning
One Natural Resources Way
Springfield, IL 0

Illinois Department of Transportation
Bureau of Design & Environment, Geological Waste and Assessment Unit
2300 S. Dirksen Parkway
Springfield, IL 62764

Illinois Department of Agriculture

I Division of Natural Resources
State Fairgrounds, PO Box 19281
Springfield, IL 62794

Illinois Department of Commerce and Economic Opportunity
Sylvia I. Garcia, Acting Director
500 East Monroe Street
Springfield, IL 62701

Illinois State Chamber of Commerce
Illinois State Chamber of Commerce
215 East Adams Street
Springfield, IL 62701

Illinois Department of Public Health
Illinois Department of Public Health
525-535 West Jefferson Street
Springfield, IL 62761

Illinois Department of Public Health
Metro East Regional Office
11 Executive Drive, Suite 10
Fairview Heights, IL 62208

Waste Management Research Center
Waste Management Research Center
1 East Hazelwood Drive
Champaign, IL 61820

Illinois State Natural History Survey
Eric Schauber
1816 South Oak Street, MC: 652
Champaign, IL 61820

Illinois State Geological Survey
Richard Berg, Director
615 East Peabody
Champaign, IL 61820

Illinois State Water Survey
Illinois State Water Survey Director
2204 Griffith Drive
Champaign, IL 61820

Local ESDA Coordinator/ Emergency Services/ Fire Department
Madison County Emergency Management Agency
101 East Edwardsville Rd., Ste. 260
Wood River, IL 62095

County State's Attorney
Honorable Thomas A. Haine
157 N. Main St., Suite 109, PO Box 402
Edwardsville, IL 0

County Board Chair
Honorable Kurt Prenzler, CPA
157 N. Main St., Suite 165
Edwardsville, IL 0

County Clerk
Honorable Linda Andreas,
157 N. Main St., Suite 109, PO Box 218
Edwardsville, IL 0

The Honorable Tom Stalcup
City of Wood River Mayor
111 North Wood River Avenue
Wood River, IL 62095

City Manager
Steve Palen
111 North Wood River Avenue
Wood River, IL 62095

City Clerk
Danielle Sneed
111 North Wood River Avenue
Wood River, IL 62095

Public Works Director
Michael Velloff
111 North Wood River Avenue
Wood River, IL 62095

Facility Headquarters (Local)
BP Pipeline Company N.A., Vaughn Matthews
800 S. 6th St.
Wood River, IL 62095

Facility Headquarters (site address)
BP Products N.A., Inc.
309 Evans Avenue
Wood River, IL 62095

Wood River Public Library
326 E Ferguson Ave
Wood River, IL 62095

IL League of Women Voters
IL League of Women Voters
332 South Michigan Avenue, Suite 634, #1050
Chicago, IL 0

Envirite Corporation
Envirite Corporation, Operations Manager
16435 South Center Avenue
Harvey, IL 60426

Sierra Club
Sierra Club, Jack Darin
70 E. Lake Street, Suite 1500
Chicago, IL 0

Pollution Control Industries
Pollution Control Industries, Tita LaGrimas, Director of Regional Affairs
4343 Kennedy Ave.
East Chicago, IN 46312

Safety-Kleen Dolton Recycle Center

Operations Manager
633 E. 138th Street
Dolton, IL 60419

American Lung Association of Illinois
Angela Tin, Director or Environmental Programs
3000 Kelly Lane
Springfield, IL 62711

American Environmental Corporation - Emergency Services & Public Involvement
Greg Michaud, Manager
3700 W. Grand Ave., Suite A
Springfield, IL 62711

Deigan & Associates, LLC - Environmental Consultants
Gary J. Deigan
28835 N. Herky Drive, Unit 120
Lake Bluff, IL 60044

Neighborhood Law Office
Kathleen O'Keefe
7 Vieux Carre Dr.
E. St. Louis, IL 62203

Americans Bottoms Conservancy
PO Box 4242
Fairview Heights, IL 62208

Washington University School of Law
Andrea M. Gross
One Brookings Drive, Campus Box 1120
St. Louis, MO 63130

Alton City Clerk
Cheryl Ingle
101 E. Third St.
Alton, IL 62002

Alton Mayor
David Goins

101 E. Third St.
Alton, IL 62002

Sharon Arnold
BP Volunteers
106 Kutter Dr.
East Alton, IL 62024

Wood River Fire Department
501 East Edwardsville Road
Wood River, IL 62095

Phillips 66 Wood River Refinery
Conoco-Phillips
900 S Central Ave
Roxana, IL 62084

Greater Alton Twin Rivers
Convention and Tourism Bureau
200 Piasa
Alton, IL 62002

Office of Planning and Programming
Illinois Dept. of Transportation
2300 Dirksen Pkwy
Springfield, IL 62794

Terminal Supervisor
KM Phoenix Terminal
1000 BP Lane
Hartford, IL 62048

Robert R. Kuehn, Law Professor & Assoc. Dean-Clinical Education
Washington University School of Law
One Brookings Drive, Campus Box 1120
St. Louis, IL 0

Ducks Unlimited
National Headquarters
One Waterfowl Way
Memphis, TN 38102

Michelle Knapp, Liability Manager
BP Products North America, Inc.
301 Evans Avenue
Wood River, IL 62095

Liability Manager
BP Products North America, Inc., Remediation Management Services Company
30 S. Wacker Drive, Suite 900
Chicago, IL 60606

Building and Zoning
Madison County Administration Building
157 North Main Street, Suite 254
Edwardsville, IL 62025

Pollution Control Board
100 West Randolph Street, Suite 11-500
Chicago, IL 60601

Local Audubon Office
Audubon Center at Riverlands
301 Riverlands Way
West Alton, MO 63386

Bruce Murphy, Project Manager
Wood River Regional WWTP
559 State Aid Road, PO Box 343
Wood River, IL 62095

Illinois Department of Natural Resources, Pere Marquette State Park
Region IV Office
13112 Visitor Center Lane
Grafton, IL 62037

Mayor of East Alton
Darren Carlton
119 West Main Street
East Alton, IL 62024

Village Clerk of East Alton
Lori Palmer
119 West Main Street
East Alton, IL 62024

Mayor of Hartford
Bill Robertson
140 W. Hawthorne
Hartford, IL 62048

Clerk of Hartford
Carolyn Daniels
140 W. Hawthorne
Hartford, IL 62048

Projects Manager of Hartford
Deanna Barnes
140 W. Hawthorne
Hartford, IL 62048

Village Clerk of Roxana
Kristi Carter
310 S. Central Avenue
Roxana, IL 62084

Village President of Roxana
The Honorable Marty Reynolds
310 S. Central Avenue
Roxana, IL

Andrea M. Gross
Washington University School of Law
One Brookings Drive, Campus Box 1120
St. Louis, IL 63130

Maintenance Superintendent
Wood River Rdrainage & Levee District
543 W. Madison Avenue
Wood River, IL 62095

Midwest Center for Environmental Science & Public Policy
1845 N. Farewell Ave., Suite 100
Milwaukee, WI 53202

National Audubon Society
225 Varick Street, 7th Fl.
New York, NY 10014

River Bend Growth Association
5800 Godfrey Road, Alden Hall
Godfrey, IL 62035

Mark Burris
861 Halloran
Wood River, IL 62095

Wildlife Habitat Council
8737 Colesville Road, Suite 800
Silver Spring, MD 20910

Marathon-Ashland Pipe Line Co.
700 S. 6th St.
Wood River, IL 62095

Administrator
Madison County Health Dept.
101 E. Edwardsville Rd.
Wood River, IL 62095

Supervisor, Wood River Township
Mike Babcock
49 S. 9th St.
East Alton, IL 62024

Clerk, Wood River Township
Sherry Tite
49 S. 9th St.
East Alton, IL 62024

Assessor, Wood River Township
Sandy Shaw
49 S. 9th St.
East Alton, IL 62024

Virginia Woulfe-Beile
Three Rivers Project Coordinator, Piasa Palisafes Group, The Sierra Club
200 W. 3rd St., Suite 512
Alton, IL 62002

NAACP, Alton Board
731 Silver St.
Alton, IL 62002

U.S. EPA, Region V, RCRA/TSCA Programs RCRA Branch
8th Floor Land and Chemicals Division
77 West Jackson Boulevard
Chicago, IL 60604

Exhibit A-4

Public Notice Letter

PUBLIC NOTICE OF REPOSITORIES FOR THE RCRA PART B PERMIT APPLICATION

BP Products North America Inc. (bp) has submitted a RCRA Part B Permit renewal application to the Illinois EPA (IEPA) for the BP Main Plant Property in Wood River, Illinois. Copies of the RCRA Part B Permit renewal application materials have been prepared and are available for community members to review and copy at the following locations:

Wood River Public Library
326 E. Ferguson Avenue
Wood River, IL 62095
618-254-4832
Open, M-Th, 9:00AM-8PM
F-Sat, 9:00AM-4:30PM

Wood River Municipal Office
111 N. Wood River Avenue
Wood River, IL 62095
618-251-3100
Open M-F, 8:00AM-5:00PM

bp will update the repository materials periodically during the IEPA's review of the permit application.

For questions regarding the permit application or to be added to the facility's mailing list for future permit activities please contact:

Michelle Knapp
BP Products North America Inc.
30 S. Wacker Dr. Ste 900
Chicago, IL 60606
(847) 346-7112

For general information on the hazardous waste management permit program in Illinois, please contact the IEPA RCRA Community Involvement Coordinator at:

Illinois Environmental Protection Agency
1021 North Grand Avenue East
P. O. Box 19276
Springfield, Illinois 62794-9276

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EXHIBITS

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SECTION B—FACILITY DESCRIPTION

B.1 General Facility Description: 702.123, 703.183(a), 703.183(n), 703.183(s)

B.1.1 Operation of Facility

1. The owner/operator of the bp Main Plant Property is BP Products North America, Inc. (bp). The bp Main Plant Property is located at Township 5 North, Range 9 West of the Third Principal Meridian, where it occupies all or parts of Sections 27, 28, 34, and the northeast corner of Section 33. The address of the bp Main Plant Property is 301 Evans Avenue, Wood River, Illinois. The bp Main Plant Property is approximately 569 acres in size. Most of the bp Main Plant Property (approximately the northern-most 80 percent) is located in the City of Wood River. The remainder is located within the Village of Hartford (**Figure B-1**). **Figure B-2** shows the Main Plant Property Land Reuse Areas, which are discussed further in Section F of this renewal application.

   An approximate 118.25-acre three-dimensional parcel above elevation 408 feet above mean sea level (ft MSL), as shown on **Figure B-3** and KMPH legal description contained in **Exhibit B-1** is not part of the facility. This parcel has already been issued a Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area at and below elevation 408 ft MSL remains part of the facility and is subject to bp's Part B Permit.

2. Construction of the Wood River refinery began in 1907 and the refinery began operations in 1908. During peak operation, the refinery employed over 600 people and processed more than 100,000 barrels of crude oil per day into gasoline, heating oil, diesel, jet fuels, kerosene, polybutylene, asphalt, and other commercial petroleum products. The refinery ceased operations in June 1981. Dismantling of refinery process units was conducted from 1981 until 1991. The Amoco Petroleum Additives Company (APAC), which eventually became part of bp Amoco, manufactured lubricating oils and fuel additives at the Main Plant Property from 1957 until approximately 1996. The dismantling of APAC process units was completed in 2001. Distribution operations were managed using pipelines, aboveground storage tanks (AST) at the Main Plant Property, and barge operations on the Mississippi River. The bp Main Plant and the Riverfront Properties were owned by Amoco Oil Company until the merger with bp in 1999. bp operated a storage and distribution facility at the Main Plant Property for gasoline and petroleum distillates until 2016 when it sold this facility to KMPH.

   bp is facilitating industrial/commercial land reuse and redevelopment of the Main Plant Property in cooperation with the City of Wood River, the Illinois Environmental Protection Agency (Illinois EPA), and other regional interests. The Main Plant Property has been divided into 19 Land Reuse Areas, as presented in the RCRA Facility Investigation (RFI) Phase II/III Project Plan for the Main Plant (URS, 2001) which was approved by the Illinois EPA on June 21, 2002.

3. A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois can be found in **Exhibit B-1**.

A legal description of the three-dimensional parcel above elevation 408 ft MSL, as shown on **Figure B-3**, transferred to KMPH can also be found in **Exhibit B-1**.

4. The Tax Property Identification Numbers of the land which comprises the bp Main Plant Property are depicted on **Figure B-3**.

B.1.2 Hazardous Waste Management Units at the Facility

There are currently no Hazardous Waste Management Units present at the bp Main Plant Property. Two hazardous waste management units at the Main Plant Property, the North Cell of Spray Pond 1 (NC-SP1) and the South Flare Pit (SFP), have been certified as closed by removal. Closure reports were submitted to the Illinois Environmental Protect Agency (Illinois EPA) for the NC-SP1 (URS, November 2002) and the SFP (URS, April 2005).

A letter from Illinois EPA dated January 7, 2008, granted approval for closure by removal of the NC-SP1 pending a Class 3 permit modification request to formally remove the unit from the Part B post-closure permit. This letter also granted approval for the soils portion of the closure by a removal determination for the SFP and requested further work on the groundwater portion for this unit. Subsequently, bp conducted additional work, and based upon Illinois EPA's review of the results of this work, the SFP was approved for closure by removal, subject to certain conditions. The existing bp Main Plant Property Permit (issued March 4, 2011, and last modified May 29, 2018 [Log B-147R-M-17 and M-18]) states that the renewed permit formally removes these two hazardous waste management units (NC-SP1 and the SFP) from the post-closure requirements of a RCRA permit, and since these were the only two hazardous waste management units at the site, the renewed permit now solely addresses the remaining corrective action at the site.

B.1.3 Solid Waste Management Units at the Facility

Twenty-one Solid Waste Management Units (SWMUs) and 9 Product Release Sites (PRSs) were identified in the 1993 Permit. The locations of each SWMU and PRS are shown on **Figure B-4**.

bp has divided the Main Plant Property into 19 Land Reuse Areas (**Figure B-2**) and has investigated each area separately as presented in the RFI Phase II/III Project Plan for the Main Plant (URS, 2001) which was approved by the Illinois EPA on June 21, 2002. Additional information and the status of Corrective Action for each Land Reuse Area is discussed in Section F of this application.

Land Reuse Area	SWMUs/PRSs contained in Land Reuse Areas
Area 1 - Northwest Corner	PRS 5 – North Tank Farm
Area 2 - Northeast Corner	PRS 1 – Former Tank 228 Dike Area
	PRS 5 – North Tank Farm
	PRS 6 – East Tank Farm
	SWMU 9 – Northeast Sand Pit

Land Reuse Area	SWMUs/PRSs contained in Land Reuse Areas
Area 3 - North Central Area	SWMU 24 – APAC Slop Oil Tank 70
	SWMU 26 – APAC Slop Oil Tanks 189, 190, 845, 846
Area 4 - Former Rail Yard	SWMU 13 – Separator Sludge Landfarm
	SWMU 21 – Former APAC Waste Transfer Area
Area 5 - South Central Area	SWMU 27 – APAC Slop Oil Tank 177 Area
	PRS 3 – Waste Oil Leak Area
Area 6 - Former APAC Area	SWMU 17 - Additives Waste Pit
	SWMU 18 - Detergent Additives Plant (DAP) Spent Filter Cake Storage Area
	SWMU 22 – New APAC Waste Transfer Area
	SWMU 23 – Multipurpose Additives Plant (MAP) Spent Filter Cake Storage Area
	SWMU 31 – Waste Phenol Accumulation Area
	SWMU 36 – Liquid Waste Collection Bin
Area 7 - Former Alkyl Plant	PRS 5 – North Tank Farm
Area 8 - North Tank Farm	PRS 2 – Former Tank 246 Dike Area
	PRS 5 – North Tank Farm
	SWMU 8 – Bottom Disposal Areas
	SWMU 25 – APAC Slop Oil Tank 189
Area 9 - Korea Tank Farm	SWMU 30 – Korea Tank Farm Disposal Area
	PRS 8 – Korea Tank Farm
Area 10 - East Tank Farm	PRS 6 – East Tank Farm
Area 11 - Spray Pond Area (Ponds 1 & 2 and Intake Channel Areas)	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1
Area 12 - South Tank Farm	PRS 7 – South Tank Farm
	SWMU 12 – Southeast Disposal Area
Area 13 - Wildlife Enhancement Area	SWMU 12 – Southeast Disposal Area
Area 14 - Southeast Corner	None
Area 15 - Administration Building	None
Area 16 - Marketing Operations Area	SWMU 16 – Old American Petroleum Institute (API) Separator
	SWMU 34 – Amoco's Sewer System
Area 17 - Liquid Propane Gas (LPG) Caverns	None
Area 18 - North Cell Spray Pond 1 and South Flare Pit	SWMU 14 – NC-SP1
	SWMU 33 – SFP

Land Reuse Area	SWMUs/PRSs contained in Land Reuse Areas
Area 19 - Spray Pond 3	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1

Notes:
PRS 4 is Hydrocarbons (Light Non-Aqueous Phase Liquids) on Water Table at the Main Plant
PRS 9 location is not known

B.2 Topographic Map: 702.123(g), 703.183(s), 703.184, 703.185(c), 703.185(d), 724.195, 724.197

B.2.1 Facility + 1 mile

The Facility + 1 mile Topographic Map is provided as **Figure B-1**. It was prepared from the 2017 Wood River, Illinois - Missouri United States Geological Survey (USGS) 7.5-Minute Series Quadrangle Map. The figure depicts the legal boundary of the bp Main Plant Property and land uses in the one-mile area surrounding the bp Main Plant Property.

B.2.2 Facility + 1,000 feet

The Facility + 1,000 feet Topographic Map is provided as **Figures B-5A**, **B-5B**, and **B-5C** due to the size of the site and the map scale. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the *Information Required in an Application for a RCRA Post-Closure Permit*. **Figure B-4** depicts the PRS, SWMU, and Land Reuse Area boundaries.

The wind rose for the St. Louis Regional Airport in East Alton, Illinois, which is approximately 3.5 miles northeast of the site, is provided as **Exhibit B-2**. The wind rose was obtained from a meteorological station located at the St. Louis Regional Airport via the Midwestern Regional Climate Center cli-MATE Tools (https://mrcc.purdue.edu/CLIMATE/) accessed from the National Oceanic and Atmospheric Administration website (https://www.climate.gov/maps-data/dataset/wind-roses-charts-and-tabular-data). The wind rose depicts the frequency, direction, and velocity of the wind.

The following items do not pertain to the bp Main Plant Property:

- Loading and unloading areas
  - Wastes are not handled at the site so there are no loading or unloading areas.
- Waste injection wells
  - No Injection wells are present.
- Areas in the 100-year flood plain
  - No part of the bp Main Plant Property is in the 100-year floodplain.
- Hazardous waste management units
  - No hazardous waste management units are present.
- Equipment required by Item D.2
  - Section D is not required for Corrective Action only RCRA permits.

B.3 Location Standards: 703.184, 724.118

B.3.1 Seismic Standard

There are no hazardous waste management units present at the bp Main Plant Property. Additionally, a review of the structural features on an Illinois State Geologic Survey map revealed no known active faults within two miles of the bp Main Plant Property.

B.3.2 Floodplain Standard

The bp Main Plant Property is not located within the 100-year floodplain of the Mississippi River due to the presence of the Wood River Drainage and Levee District (WRDLD) levee to the west of the bp Main Plant Property. The 100-year floodplain was identified based on the National Flood Insurance Program maps (see **Exhibit B-3**).

B.3.3 Facilities in the 100-year floodplain

The bp Main Plant Property is not located within the 100-year floodplain; therefore, this section and subsections are not required.

B.4 Operating Record: 724.173

The Operating Record is maintained by bp and kept on file at the bp office located on the bp Main Plant Property. The information in the operating record includes monitoring, testing, or analytical data, corrective action data, and cost estimates for corrective action.

The Operating Record is maintained at the bp office located on the bp Main Plant Property and is available for Illinois EPA review.

FIGURES

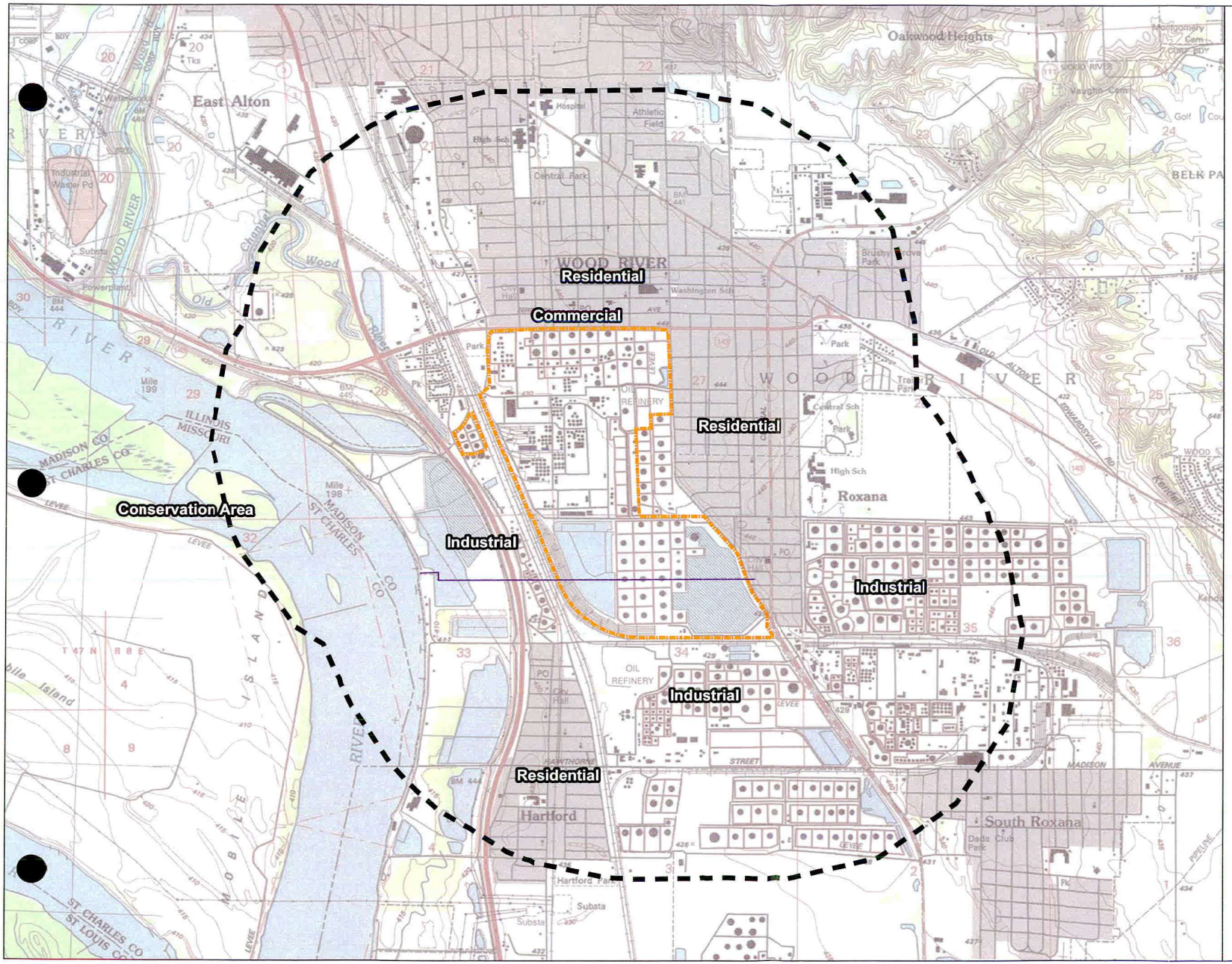


FIGURE B-1

BP MAIN PLANT PROPERTY + 1 MILE TOPOGRAPHIC MAP WITH SURROUNDING LAND USE

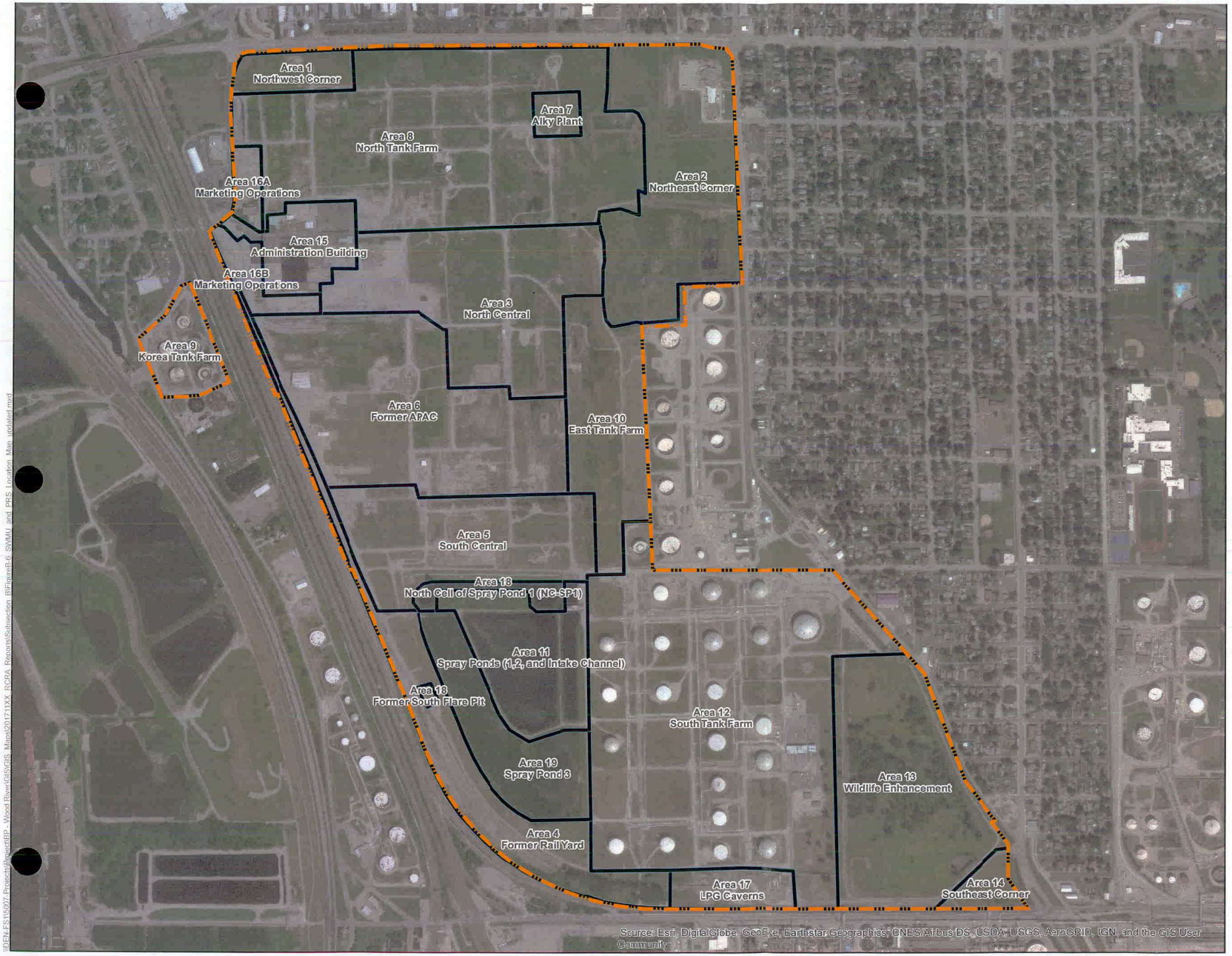
BP MAIN PLANT PROPERTY WOOD RIVER, ILLINOIS

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Job No.	
Drawn By:	
Reviewed By:	
Date:	7/28/2020

The map shown here has been created with all due and reasonable care and is strictly for use with the BP Wood River Project. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. Wood E&IS, Inc. assumes no liability, direct or indirect, whatsoever to any such third party or unintended use.



Legend

Main Plant Property

Land Reuse Area Boundaries

N

500 250 0 500

Feet

FIGURE B-2

LAND REUSE AREAS

BP Main Plant Property
Wood River, Illinois

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Jcb No.	656017S030
Drawn By:	JT
Reviewed By:	AV
Date:	7/9/2020

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I:\DEN-FS\15007-Projects\Projects\BP - Wood River\GIS\GIS_Maps\2017\XX_RCRA_Reports\Subsection B\Figure B-6_SWMU_and_PRS_Location_Map_updated.mxd



Legend

- Main Plant
- Tax Parcel Boundary
- KMPH Property Boundary
- Donation Parcel I - City of Wood River Storm Water Retention Basin
- Donation Parcel II - City of Wood River Police Station

Notes:

*KMPH Vertical Parcel

N

0 200 400 800
Feet

Figure B-3

Tax Parcel Map

BP Main Plant
Wood River, Illinois

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Job No.	6560175030
Drawn By:	JT
Reviewed By:	AV
Date:	7/28/2020

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R000077

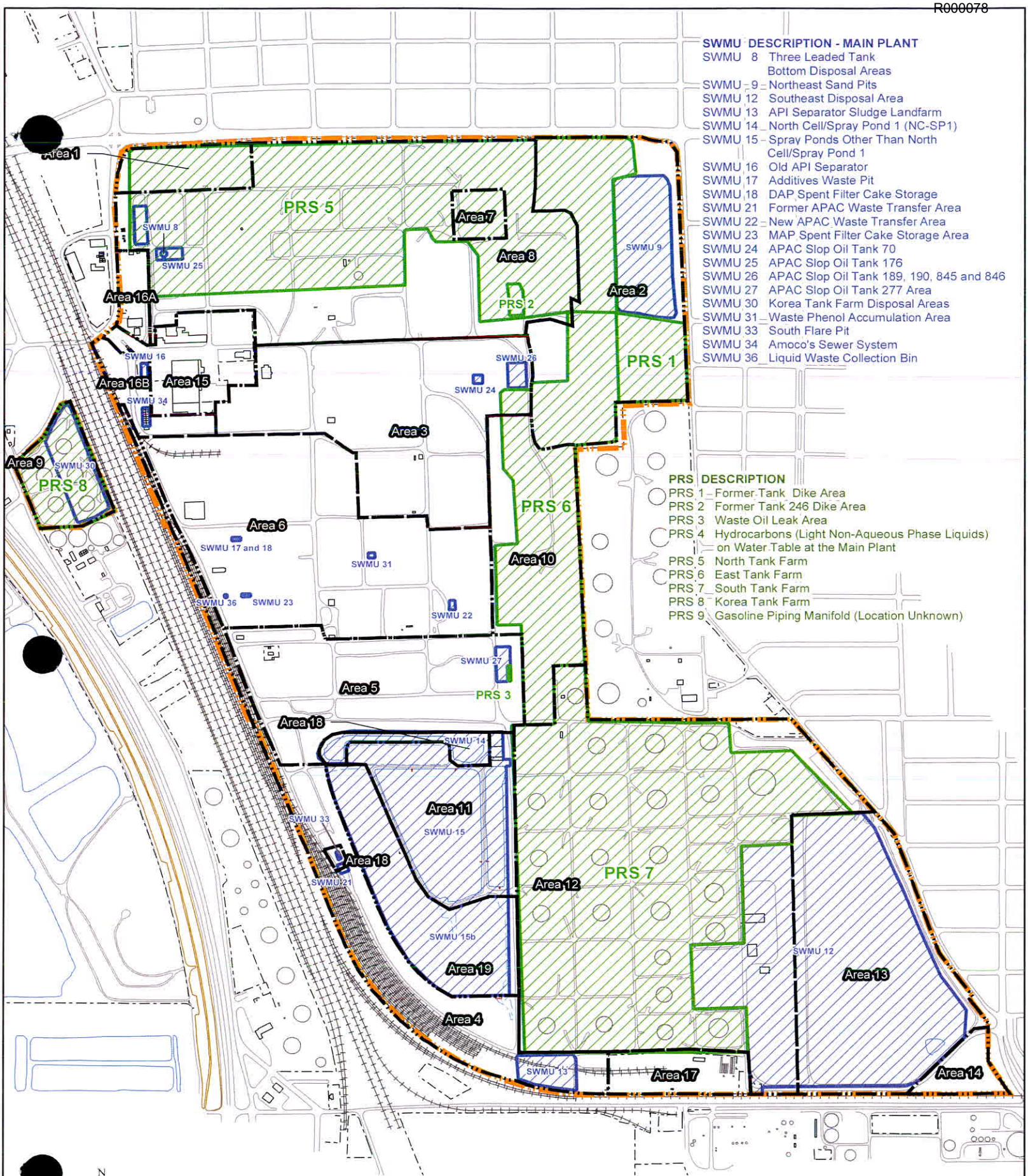

FIGURE B-4
SWMU, PRS, and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

TABLE

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
SWMU 8 – Three Leaded Tank Bottom Disposal Area	SWMU 8, the Three Leaded Tank Bottom Disposal area is located in the northwest corner of the Main Plant in Land Reuse Area 8. SWMU 8 includes Tanks 105 and 106 and is approximately 100 feet by 300 feet. The general period of operation of SWMU 8 was from the 1930's to the 1970's. Leaded gasoline tank bottom sludges were buried in pits within the diked areas. The waste concentrations and quantities in the diked areas are unknown.
SWMU 9 – Northeast Sand Pit	SWMU 9 is located in the northeast corner of the Main Plant in Land Reuse Area 2 and is approximately 750 feet by 1,200 feet. Waste deposited at this SWMU included water-diluted phenols, sulfonic acid sludges, and Dissolved Air Flotation (DAF) Unit sludge skimmings. The period of operation is unknown. No Further Action is required for soils for Area 2, which includes SWMU 9.
SWMU 12 – Southeast Disposal Area	The Southeast Disposal Area is located at the southeast corner of the Main Plant. It is an irregularly shaped area of approximately 80 acres. This SWMU consists of four areas: Old Fire Training Area (OFTA), Tank Car Dumping Area (TCDA), Southeast Corner Disposal Area (SCDA), Cooling Pond Sludge Disposal Area (CPSDA). The OFTA is on the west side of this SWMU and may have contained crude oil residues. The TCDA is south of the OFTA and may have contained spent soap, caustic, sour water, and possibly oily sludges. The SCDA is an impoundment in the southeast corner of this SWMU where oily wastes and sludges were placed. The CPSDA is in the northwest corner of the SWMU where non-hazardous sludge from Spray Ponds Nos. 2 and 3 was placed. South of the CPSDA, asphalt, tank bottoms, oily dirt, spent Fluidized Catalytic Unit (FCU) catalyst, and sour water may have been placed. The exact period of operation of this SWMU is unknown. A Marathon Pipeline spill in the area was remediated by Marathon immediately following the leak. Sludge, soil and water samples were collected from this area in 1983.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
SWMU 13 – Separator Sludge Landfarm	SWMU 13 is located in the southern-most section of the Main Plant immediately south of Tank 249 in Land Reuse Area 4. The unit is rectangular in shape with approximate dimensions of 450 feet by 100 feet. Hazardous waste (K051 sludge) and railroad ties were stored at this area. The estimated quantity of waste was 30,000 cubic feet. No further action is required for soils and perched water for Area 4, which includes SWMU 13.
SWMU 14 – North Cell of Spray Pond 1 (NCSP1)	The North Cell/Spray Pond 1 (NC-SP1) unit is north of Spray Pond 1 in the central part of the Main Plant in Land Reuse Area 18. The NC-SP1 is a former regulated surface impoundment which is approximately 3.5 acres in size: approximately 1,200 feet in length from east to west; approximately 50 feet wide in the center; and becomes approximately 200 feet wide on the east and west ends. The start-up date of the NC-SP1 is unknown. The waste influent stream to the NC-SP1 was a mixture of cooling water return and sour water from the Fluidized Catalytic Unit. The NC-SP1 potentially received sulfide reactive material during the operation of the refinery. In 2002, the NC-SP1 was closed by removal of all waste and waste residue in accordance with Title 35 of the Illinois Administrative Code (IAC) Part 742, and therefore, no longer requires post-closure care.
SWMU 15 – Spray Ponds Other than North Cell / Spray Pond 1	The Spray Ponds (SWMU 15) are located in the southwest part of the Main Plant in Land Reuse Area 11. The Spray Ponds are approximately 29.5 acres and consist of Spray Pond 1, Spray Pond 2, Spray Pond 3 and the Intake Channel. During operation of the refinery and APAC process units, the Spray Ponds provided heat transfer for recycling of non-contact cooling water. Currently, the ponds hold water for fire protection. An NFA letter was issued by the Illinois EPA for SWMU 15 on June 5, 2001.
SWMU 16 – Old API Separator	SWMU 16 is located in the northwest section of the Main Plant, north of the API separator and next to the main entrance to the facility in Land Reuse Area 16. The unit is a rectangular underground concrete box and is approximately 50 feet wide and 120 feet long. This unit was operated from the early 1900's to the late 1970's.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
SWMU 17 - Additives Waste Pit; and SWMU 18 - DAP Spent Filter Cake Storage Area	SWMUs 17 and 18 are located along the west boundary of the Main Plant in Land Reuse Area 6. SWMU 17 was a concrete pit located north of the former Detergent Additives Plant (DAP) with approximate dimensions of 45 x 30 feet, and 8 feet in depth. Operation at SWMU 17 was discontinued before 1981, and wastes from the concrete pit were excavated and disposed off-site. The former wastes at SWMU 17 included spent filter material, oil, and possibly off-specification additive wastes, (e.g., calcium sulfonates and calcium phenates). SWMU 18 consists of a concrete pad approximately 100 feet square placed over a portion of the additives waste pit. The concrete pad at SWMU 18 was used to temporarily store filter cake in roll-off boxes. No further action is required for SWMU 17 and SWMU 18.
SWMU 21 – Former APAC Waste Transfer Area	SWMU 21 is located west of the Spray Ponds in Land Reuse Area 4. It consisted of a 50 feet by 75 feet elevated concrete pad underlying three 15 cubic-yard roll-off boxes. Non-hazardous spent filter cake material and oil-contaminated debris from a rotary vacuum drum from the Multipurpose Additives Plant (MAP) area were stored in the roll-off boxes. No further action is required for soils and perched water for Area 4, including SWMU 21.
SWMU 22 – New APAC Waste Transfer Area	SWMU 22 is located near the center of the Main Plant area, about 500 feet north of the Spray Ponds in Land Reuse Area 6. Non-hazardous spent filter cake material from a rotary vacuum drum at the MAP area and oil-contaminated debris were temporarily stored in roll-off boxes at this SWMU.
SWMU 23 – MAP SPENT FILTER CAKE STORAGE AREA	SWMU 23 is located north of the MAP area in Land Reuse Area 6 and consists of three asphalt/concrete pads (one measuring 10 feet by 100 feet; two measuring 10 feet by 50 feet) and 5 to 10 logger boxes, each with a capacity of 3 to 5 cubic yards. The waste was spent filter cake material from a rotary vacuum used to filter products. The composition of the spent filter cake was approximately 50 percent diatomaceous earth and 50 percent zinc dithiophosphate and phenates. APAC determined that the spent filter cake material and oil contaminated debris are not ignitable, corrosive, reactive, or TCLP toxic. APAC operations at the SWMU closed in 1996.
SWMU 24 – APAC SLOP OIL TANK	SWMU 24 is located northeast of the former Power Station in the north-central section of the Main Plant in Land Reuse Area 3. The tank is 40 feet in diameter and 30 feet high (approximate storage volume was 282,000 gallons). APAC Slop Oil Tank 70 was used beginning in the 1950's.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
SWMU 25– APAC Slop Oil Tank 176	SWMU 25, the Amoco Petroleum Additives Company (APAC) former Slop Oil Tank area are located in the northwest corner of the Main Plant in Land Reuse Area 8. SWMU 25 is immediately south and east of Tank 106 and consisted only of Tank 176. The SWMU 25 area is approximately 100 feet by 100 feet. SWMU 25 was put into operation during the 1950's for storage of on-specification used oil.
SWMU 26 – APAC SLOP OIL TANKS 189, 190, 845, 846	SWMU 26 consists of four former slop oil tanks: Slop Oil Tanks 189, 190, 845 and 846. The area location is east of the former Power Station in the north-central section of the Main Plant in Land Reuse Area 3. The tanks were located within a concrete-bermed secondary containment dike. Tanks 189 and 190 were 30 feet in diameter and 25 feet high (approximate storage volume for each tank is 132,200 gallons). Tanks 845 and 846 were 40 feet in diameter and 30 feet high (approximate storage volume for each tank was 282,000 gallons). The tanks began operation in the 1950's. They were used for used oil storage.
SWMU 27 – APAC SLOP OIL TANK 177 AREA	SWMU 27 is located northeast of the Spray Ponds in Land Reuse Area 5 and consists of tank areas 277, 278 and 279. Tank 277 was 58 feet in diameter and 40 feet high (approximate storage volume 901,500 gallons). Tanks 278 and 279 were similar in size. Operation of the tanks began in the 1950's. The waste stored in the tanks was described as on-specification used oil.
SWMU 30 – KOREA TANK FARM DISPOSAL AREA	SWMU 30 is located in the Korea Tank Farm, which is Land Reuse Area 9. No sampling of groundwater occurred at SWMU 30 during Phase I of the RFI because there were hydrocarbons on the groundwater underneath this SWMU. The Korea Tank Farm is identified in the Permit as Product Release Site 8.
SWMU 31 – WASTE PHENOL ACCUMULATION AREA	SWMU 31 is located in the center of the Main Plant in Land Reuse Area 6. It is approximately 700 to 800 feet northwest of SWMU 22. The 1989 FOS inspection identified one of two containers, which contained waste phenol (U188) generated by sample purges. The waste phenol accumulation area was a concrete pad with approximate dimensions of 25 feet by 50 feet.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
SWMU 33 – SOUTH FLARE PIT	SWMU 33 is located in the southwest portion of the Main Plant, west of the Spray Ponds, and was used for storage of hazardous and non-hazardous APAC wastes prior to their disposal off-site. The SFP originally measured approximately 75 feet long by 25 feet wide and was approximately 4 feet deep. Wastes managed in the SFP included calcium sulfonate, magnesium sulfonate, zinc phosphate phenates, high sulfur acids, high phosphate acids, SAE 5W oil, and filter cake. It was identified as a hazardous waste management unit because phosphorous pentasulfide (U189) was placed in the unit. The SFP was initially closed by removal in 1985, but a retroactive regulatory change in the late 1980's caused the SFP to be subject to a RCRA Part B Permit for post-closure care. BP conducted additional investigation and removal activities at SFP in 2001 and 2002. Based on these activities, the SFP was certified closed by removal and no longer requires RCRA Post-Closure care.
SWMU 34 – AMOCO'S SEWER SYSTEM	SWMU 34 consists of BP's Oil-water Separator (OWS) and its immediate connections. It is located south of the old API separator (SWMU 16). The OWS is a 4,000-gallon steel cylindrical vessel that is 5 feet 4 inches in diameter and 24 feet long.
SWMU 36 – LIQUID WASTE COLLECTION BIN	SWMU 36, the Liquid Waste Collection Bin unit, is located in Land Reuse Area 6, and consisted of an aboveground bin used to collect waste oil as a part of the quality assurance/quality control of Amoco's incoming pipelines. The top of this unit consisted of a grate. Five-gallon buckets were placed upside down on this grate and allowed to drain into the unit. Waste oil was the only material placed in the Liquid Waste Container Bin. The waste oil was collected from the collection bin and recycled. The Liquid Waste Collection Bin unit was located approximately 100 feet west of the MAP Spent Filter Cake Storage Area, which was located on the northern edge of MAP. The start-up date of the collection bin unit is unknown. No further action is required for SWMU 36.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
PRS 1 – FORMER TANK 228 DIKE AREA	Product Release Site (PRS) 1 is located in the northeast area of the Main Plant in Land Reuse Area 2. This PRS consists of a diked area having dimensions of approximately 600 feet by 400 feet. This PRS contains the former Tank 228 Dike Area, which consisted of several waste piles through the north and south areas. The exact period of operation of this unit is unknown. Asphalt and heavy oil are suspected of being placed in this area. The quantity of product placed in this area is unknown. No further action is required for soils for in Land Reuse Area 2.
PRS 2 – FORMER TANK 246 DIKE AREA	PRS 2 is located in the northeast area of the Main Plant in Land Reuse Area 8. The former Tank 246 Dike Area had three impoundments in series. These impoundments had an approximate combined dimension of 220 feet in length and 100 feet in width. A 5-foot high berm surrounded each impoundment. The PRS was apparently used for the storage of off-spec asphalt. The startup date for the unit is unknown. The date of closure for the unit was November 19, 1980. The quantity of product placed in this area is unknown.
PRS 3 – WASTE OIL LEAK AREA	PRS 3 is located in the southeast corner of the area defined for SWMU 27 in Land Reuse Area 5 and was described in the RFA as "A pool of what appears to be crude oil (from leaking pipelines) was observed." The quantity of oil released is unknown. High topography within SWMU 27 appears to have contained the release.
PRS 4 – HYDROCARBONS ON WATER TABLE	PRS 4 consists of a hydrocarbon plume on the water table underneath the Main Plant, excluding the Korea Tank Farm (Main Plant SWMU 30). There is presently a hydraulic control/system in place that includes four pumps that create a cone of depression in the water table under the Main Plant.
PRS 5 – NORTH TANK FARM	PRS 5 is a former tank farm in the north-central portion of the Main Plant facility in Land Reuse Areas 1, 2, 7 and 8. The tank farm stored products such as gasoline, crude oil, kerosene, heating oil, and other petroleum products. No releases have been identified from this unit. Each tank in the tank farm was surrounded by dikes. The tank farm supported the refinery when it was in operation.

TABLE B-1
SWMU and PRS Descriptions
BP Main Plant Property

SWMU / PRS	DESCRIPTION
PRS 6 – EAST TANK FARM	PRS 6 consists of a former tank farm in the east-central portion of the facility in Land Reuse Areas 2, 3, and 10. The approximate dimensions for the Tank Farm were 3850 feet from north to south and 500 feet from east to west. This tank farm was used for storage of products such as gasoline, crude oil, kerosene, heating oil, and other petroleum products. All the ASTs were removed prior to 1994. A Marathon Pipeline Company tank farm is located immediately adjacent to the east of this PRS.
PRS 7 – South Tank Farm	PRS 7 consists of an active tank farm in the south-central portion of the facility. The tank farm has presumably stored products such as gasoline, crude oil, kerosene, heating oil, and other petroleum products. Each of the tanks in the tank farm is surrounded by dikes. This tank farm supported the refinery when it was in operation.
PRS 8 – KOREA TANK FARM	PRS 8 consists of an active tank farm in the area previously identified as the Main Office-wastewater treatment plant property which is separated from the Main Plant facility by railroad tracks. This is the same unit as SWMU 30, but with the addition of two tanks (five tanks total). The tank farm has stored products such as gasoline, crude oil, kerosene, heating oil, and other petroleum products. Each of the tanks in the tank farm is surrounded by dikes. This tank farm began operation in the1950's.
PRS 9 – GASOLINE PIPING MANIFOLD (LOCATION UNKNOWN)	The size, location, and history of this unit are unknown. On March 9, 1976, 5,000 barrels (260,000 gallons) of gasoline were discharged through a broken valve on a gasoline piping manifold. The gasoline was reportedly contained by firewalls and drained into the refinery sewers where it was recovered. The firewalls and sewer system (Main Plant SWMU 34) are presumed to act as the containment system for this PRS.

EXHIBITS

Exhibit B-1

Legal Descriptions

Facility Legal Description

CMT

B.P. AMOCO MAIN PLANT AND KOREA TANK FARM WITH DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS

July 16, 2024

A TRACT OF LAND (MAIN PLANT)
Part of Sections 27, 28, 33 and 34 of Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois and being more particularly described as follows:

Commencing at the corner common to said Sections 27, 28, 33 and 34; thence westerly along the Section line between Sections 28 and 33 on an assumed bearing of North 88 degrees 21 minutes 31 seconds West a distance of 467.91 feet to the point of intersection with the northeasterly line of the 110 foot wide Illinois Terminal Railroad, said point also being the POINT OF BEGINNING of the parcel herein described; thence continuing North 88 degrees 21 minutes 31 seconds West along said section line between Sections 28 and 33 a distance of 37.56 feet to the point of intersection with the northeasterly line of the 75 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 75 foot wide Illinois Terminal Railroad a distance of 1,496.26 feet to the point of intersection with the northerly line of the South half of the Southeast Quarter of said Section 28; thence North 89 degrees 21 minutes 08 seconds West along said northerly line of the South half of the Southeast Quarter of Section 28 a distance of 26.65 feet to the point of intersection with the northeasterly line of the 50 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 50 foot wide Illinois Terminal Railroad, a distance of 1,397.11 feet to the point of intersection with the southeasterly line of the 60 foot wide Alton-St. Louis Road; thence North 51 degrees 41 minutes 18 seconds East along said southeasterly line of the 60 foot wide Alton-St. Louis Road a distance of 257.64 feet to a point; thence North 08 degrees 07 minutes 19 seconds East and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 110.97 feet to a point; thence North 01 degrees 43 minutes 06 seconds West and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 706.98 feet to a point; thence North 06 degrees 30 minutes 37 seconds East and continuing along said easterly line of the 60 foot wide Alton-St. Louis Road a distance of 175.81 feet to a point; thence North 13 degrees 21 minutes 11 seconds East and continuing along the easterly line of the transitional width Alton-St. Louis Road, wherein the width of said Alton-St. Louis Road transitions from 60 feet wide to 66 feet wide, a distance of 50.36 feet to a point in the easterly line of the 66 foot wide Alton-St. Louis Road; thence North 06 degrees 30 minutes 37 seconds East along the easterly line ofthe 66 foot wide Alton-St. Louis Road a distance of 102.97 feet to a point in the southeasterly line of F.A. Route 789, marked Illinois Route 143 and Madison Avenue; thence North 18 degrees 28 minutes 37 seconds East along said southeasterly line of F.A. Route 789 a distance of 72.16 feet to a point; thence North 54 degrees 30 minutes 50 seconds East and continuing along said southeasterly line of F.A. Route 789 a distance of 48.71 feet to a point; thence North 74 degrees 14 minutes 40 seconds East along said southeasterly line of F.A. Route 789 a distance of 45.06 feet to a point in the southerly line of said F.A. Route 789, said point also being 60.00 feet southerly of the northerly line of the Southeast Quarter of the Northeast Quarter of said Section 28; thence North 89 degrees 25 minutes 05 seconds East along said southerly line of F.A. Route 789, said southerly line of F.A. Route 789 being 60.00 feet southerly of and parallel to said northerly line of the Southeast Quarter of the Northeast

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Quarter of Section 28, a distance of 1,105.01 feet to a point; thence South 88 degrees 13 minutes 21 seconds East and continuing along said southerly line of F.A. Route 789, said continuation of the southerly line of F.A. Route 789 being 60.00 feet southerly of the northerly line of the Southwest Quarter of the Northwest Quarter of said Section 27 and the Southeast Quarter of the Northwest Quarter of said Section 27, a distance of 2,410.77 feet to a point; thence South 73 degrees 53 minutes 06 seconds East and continuing along the southerly and southwesterly line of F.A. Route 789 a distance of 103.38 feet to a point, thence South 84 degrees 54 minutes 03 seconds East and continuing along said southwesterly line of F.A.. Route 789 a distance of 100.13 feet to a point; thence South 33 degrees 47 minutes 40 seconds East and continuing along said southwesterly line of F.A. Route 789 a distance of 83.60 feet to the point of intersection with the westerly line of the 60 foot wide Sixth Street, also known as the Alton-Edwardsville Road, said point also being 60.00 feet westerly of the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27; thence South 00 degrees 41 minutes 06 seconds East along said westerly line of the 60 foot wide Alton- Edwardsville Road, said westerly line of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27, a distance of 1,245.87 feet to a point; thence South 00 degrees 11 minutes 08 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road, said continuation of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the Southwest Quarter of said Section 27, a distance of 560.42 feet to a point; thence South 89 degrees 48 minutes 52 seconds West a distance of 453.48 feet to a point; thence South 00 degrees 02 minutes 23 seconds East a distance of 233.93 feet to a point; thence South 00 degrees 00 minutes 18 seconds East a distance of 67.40 feet to a point; thence South 89 degrees 37 minutes 43 seconds West a distance of 336.16 feet to a point; thence South 00 degrees 11 minutes 35 seconds East a distance of 60.00 feet to a point; thence South 00 degrees 37 minutes 43 seconds East a distance of 1,879.00 feet to the point of intersection with the northerly line of the Northwest Quarter of the aforesaid Section 34; thence South 87 degrees 51 minutes 07 seconds East along said northerly line of the Northwest Quarter of Section 34 a distance of 836.60 feet to the northeasterly corner of said Northwest Quarter, said point also being the northwesterly corner of the Northeast quarter of the aforesaid Section 34; thence South 88 degrees 07 minutes 52 seconds East along the northerly line of said Northeast Quarter of Section 34 a distance of 564.42 feet to the point of intersection with the westerly line of the aforesaid 60 foot wide Alton-Edwardsville Road; thence South 37 degrees 41 minutes 28 seconds East along said Westerly line of the 60 foot Alton-Edwardsville Road a distance of 50.36 feet to a point; thence South 39 degrees 12 minutes 17 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 1,034.23 feet to a point; thence South 18 degrees 18 minutes 01 seconds East and continuing along said westerly line of the 60 foot wide Alton- Edwardsville Road a distance of 917.06 feet to a point; thence South 34 degrees 37 minutes 23 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 388.26 feet to the point of intersection with the northwesterly line of F.A. Route 132, marked Illinois Route 111; thence South 55 degrees 22 minutes 37 seconds West along said northwesterly line of F.A. Route 132 a distance of 30.00 feet to a point; thence South 34 degrees 37 minutes 23 seconds East along the southwesterly line of said F.A. Route 132 a distance of 212.48 feet to a point; thence South 01 degree 56 minutes 50 seconds West and continuing along said southwesterly line of F.A. Route 132 a distance of 275.69 feet to a point; thence South 30 degrees 41 minutes 10 seconds East and continuing along said southwesterly line of F.A. Route 132 a distance of 276.16 feet to the point of intersection with the northerly line of the 60 foot wide Illinois Terminal Railroad; thence North 88 degrees 02 minutes 23 seconds West along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 1,973.48 feet to a point; thence North 88 degrees 12 minutes 30 seconds West and continuing along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 890.71 feet to the point of curvature of the northerly and northeasterly line of the variable width Illinois Terminal Railroad; thence continuing along said northerly and northeasterly line of the variable width Illinois Terminal Railroad to the point of tangency with

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the aforesaid northeasterly line of the 110 foot wide Illinois Terminal Railroad, said northerly and northeasterly line of the variable width Illinois Terminal Railroad being a curve to the right having a radius of 1,910.00 feet and an arc length of 2,286.34 feet; thence North 19 degrees 37 minutes 23 seconds West and continuing along sad northeasterly line of the 110 foot wide Illinois Terminal Railroad a distance of 1,598.81 feet to the POINT OF BEGINNING, containing 560.40 acres or 24,410,816 square feet.

ALSO A TRACT OF LAND (THE KOREA TANK FARM)
Part of the Southeast Quarter of Section 28 of Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois and being more particularly described as follows:

Beginning at the intersection of the south line of the Northwest Quarter of the Southeast Quarter of said Section 28 with the existing easterly right of way line of U.S. Route 67 (Old St. Louis & Alton Road); thence North 22 degrees 00 minutes 39 seconds West, along said existing easterly right of way line, a distance of 552.69 feet to a southeasterly line of a tract of land as described in Deed Book 3092, Page 2096 of Madison County Records; thence North 47 degrees 13 minutes 21 seconds East, along said southeasterly line, a distance of 255.43 feet; thence North 28 degrees 08 minutes 21 seconds East, continuing along a southeasterly line of said Deed Book 3092, Page 2096 and along the southeasterly line of a tract of land as described in deed Book 321, Page 2101 of Madison County Records, a distance of 199.86 feet; thence North 68 degrees 22 minutes 12 seconds East, 146.49 feet to the existing southwesterly right of way line of the Illinois Terminal Railroad; thence South 21 degrees 37 minutes 48 seconds East, along said existing southwesterly right of way line, a distance of 860.00 feet to a northwesterly line of a tract of land as described in Deed Book 3043, Page 2195 of Madison County Records; thence South 61 degrees 06 minutes 11 seconds West, along said northwesterly line, a distance of 225.34 feet to a northerly line of said tract, being the south line of the Northwest Quarter of the Southeast Quarter of said Section 28; thence South 88 degrees 39 minutes 00 seconds West, along said south line, a distance of 330.59 feet to the POINT OF BEGINNING, containing 9.26 acres or 403,429 sq. ft.

EXCEPTION #1 (BP DONATION PARCEL I-STORM WATER DETENTION BASIN)
Tract of land from Ground Surface to Elevation 418.00 MSL situated in the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the POINT OF BEGINNING; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East, 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes

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32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the POINT OF BEGINNING, containing 9.56 acres or 416,475 square feet.

EXCEPTION #2 (BP DONATION PARCEL II -POLICE STATION)
Tract of land from Ground Surface to Elevation 428.00 MSL situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way lane of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 19 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the POINT OF BEGINNING of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the POINT OF BEGINNING, containing 326,702 square feet or 7.50 acres, more or less.

EXCEPTION #3 (KM PHOENIX HOLDINGS LLC)
A tract of land from Ground Surface to elevation 408 MSL, also part of the Southwest Quarter of Section 27 and part of the North half of Section 34, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River and Village of Hartford, Madison County, Illinois, described as follows:

Commencing at the center of said Section 34, thence North 02 degrees 11 minutes 34 seconds West, along the east line of the Northwest Quarter of said Section 34, 375.41 feet to the POINT OF BEGINNING; thence North 87 degrees 25 minutes 28 seconds West, 375.56 feet; thence South 89 degrees 38 minutes 05 seconds West, 85.67 feet; thence South 87 degrees 55 minutes 17 seconds West, 536.04 feet; thence South 88 degrees 35 minutes 37 seconds West, 39.04 feet; thence South 89 degrees 06 minutes 31 seconds West, 306.89 feet; thence North 84 degrees 30 minutes 36 seconds West, 91.24 feet; thence North 01 degree 08 minutes 40 seconds West, 1907.54 feet; thence North 01 degree 43 minutes 44 seconds east, 180.84 feet; thence North 02 degrees 02 minutes 04 seconds West, 31.24 feet; thence North 08 degrees 09 minutes 12 seconds West, 193.17 feet; thence North 23 degrees 51 minutes 46 seconds West, 125.59 feet; thence North 88 degrees 23 minutes 04 seconds east, 361.38 feet; thence North 00 degrees 59 minutes 21 seconds West, 334.93 feet; thence North 89 degrees 00 minutes 24 seconds east, 244.24 feet to the Westerly line of a tract of land as described in book 1989 on page 183 of the Madison county records; thence South 02 degrees 37 minutes 56 seconds east, along said Westerly line, 362.67 feet to the Southwest corner of said tract of land as described in book 1989 on page 183; thence South 89 degrees 51 minutes 20 seconds east, along the South line of said tract of land and the North line of section 34, township 5 North, range 9 West of the third principal meridian, 836.60 feet; thence North 89 degrees 51 minutes 55 seconds east, along said North line of section 34, 179.06 feet; thence South 02 degrees 11 minutes 23 seconds West, 42.87 feet; thence South 61 degrees 19 minutes 54 seconds east, 171.54 feet; thence North 89 degrees 46 minutes 53

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seconds east, 309.34 feet, thence North 47 degrees 11 minutes 44 seconds east, 26.12 feet to the Southwesterly right of way of sixth street (old Alton Edwardsville road); thence South 41 degrees 12 minutes 30 seconds east, along said right of way, 157.19 feet; thence South 50 degrees 44 minutes 49 seconds West, 90.82 feet; thence South 41 degrees 23 minutes 46 seconds east, 447.19 feet; thence South 48 degrees 16 minutes 24 seconds West, 58.18 feet; thence South 02 degrees 33 minutes 01 second West, 11.02 feet; thence South 85 degrees 44 minutes 52 seconds West, 265.31 feet; thence South 08 degrees 22 minutes 18 seconds West, 65.76 feet; thence South 01 degree 00 minutes 37 seconds east, 1774.61 feet; thence South 26 degrees 32 minutes 14 seconds east, 121.77 feet; thence South 89 degrees 57 minutes 24 seconds West, 389.76 feet; thence North 00 degrees 04 minutes 26 seconds West, 18.34 feet; thence North 87 degrees 29 minutes 48 seconds West, 49.77 feet; thence North 17 degrees 42 minutes 17 seconds West, 96.06 feet; thence South 89 degrees 57 minutes 51 seconds West, 81.93 feet; thence North 00 degrees 53 minutes 03 seconds east, 16.52 feet; thence North 85 degrees 26 minutes 39 seconds West, 19.88 feet; thence North 02 degrees 32 minutes 56 seconds east, 90.09 feet; thence North 87 degrees 00 minutes 57 seconds West, 94.65 feet to the POINT OF BEGINNING, containing 5,151,138 square feet or 118.25 acres more or less.

KMPH Legal Description

CMT

SURVEY:

A TRACT OF LAND FROM GROUND SURFACE TO ELEVATION 408 MSL, ALSO PART OF THE SOUTHWEST QUARTER OF SECTION 27 AND PART OF THE NORTH HALF OF SECTION 34, TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN, CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS, DESCRIBED AS FOLLOWS:

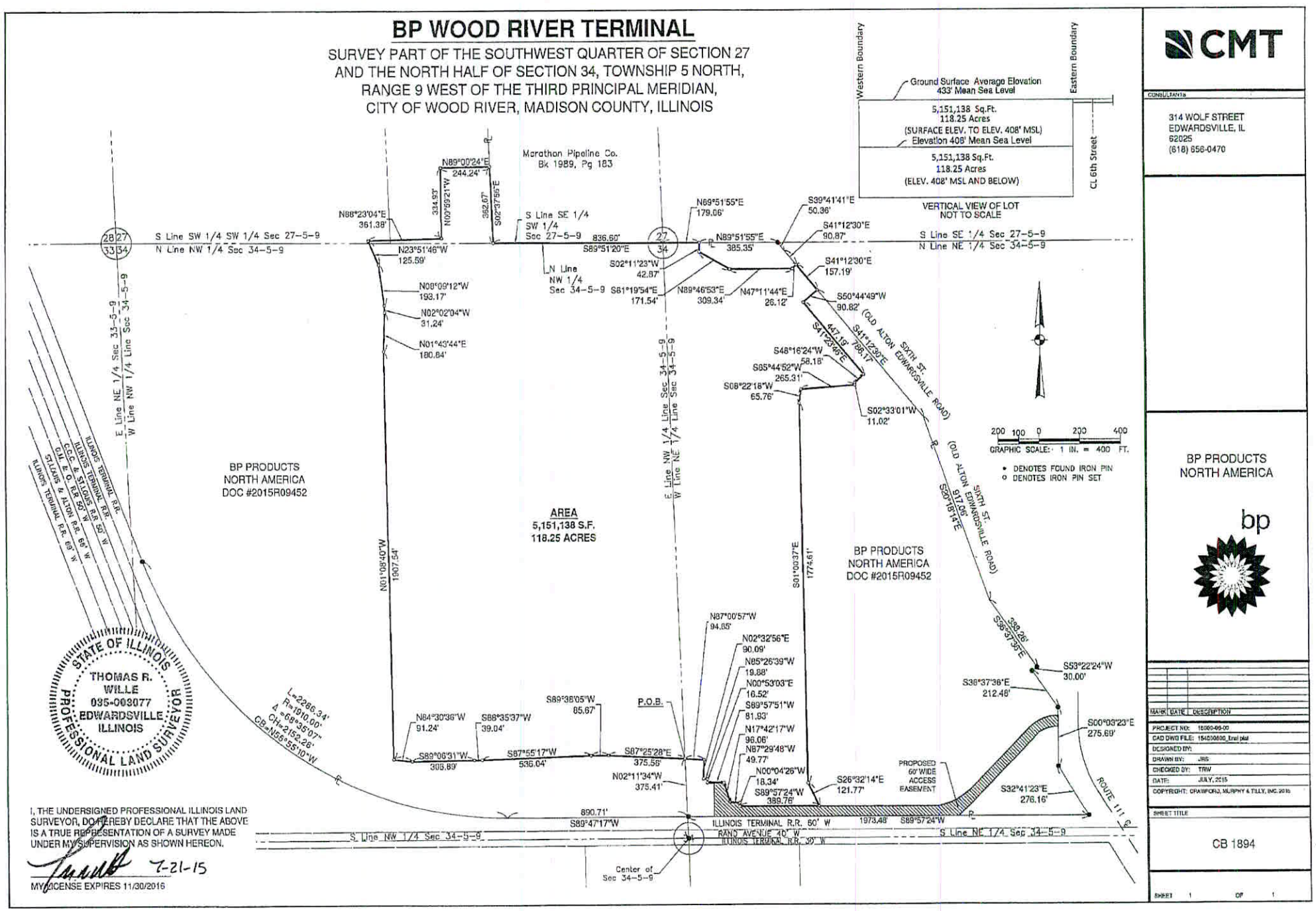
COMMENCING AT THE CENTER OF SAID SECTION 34, THENCE NORTH 02 DEGREES 11 MINUTES 34 SECONDS WEST, ALONG THE EAST LINE OF THE NORTHWEST QUARTER OF SAID SECTION 34, 375.41 FEET TO THE POINT OF BEGINNING; THENCE NORTH 87 DEGREES 25 MINUTES 28 SECONDS WEST, 375.56 FEET; THENCE SOUTH 89 DEGREES 38 MINUTES 05 SECONDS WEST, 85.67 FEET; THENCE SOUTH 87 DEGREES 55 MINUTES 17 SECONDS WEST, 536.04 FEET; THENCE SOUTH 88 DEGREES 35 MINUTES 37 SECONDS WEST, 39.04 FEET; THENCE SOUTH 89 DEGREES 06 MINUTES 31 SECONDS WEST, 306.89 FEET; THENCE NORTH 84 DEGREES 30 MINUTES 36 SECONDS WEST, 91.24 FEET; THENCE NORTH 01 DEGREE 08 MINUTES 40 SECONDS WEST, 1907.54 FEET; THENCE NORTH 01 DEGREE 43 MINUTES 44 SECONDS EAST, 180.84 FEET; THENCE NORTH 02 DEGREES 02 MINUTES 04 SECONDS WEST, 31.24 FEET; THENCE NORTH 08 DEGREES 09 MINUTES 12 SECONDS WEST, 193.17 FEET; THENCE NORTH 23 DEGREES 51 MINUTES 46 SECONDS WEST, 125.59 FEET; THENCE NORTH 88 DEGREES 23 MINUTES 04 SECONDS EAST, 361.38 FEET; THENCE NORTH 00 DEGREES 59 MINUTES 21 SECONDS WEST, 334.93 FEET; THENCE NORTH 89 DEGREES 00 MINUTES 24 SECONDS EAST, 244.24 FEET TO THE WESTERLY LINE OF A TRACT OF LAND AS DESCRIBED IN BOOK 1989 ON PAGE 183 OF THE MADISON COUNTY RECORDS; THENCE SOUTH 02 DEGREES 37 MINUTES 56 SECONDS EAST, ALONG SAID WESTERLY LINE, 362.67 FEET TO THE SOUTHWEST CORNER OF SAID TRACT OF LAND AS DESCRIBED IN BOOK 1989 ON PAGE 183; THENCE SOUTH 89 DEGREES 51 MINUTES 20 SECONDS EAST, ALONG THE SOUTH LINE OF SAID TRACT OF LAND AND THE NORTH LINE OF SECTION 34, TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN, 836.60 FEET; THENCE SOUTH 89 DEGREES 51 MINUTES 55 SECONDS EAST, ALONG SAID NORTH LINE OF SECTION 34, 179.06 FEET; THENCE SOUTH 02 DEGREES 11 MINUTES 23 SECONDS WEST, 42.87 FEET; THENCE SOUTH 61 DEGREES 19 MINUTES 54 SECONDS EAST, 171.54 FEET; THENCE NORTH 89 DEGREES 46 MINUTES 53 SECONDS EAST, 309.34 FEET, THENCE NORTH 47 DEGREES 11 MINUTES 44 SECONDS EAST, 26.12 FEET TO THE SOUTHWESTERLY RIGHT OF WAY OF SIXTH STREET (OLD ALTON EDWARDSVILLE ROAD); THENCE SOUTH 41 DEGREES 12 MINUTES 30 SECONDS EAST, ALONG SAID RIGHT OF WAY, 157.19 FEET; THENCE SOUTH 50 DEGREES 44 MINUTES 49 SECONDS WEST, 90.82 FEET; THENCE SOUTH 41 DEGREES 23 MINUTES 46 SECONDS EAST, 447.19 FEET; THENCE SOUTH 48 DEGREES 16 MINUTES 24 SECONDS WEST, 58.18 FEET; THENCE SOUTH 02 DEGREES 33 MINUTES 01 SECOND WEST, 11.02 FEET; THENCE SOUTH 85 DEGREES 44 MINUTES 52 SECONDS WEST, 265.31 FEET; THENCE SOUTH 08 DEGREES 22 MINUTES 18 WEST, 65.76 FEET; THENCE SOUTH 01 DEGREE 00 MINUTES 37 SECONDS EAST, 1774.61 FEET; THENCE SOUTH 26 DEGREES 32 MINUTES 14 SECONDS EAST, 121.77 FEET; THENCE SOUTH 89 DEGREES 57 MINUTES 24 SECONDS WEST, 389.76 FEET; THENCE NORTH 00 DEGREES 04 MINUTES 26 SECONDS WEST, 18.34 FEET; THENCE NORTH 87 DEGREES 29 MINUTES 48 SECONDS WEST, 49.77 FEET; THENCE NORTH 17 DEGREES 42 MINUTES 17 SECONDS WEST, 96.06 FEET; THENCE SOUTH 89 DEGREES 57 MINUTES 51 SECONDS WEST, 81.93 FEET; THENCE NORTH 00 DEGREES 53 MINUTES 03 SECONDS EAST, 16.52 FEET; THENCE NORTH 85 DEGREES 26 MINUTES 39 SECONDS WEST, 19.88 FEET; THENCE NORTH 02 DEGREES 32 MINUTES 56 SECONDS EAST, 90.09 FEET; THENCE NORTH 87 DEGREES 00 MINUTES 57 SECONDS WEST, 94.65 FEET TO THE POINT OF BEGINNING, CONTAINING 5,151.138 SQUARE FEET OR 118.25 ACRES MORE OR LESS.

CB 1894

JULY, 2015

BP WOOD RIVER TERMINAL

SURVEY PART OF THE SOUTHWEST QUARTER OF SECTION 27
AND THE NORTH HALF OF SECTION 34, TOWNSHIP 5 NORTH,
RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN,
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS



STATE OF ILLINOIS
THOMAS R. WILLE
035-003077
EDWARDSVILLE
ILLINOIS
PROFESSIONAL LAND SURVEYOR

I, THE UNDERSIGNED PROFESSIONAL ILLINOIS LAND SURVEYOR, DO HEREBY DECLARE THAT THE ABOVE IS A TRUE REPRESENTATION OF A SURVEY MADE UNDER MY SUPERVISION AS SHOWN HEREON.

7-21-15

MY LICENSE EXPIRES 11/30/2016

CMT

CONSULTANTa

314 WOLF STREET
EDWARDSVILLE, IL
62025
(618) 656-0470

BP PRODUCTS
NORTH AMERICA

bp

MARK	DATE	DESCRIPTION

PROJECT NO: 16000-00-00
CAD DWG FILE: 154000600_final plat
DESIGNED BY:
DRAWN BY: JRS
CHECKED BY: TRW
DATE: JULY, 2015
COPYRIGHT: CRAWFORD, MURPHY & TILLY, INC. 2015

SHEET TITLE

CB 1894

SHEET 1 OF 1

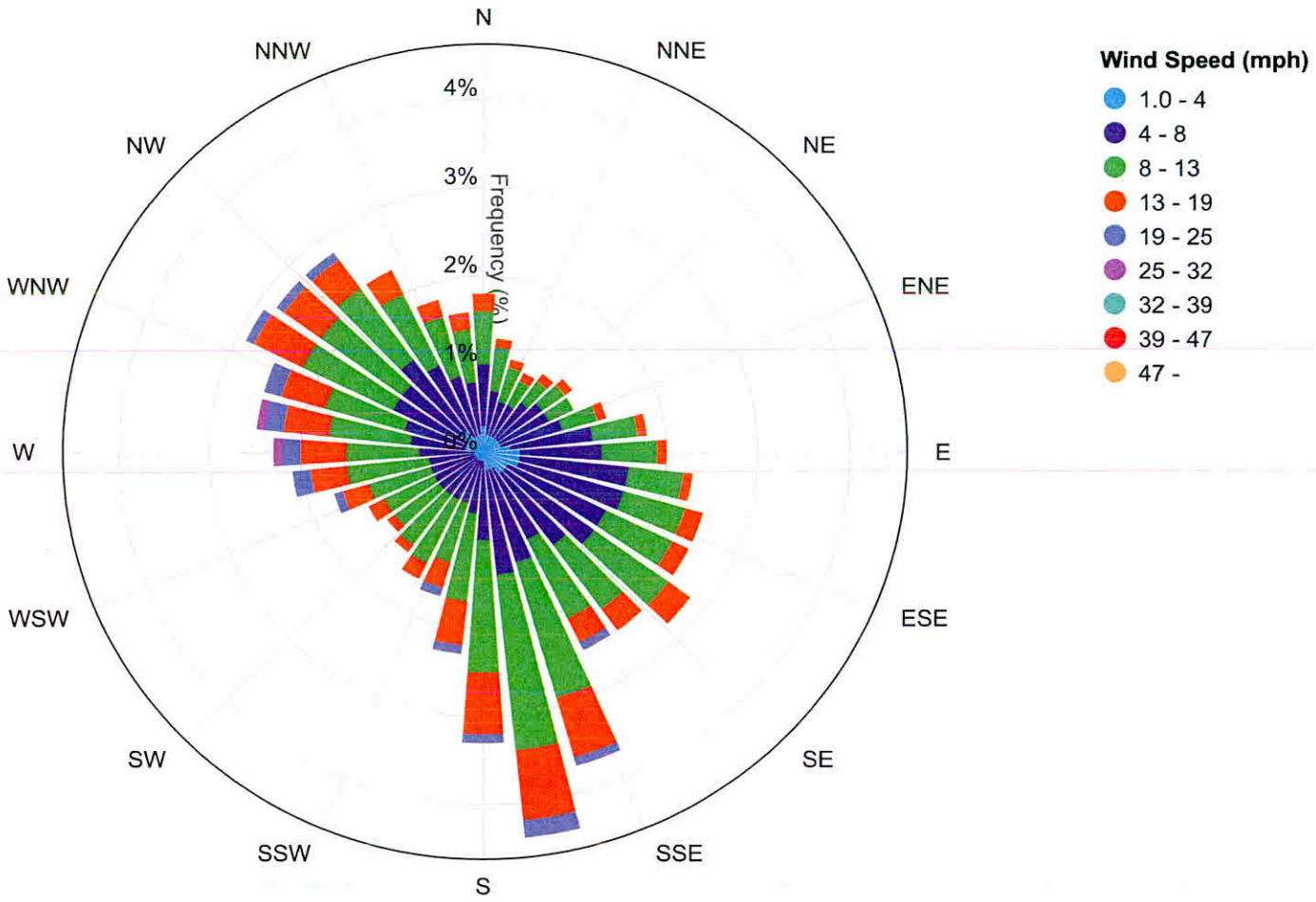
R000097

Exhibit B-2

Wind Rose

ALTON ST LOUIS RGNL AP (IL) Wind Rose

June 1, 2014 - June 25, 2024
Sub-Interval: Jan. 1 - Dec. 31, 0 - 23



ALTON ST LOUIS RGNL AP (IL) - Wind Frequency Table (percentage)

Latitude : 38.8833
Longitude : -90.0500
Elevation : 543 ft.
Element : Mean Wind Speed

Start Date : June 1, 2014
End Date : June 25, 2024
# of Days : 3678 of 3678
obs : poss : 160125 of 262584

Sub Interval Windows

	Start	End
Date	Jan. 1	Dec. 31
Hour	0	23

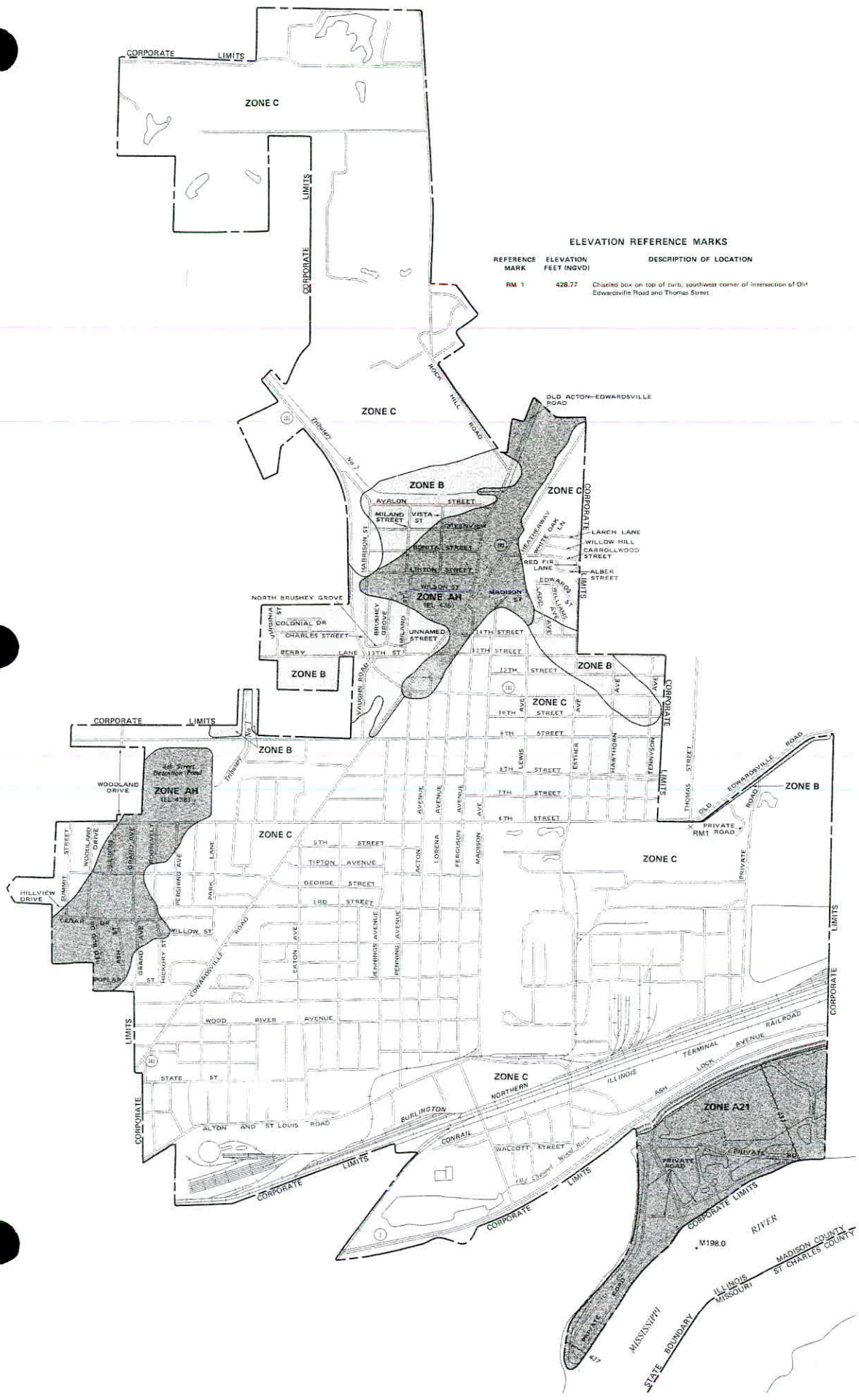
(Greater than or equal to initial interval value and Less than ending interval value.)

Range (mph)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330	340	350	Total
1.0 - 4	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.3	0.3	0.2	0.2	0.2	7.3
4 - 8	0.7	0.5	0.4	0.4	0.5	0.6	0.6	0.7	0.9	0.9	1.2	1.2	1.2	1.2	1.0	0.9	1.1	1.2	0.9	0.6	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.9	0.8	1.0	0.9	0.7	0.6	27.0
8 - 13	0.6	0.5	0.4	0.3	0.3	0.3	0.3	0.4	0.5	0.6	0.6	0.7	0.8	1.0	0.9	1.0	1.6	2.0	1.5	1.0	0.7	0.8	0.7	0.6	0.6	0.7	0.9	0.8	0.9	0.9	1.1	1.1	1.0	0.9	0.7	0.6	28.0
13 - 19	0.2	0.1	0.1	0.1	0.1	0.1	0.0	0.1	0.1	0.1	0.1	0.2	0.2	0.3	0.3	0.3	0.7	0.8	0.7	0.5	0.3	0.2	0.1	0.1	0.2	0.3	0.4	0.5	0.5	0.5	0.6	0.5	0.4	0.3	0.2	0.2	10.3
19 - 25	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.2	0.1	0.1	0.1	0.0	0.0	0.0	0.0	0.1	0.2	0.2	0.2	0.2	0.1	0.1	0.1	0.0	0.0	0.0	2.0
25 - 32	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
32 - 39	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
39 - 47	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
47 -	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total(%)	1.8	1.3	1.0	1.0	1.1	1.1	1.1	1.3	1.8	2.0	2.4	2.4	2.5	2.7	2.5	2.6	3.8	4.4	3.4	2.3	1.6	1.7	1.4	1.3	1.4	1.7	2.1	2.3	2.4	2.5	3.0	2.7	2.7	2.4	1.8	1.6	75.0
Calm (<1.0)																																					24.9
Ave Speed	7.8	7.8	7.5	7.2	6.7	6.7	6.5	6.8	6.7	6.9	6.9	7.0	7.7	8.0	8.1	8.8	9.6	10.2	10.6	10.4	10.0	9.3	8.7	8.8	9.3	10.0	11.1	11.4	11.0	10.4	10.2	9.5	9.0	8.8	8.7	8.4	6.7

Exhibit B-3

National Flood Insurance Program Maps

R000101



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION FEET (NGVD)	DESCRIPTION OF LOCATION
RM 1	428.77	Chiseled box on top of curb, southwest corner of intersection of Old Edwardsville Road and Thomas Street.

KEY TO MAP

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations* With Date of Identification e.g., 12/2/74
100-Year Flood Boundary
500-Year Flood Boundary

ZONE B
ZONE B

Base Flood Elevation Line With Elevation In Feet** — 513
Base Flood Elevation in Feet Where Uniform Within Zone** (EL 987)
Elevation Reference Mark RM7 ×
River Mile • M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
FEBRUARY 15, 1974
FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
MAY 1, 1979
FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the CONVERSION TO REGULAR PROGRAM date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE
1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

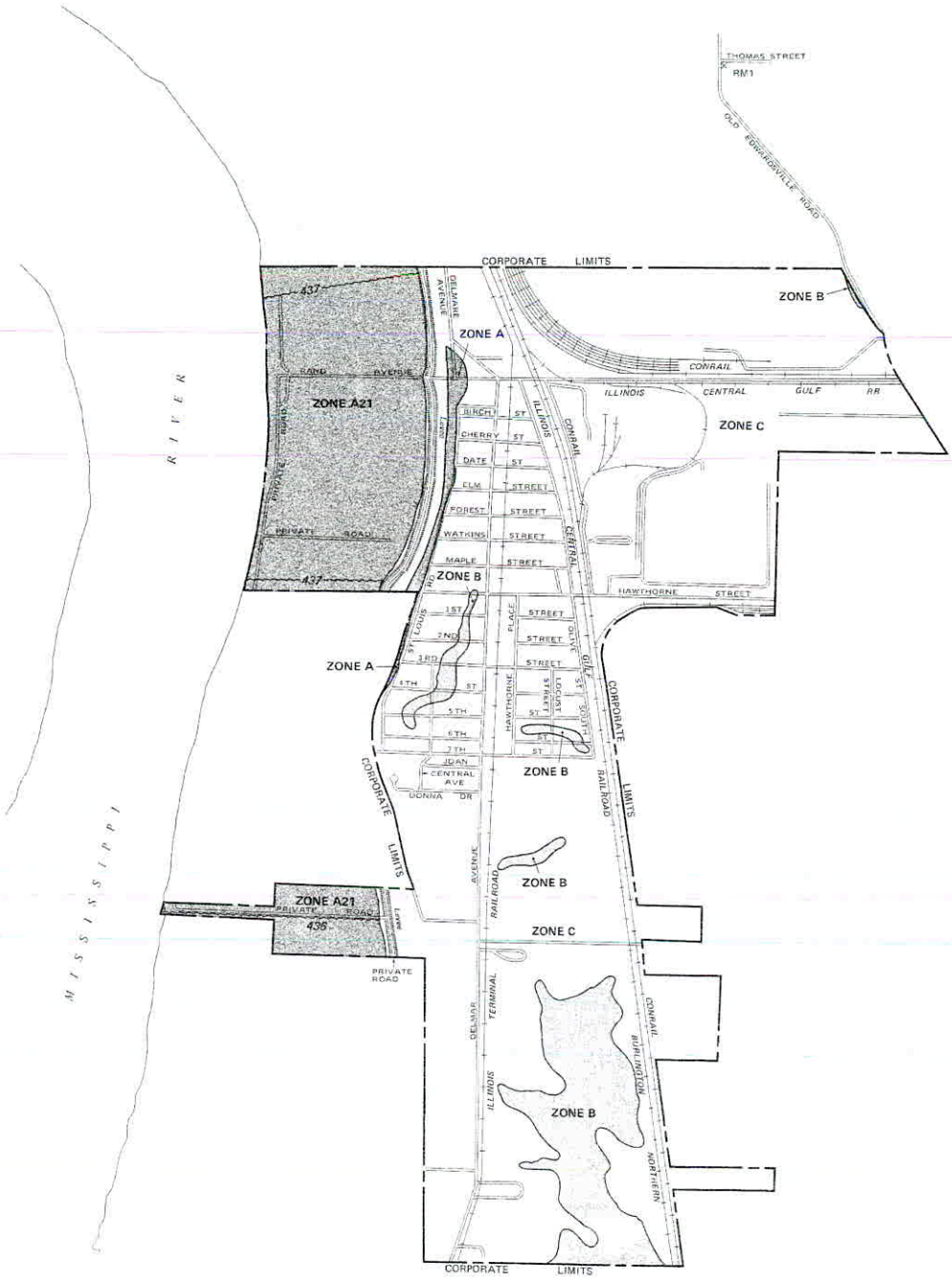
CITY OF
WOOD RIVER,
ILLINOIS
MADISON COUNTY

(ONLY PANEL PRINTED)

COMMUNITY-PANEL NUMBER
170451 0005 B

EFFECTIVE DATE:
MAY 1, 1979

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT



ELEVATION REFERENCE MARKS

REFERENCE MARK	ELEVATION (FEET NGVD)	DESCRIPTION OF LOCATION
RM1	428.77	Chiseled box on top of curb, southeast corner of intersection of Old Edwardsville Road and Thomas Street.

KEY TO MAP R000102

500-Year Flood Boundary
100-Year Flood Boundary
Zone Designations* With Date of Identification e.g., 12/2/74
100-Year Flood Boundary
500-Year Flood Boundary

ZONE B
ZONE A
ZONE B

Base Flood Elevation Line With Elevation In Feet** — 513

Base Flood Elevation in Feet Where Uniform Within Zone** — (EL 987)

Elevation Reference Mark — RM7 ×

River Mile — • M1.5

**Referenced to the National Geodetic Vertical Datum of 1929

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
AO	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
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V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

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This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
NOVEMBER 30, 1973

FLOOD HAZARD BOUNDARY MAP REVISIONS:

FLOOD INSURANCE RATE MAP EFFECTIVE:
MAY 1, 1979

FLOOD INSURANCE RATE MAP REVISIONS:

Refer to the CONVERSION TO REGULAR PROGRAM date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program, at (800) 638-6620, or (800) 424-8872.

APPROXIMATE SCALE
1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

VILLAGE OF
HARTFORD,
ILLINOIS
MADISON COUNTY

[ONLY PANEL PRINTED]

COMMUNITY-PANEL NUMBER
170444 0005 B

EFFECTIVE DATE:
MAY 1, 1979

U.S. DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT

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Figure C-2b Groundwater Monitoring Optimized Well Network

Figure C-3 Main Plant Groundwater Management Zone

Figure C-4 Main Plant Permitted Wells and Land Reuse Areas

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EXHIBITS

Exhibit C-1 Groundwater Monitoring Program

Exhibit C-2 COD Well System Information

Exhibit C-3 Statistical Evaluations Main Plant GMZ

Exhibit C-4 Potentiometric Surface Maps for COD Well System Performance Comparison

SECTION C – GROUNDWATER MONITORING

bp is proposing to modify the previously approved groundwater monitoring for the bp Main Plant Property in accordance with 35 Illinois Administrative Code (IAC) 724.200 consistent with the existing bp Main Plant Property Permit (LPC 1191150001, issued March 4, 2011, and last modified May 29, 2018 [Log B-147R-M-17 and M-18]) requirements as requested in the following Class 1* permit modification requests previously submitted to the Illinois Environmental Protection Agency (Illinois EPA) and incorporated throughout this section.

- 06/03/2020: Statistical Evaluation Reporting
- 09/23/2020: G047 Well Abandonment
- 02/28/2023: Groundwater Optimization and Contaminant Control
- 01/16/2024: Cone of Depression (COD) Well Replacements

The performance of groundwater corrective action and groundwater monitoring at the bp Main Plant Property will continue to protect human health and the environment.

Groundwater corrective action is required at the bp Main Plant Property due to the presence of light non-aqueous phase liquid (LNAPL) and dissolved groundwater impacts that originated from historical operations at the Amoco petroleum refinery and the Amoco Petroleum Additives Company (APAC). The LNAPL and dissolved plumes are not located near the former regulated units (North Cell of Spray Pond 1 [NC-SP1] and South Flare Pit [SFP]), and the plumes did not originate from the regulated units.

The interim corrective action for the bp Main Plant Property is designed to control the migration of LNAPL and impacted groundwater within the Groundwater Management Zone (GMZ) by inducing an inward hydraulic gradient toward the COD wells located on the Main Plant Property.

The groundwater pumped by the COD wells is treated at the City of Wood River Publicly Owned Treatment Works (POTW).

bp will continue hydraulic control as an interim corrective action for groundwater exceeding applicable groundwater quality standards until a final remedy is proposed and approved by the Illinois EPA. In the event that an inward gradient is unable to be confirmed in the southeast corner or downgradient of the western portion of the GMZ, south of Area 9, compliance will be satisfied by demonstrating contaminant control as discussed below in **Section C.8.1**.

bp conducts a groundwater monitoring program (GMP) at the bp Main Plant Property to monitor for groundwater quality and flow in the uppermost aquifer (UMA). Periodic groundwater testing and gauging is conducted to monitor the progress of corrective action over time.

C.1 Exemption from Groundwater Protection Requirements: 703.185, 724.190(b)

Sections 703.185 and 724.190(b) are not applicable to the bp Main Plant Property. Section 703.185 is required for an owner or operator of a hazardous waste facility containing a regulated unit, except as provided in Section 724.190(b). Section 724.190(b) applies to owners and operators of facilities that treat, store, or dispose of hazardous waste.

There are currently no Hazardous Waste Management Units present at the bp Main Plant Property. Two former hazardous waste management units at the Main Plant Property, the NC-SP1 and the SFP, have been certified as closed by removal.

C.2 Interim Status Groundwater Monitoring Data: 703.185(a)

Pursuant to 703.185(a), a summary of the groundwater monitoring data obtained during the interim status period under Sections 725.190 through 725.194 is not applicable. The facility is performing Corrective Action Groundwater Monitoring under the Main Plant Part B Resource Conservation and Recovery Act (RCRA) permit.

C.3 Historical Hydrogeological Summary: 703.185(b), 620.210

The bp Main Plant Property is located in an area of the Mississippi River floodplain valley identified as the American Bottoms. The width of the American Bottoms in the Wood River area is approximately seven miles.

Unconsolidated sediments in the American Bottoms are designated as "valley fill" and include recent alluvium and glacial material. The unconsolidated sediments encountered in the American Bottoms overlying the bedrock have been identified as, from most recent to oldest, recent alluvium, Wisconsinan (Age) outwash, Illinoisan (Age) till and ice contact deposits, and older alluvium. The thickness of the valley fill in the American Bottoms ranges from 0 to 160 feet (Bergstrom and Walker, 1956). The thickest accumulation of unconsolidated sediments coincides with a channel eroded into the bedrock. The bp Main Plant Property appears to be overlying the southern slope of the buried bedrock channel.

The unconsolidated sediments were characterized by analyzing boring logs from environmental and geotechnical investigations, and local water well logs. Four stratigraphic units of the valley fill have been identified as described below:

Floodplain Deposits: The fine-grained sediments encountered at ground surface and relatively shallow depths at the bp Main Plant Property compose the Floodplain Deposits. The lithology of the Floodplain Deposits consists of complexly interbedded silt and clay. The Floodplain Deposits have thicknesses of 18 to 46 feet.

Fine Sand Unit: This unit consists of fine sand that has been encountered under the Floodplain Deposits. The sand is often silty. Some medium-grained sand has also been encountered within the Fine Sand Unit. The Fine Sand Unit is not present in many areas under the bp Main Plant Property; where present, a maximum observed thickness is 17 feet.

Coarse Sand and Gravel Unit: This unit consists of coarse-grained sand and gravel with localized beds of cobbles and some boulders. The coarse sand and gravel unit extends from the bottom of either the Floodplain Deposits or Fine Sand Unit to bedrock. This unit thickness varies from approximately 45 to 80 feet.

Basal Clay: A thin basal clay layer (0.5 to 4 feet) overlying bedrock has been identified at several well locations.

The bedrock surface is located at depths ranging from 101 to greater than 113 feet below ground surface (bgs) near the Main Plant Property. Locally, limestone and shale bedrock have been encountered. A boring southeast of the Main Plant Property indicated that the upper 143 feet of bedrock is composed of interbedded shale and sandstone with some minor limestone.

Hydrogeological Units

Two groundwater zones have been identified at the bp Main Plant Property based on hydrogeological investigations: perched groundwater zones and the UMA.

Perched Groundwater Zones

The upper water-bearing zone includes shallow water contained within fill and discontinuous perched groundwater zones, which are encountered intermittently above or within the floodplain deposits. The source of the perched water and water in fill which may occur seasonally, are local precipitation, proximity to surface water bodies, and confining properties of the underlying clay. The shallow water in fill and perched water is Illinois Class II groundwater in most instances, as it is encountered within 10 feet of the surface, is limited in quantity, and is discontinuous in nature.

Slug tests performed on wells screened in the perched water-bearing sediments resulted in hydraulic conductivity values of 0.19 ft/day and 0.20 ft/day (Amoco, 1985). These conductivity values are typical of lithologies ranging from silty sands to clays.

Uppermost Aquifer

The deeper water-bearing zone is the principal regional aquifer of the American Bottoms and is identified as the UMA. For the purposes of this Permit and in accordance with 35 IAC Part 620 regulations, the UMA has been designated Class I: Potable Resource Groundwater. The UMA is comprised of a coarsening downward sequence of outwash sands and gravels found in the Fine Sand and Coarse Sand and Gravel Units. The UMA extends from the water table to the top of the bedrock. The top of the UMA is generally encountered at depths ranging from 30 to 40 feet bgs during periods of normal Mississippi River elevations and the thickness of the UMA can be as much as 80 feet. Fine-grained floodplain deposits that overlie the UMA create confined or semi-confined aquifer conditions in some portions of the bp Main Plant Property depending on the thickness of the deposits and the groundwater elevation.

UMA potentiometric groundwater flow maps for the last 10 years have been generally similar to the April 2024 event shown in **Figure C-1**. Comparisons of river elevations and groundwater elevations suggest that the river is in hydraulic communication with the UMA. During higher flow conditions the river acts as a source of recharge to the UMA whereas during lower flow conditions the river is a localized discharge area.

Hydraulic Aquifer Properties

The average hydraulic conductivity value of the Fine Sand Unit is 26 ft/day based on results of slug tests and a pump test. Hydraulic conductivity of the Coarse Sand and Gravel Unit using a single well method is 355 ft/day.

Historical slug tests performed on wells screened in the perched water-bearing sediments resulted in hydraulic conductivity values of 0.19 ft/day and 0.20 ft/day. These conductivity values are typical of lithologies ranging from silty sands to clays.

Groundwater Flow Directions and Groundwater Flow Rates

Hydraulic gradients and groundwater flow direction in the UMA are influenced by pumping from wells located on and around the bp Main Plant Property as follows:

- North and South pumping centers (COD wells) at the bp Main Plant Property create a cone of depression that maintains inward flow towards the bp Main Plant Property.
- Based on historical studies provided in the April 2010 *Site-Wide Geology Report*, hydraulic conductivity for the Cahokia Formation ranges from 10^{-4} to 10^{-6} centimeters per second (cm/sec) and for the Henry Formation (the UMA) is approximately 10^{-4} cm/sec. However, due to the hydraulic control requirements for the bp Main Plant Property, groundwater flow rates are artificially induced by bp's COD Well System which has a maximum operating capacity of 1,600 gallons per minute (gpm).
- Pumping at the City of Wood River municipal water supply wells to the northwest of the bp Main Plant Property.
- Shell's remedial pumping center to the east of the bp Main Plant Property.

Groundwater Management Zone

A GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of the contaminants from the Main Plant Property. The bp Main Plant Property GMZ extent, shown on **Figure C-3**, was approved in Illinois EPA correspondence dated April 6, 1994. The groundwater within the bp Main Plant GMZ is hydraulically controlled by the COD wells at the bp Main Plant Property. The boundaries of the bp Main Plant Property GMZ were historically established based on exceedances of applicable groundwater quality standards and are horizontally and vertically delineated as described in Section C.8.1.3.

Hydraulic Control System

bp currently controls groundwater flow by pumping from three pumping centers (HW1B, HW2A, and HW2B) located in two horizontal wells. bp plans to continue to operate the COD wells and record the pumping rates, or perform alternate measures approved by the Illinois EPA. bp monitors groundwater flow direction using groundwater elevations measured on a quarterly basis. bp submits quarterly potentiometric surface maps with the Semi-Annual Groundwater Corrective Action Reports.

One additional vertical COD well (VW01) was installed in 2023 to provide supplemental hydraulic control of groundwater in the southeast corner of the bp Main Plant Property during periods of river levels exceeding flood stage to maintain an inward gradient to the extent possible and control potential plume migration during such conditions. Based on the low yield observed from VW01 and observed performance of the horizontal wells, the use of VW01 has been determined to be not needed. Vertical well VW01 is proposed for abandonment as detailed below in Section **C.8.1.5**.

C.4 Topographic Map Requirements: 703.183(s), 703.185(c)

A topographic map that extends 1,000 feet beyond the bp Main Plant Property boundary is provided in Section B (**Figures B-5A**, **B-5B**, and **B-5C**) of this permit renewal application. A water well survey (WWS) was completed on June 26, 2024, for wells (groundwater extraction and injection) on and within 1,000 feet of the bp Main Plant Property. WWS information was sourced from the Illinois EPA GIS page for Source Water Assessment Protection Program [Source Water Assessment Protection Program (arcgis.com)]. In addition to the COD wells on the bp Main Plant Property, the WWS identified six extraction wells as shown on **Figure B-5A**.

The legal description for the bp Main Plant Property is provided in **Exhibit B-1** of Section B. A wind rose is included in **Exhibit B-2**. Groundwater flow direction and rates are discussed above in Section C.3, and groundwater elevation contours, flow direction, and compliance points are displayed on **Figure C-1**. The current groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2a**. The approved optimized groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2b**.

C.5 Contaminant Plume Description: 703.185(d), 721-Appendix I

Section C.5 is not applicable to this permit renewal application. Section 703.185(d) and 721-Appendix I are applicable to contaminant plumes that originate from regulated units. The contaminant plume at the bp Main Plant Property did not originate from a regulated unit.

There are two former regulated hazardous waste units (NC-SP1 and SFP) at the Main Plant Property that have been certified as closed by removal.

Section I.A of the renewed Main Plant RCRA Permit dated March 4, 2011, removed the NC-SP1 and SFP hazardous waste units from post-closure requirements.

C.6 Detection Monitoring Program: 703.185(f), 724.198

Section C.6 and subsections C.6.1 through C.6.8 are not applicable to this permit renewal application. Sections 703.185(f) and 724.198 are applicable to regulated units; there are no regulated units at the bp Main Plant Property. Section I.D.1 of the renewed Main Plant RCRA Permit dated March 4, 2011, removed the Detection Monitoring Program formerly associated with the SFP hazardous waste unit from the permit.

C.7 Compliance Monitoring Program: 703.185(g), 724.199

Section C.7 and subsections C.7.1 through C.7.10 are not applicable to this permit renewal application. Sections 703.185(g) and 724.199 are applicable to regulated units; there are no regulated units at the bp Main Plant Property.

C.8 Corrective Action Program: 703.185(h), 724.191(a)(2) & (3), 724.200

bp currently conducts corrective action monitoring pursuant to Section V of the Main Plant Property RCRA Part B Permit for GMZ Boundary Monitoring Wells and Main Plant Observation Wells (MPOW) listed in Section V.D.1.

The current groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2a**. The approved optimized groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2** . The constituents monitored are volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), and total metals as listed in Section V.E.1 of the Permit (also listed in Appendix B of **Exhibit C-1**).

Proposed modifications to Section V are incorporated throughout this section and include: i) incorporation of the approved optimized groundwater corrective action monitoring program, ii) the methodology for demonstration of groundwater contaminant control, iii) incorporation of replacement monitoring wells that have been installed, iv) removal of monitoring wells that have been plugged and abandoned, v) incorporation of replacement COD wells, vi) addressing the deficiencies of the statistical evaluation methodology and frequency of reporting, vii) reduction of hard copies required for notices or reports submitted to Illinois EPA, and viii) removal of the requirement for vented monitoring well caps.

A summary of the groundwater monitoring wells that are present within each Land Reuse Area is presented in the following subsections. **Table C-1** lists the wells present within each Land Reuse Area. **Figure C-4** depicts the Land Reuse Area boundaries in relation to the permitted monitoring wells that are gauged and sampled at the Main Plant Property. **Figure C-5a** presents the Class I Groundwater Quality Standard (GQS) exceedances for GMZ Boundary Monitoring Wells in 2018 and 2019, and **Figure C-5b** presents the Class I GQS exceedances for GMZ Boundary Monitoring Wells in 2021 through 2023.

As detailed in Section B, an approximate 118.25-acre three-dimensional parcel above elevation 408 feet above mean sea level (ft MSL) is not part of the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area at and below elevation 408 ft MSL remains part of the facility and is subject to bp's Part B Permit. The vertical parceling between KMPH and bp is illustrated on **Figures C-4**, **C-5a**, and **C-5** .

Area 1 – Northwest Corner

The following monitoring wells are located within the boundary of Area 1:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G500/G500	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

Monitoring well G500 was installed as the well listed in the May 29, 2018 Part B RCRA permit as G113 "to be installed." The designation G500 was used because there is another well identified as G113 at the Riverfront Property.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring well G500 (arsenic, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring well G500 (arsenic, chromium, and nickel) during 2021-2023.

Area 2 – Northeast Corner

The following monitoring wells are located within the boundary of Area 2:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G045/G-5	Main Plant GMZ Boundary Monitoring Well
G046/G-6	MPOW – Gauging Only
G04R/B-4R	Main Plant GMZ Boundary Monitoring Well
G055/G-15	Main Plant GMZ Boundary Monitoring Well
G10L/H-20	MPOW – Gauging and Sampling
G5B/G-5B	Main Plant GMZ Boundary Monitoring Well
G18/H-28	Approved for removal from GMP
G97L/H-17†	MPOW – Sampling Only

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†As detailed in the well condition letter submitted to Illinois EPA on January 29, 2024, G97L is proposed for replacement.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G046 (arsenic), G055 (chromium), G10L (arsenic, lead, benzene, ethylbenzene, toluene, bis(2-ethylhexyl)phthalate, and naphthalene), and G97L (arsenic, lead, benzene, ethylbenzene, toluene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G046 (arsenic), G04R (chromium and nickel), G10L (arsenic, lead, benzene, ethylbenzene, and naphthalene), and G97L (arsenic, lead, 1,2-Dichloroethane, benzene, chloroform, ethylbenzene, and naphthalene) during 2021-2023.

Area 3 – North Central Area

The following monitoring wells are located within the boundary of Area 3:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G13L/H-23	MPOW – LNAPL Monitoring
G417/B-17	MPOW – LNAPL Monitoring
G99L/H-19	MPOW – Gauging Only
G603/RC-3	MPOW – LNAPL Monitoring
GXXX/C-9#	MPOW – LNAPL Monitoring
GXXX/A3MW01#	MPOW – LNAPL Monitoring
GXXX/A3MW02#	MPOW – LNAPL Monitoring
GXXX/SVE-2#	MPOW – LNAPL Monitoring

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
#Illinois EPA Well ID pending; designated MPOW as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- No Class I GQS exceedances were detected in any monitoring well located in Area 3 during 2018-2019.

- Concentrations above Class I GQS were detected in monitoring wells G13L (arsenic, barium, lead, benzene, ethylbenzene, MTBE, and naphthalene), G417 (arsenic, benzene, bis(2-Ethylhexyl)phthalate, and MTBE), and G99L (arsenic, lead, benzene, ethylbenzene, and naphthalene) during 2021-2023.

Area 4 – Former Rail Yard Area

The following monitoring wells are located within the boundary of Area 4:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G303/RP-3D	Main Plant GMZ Boundary
R302/R302†	Main Plant GMZ Boundary
G016/C-6	MPOW – Gauging Only

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†In August 2019, G302 was plugged and abandoned, and replacement well R302 was installed.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring well G302 (benzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene), G303 (bis(2-Ethylhexyl)phthalate), and G016 (total arsenic) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring well G302 (arsenic), R302 which replaced G302 (arsenic and lead), and G016 (arsenic and benzene) during 2021-2023.

Area 5 – South Central Area

The following COD and monitoring wells are located within the boundary of Area 5:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G664/PW-64	Approved for removal from GMP
G668/HPW-58	Approved for removal from GMP
G669/HPW-6	Approved for removal from GMP
HW2B/HW02-B	Gradient Control Well
VW01/VW01#	Gradient Control Well
G023/C-13	Main Plant GMZ Boundary Monitoring Well
G047/G-7†	Approved for removal from GMP
G048/G-48	MPOW – Gauging and Sampling
G049/G-9	MPOW – LNAPL Monitoring
G304/RP-4	MPOW – Demonstration Well^
G305/RP-5	MPOW – Gauging and Sampling
G306/RP-6	MPOW – Sampling Only
G307/RP-7	MPOW – Gauging and Sampling
G34/H-34	MPOW – LNAPL Monitoring
G605/RC-5	MPOW – LNAPL Monitoring
G615/RC-15	MPOW – LNAPL Monitoring

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†In August 2020, G047 was plugged and abandoned as the structural integrity of the well was compromised.

^Details regarding the proposed designation of Demonstration Wells are provided in **Section C.8.1**.
#Illinois EPA Well ID pending; well is proposed for abandonment as discussed in **Section C.8.1.5**.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G023 (arsenic, benzene, benzo(a)anthracene, benzo(b)fluoranthene), G305 (arsenic), G306 (arsenic, barium, benzene, ethylbenzene, naphthalene, styrene, toluene), and G307 (arsenic, benzene, ethylbenzene, naphthalene, styrene, toluene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G023 (arsenic and benzene), G048 (arsenic, lead, 1,2-Dichloroethane, benzene, benzo(a)anthracene, and bis(2-Ethylhexyl)phthalate), G305 (arsenic), G306 (arsenic, barium, benzene, ethylbenzene, naphthalene, and styrene), G307 (arsenic, benzene, ethylbenzene, naphthalene, styrene, and toluene), and G34 (chloroform) during 2021-2023.

Area 6 – Former APAC Area

The following COD and monitoring wells are located within the boundary of Area 6:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
HW2A/HW02-A	Gradient Control Well
G021/C-11	Main Plant GMZ Boundary Monitoring Well
G020/C-10	MPOW – Gauging and Sampling
G16L//H-26A	MPOW – Gauging and Sampling
G22R/C-12R	MPOW – Gauging and Sampling
G33/H-33	MPOW – Sampling Only
R11L/H-21R	MPOW – Sampling Only
G613/RC-13	MPOW – LNAPL Monitoring
G614/RC-14	MPOW – LNAPL Monitoring
GXXX/B-14#	MPOW – LNAPL Monitoring
GXXX/Q-14#	MPOW – LNAPL Monitoring
GXXX/A6MW01#	MPOW – LNAPL Monitoring
GXXX/A6MW02#	MPOW – LNAPL Monitoring
GXXX/A6MW03#	MPOW – LNAPL Monitoring

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
#Illinois EPA Well ID pending; designated MPOW as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G021 (arsenic and benzene), G22R (benzene), G33 (total arsenic, benzene), and R11L (total arsenic, benzene, methyl-tert-butyl-ethe [MTBE], bis(2-ethylhexyl)phthalate, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, dibenzo(a,h)anthracene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G021 (arsenic, benzene, and MTBE), G16L (arsenic, barium, benzene, ethylbenzene, and MTBE), G22R (1,2-

Dichloroethane and benzene), G33 (arsenic), and R11L (arsenic, benzene, and MTBE) during 2021-2023.

Area 7 – Former Alkyl Plant

No permitted wells are located within the boundary of Area 7.

Area 8 – North Tank Farm

The following COD well and monitoring wells are located within the boundary of Area 8:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G667/HPW-41	Approved for removal from GMP
HW1B/HW01-B	Gradient Control Well
H31B/H-31B	Main Plant GMZ Boundary
G002/G-01R	MPOW – Gauging and Sampling
G009/B-9	MPOW – Gauging and Sampling
G011/C-1	MPOW – LNAPL Monitoring
G050/G-10	MPOW – Gauging Only
G19/H-29	MPOW – Sampling Only
G30R/H-30R	MPOW – Gauging and Sampling
G31R/H-31R	MPOW – Gauging Only
G71L/G-31	MPOW – Sampling Only
G83L/H-3	MPOW – Gauging Only
G84L/H-4	MPOW – Gauging and Sampling
G85L/H-5	Approved for removal from GMP
G86L/H-6	MPOW – Gauging Only
G87L/H-7†	MPOW – Gauging and Sampling
G89L/H-9	MPOW – Gauging Only
G91L/H-11	Approved for removal from GMP
G92L/H-12	MPOW – Gauging and Sampling
G96L/H-16	MPOW – LNAPL Monitoring
G604/RC-4	MPOW – LNAPL Monitoring
G617/RC-17	MPOW – LNAPL Monitoring
G618/RC-18	MPOW – LNAPL Monitoring
G619/RC-19	MPOW – LNAPL Monitoring
G620/RC-20	MPOW – LNAPL Monitoring
GXXX/A8MW02#	MPOW – LNAPL Monitoring
GXXX/A8MW04#	MPOW – Gauging Only
GXXX/A8MW05#	MPOW – Gauging Only
GXXX/A8MW06#	MPOW – Gauging Only
GXXX/G-11#	MPOW – LNAPL Monitoring
GXXX/G- 2#	MPOW – LNAPL Monitoring
GXXX/LS-1#	MPOW – LNAPL Monitoring

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†As detailed in the well condition letter submitted to Illinois EPA on July 30, 2024, G87L is proposed for replacement.
#Illinois EPA Well ID pending; designated MPOW as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G002 (arsenic, barium, and benzene), G009 (arsenic, lead, benzene, ethylbenzene, MTBE, and naphthalene), G19 (arsenic, benzene, and bis(2-ethylhexyl)phthalate), G30R (arsenic), G71L (arsenic and benzene), and G84L (arsenic, benzene, and MTBE) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G002 (arsenic, barium, and benzene), G009 (arsenic, lead, benzene, ethylbenzene, and naphthalene), G011 (arsenic, benzene, and MTBE), G050 (arsenic, barium, lead, nickel, benzene, and MTBE), G19 (arsenic, 1,2-Dichloroethane, benzene, and naphthalene), G30R (arsenic), G71L (arsenic and benzene), G84L (arsenic and benzene), G86L (arsenic, lead, 1,2-Dichloroethane, benzene, ethylbenzene, and naphthalene), G87L (arsenic, barium, lead, benzene, and MTBE), G91L (arsenic, lead, benzene, ethylbenzene, naphthalene, and toluene), G92L (arsenic, lead, benzene, and naphthalene), and G96L (arsenic and benzene) during 2021-2023.

Area 9 – Korea Tank Farm

The following monitoring wells are located within the boundary of Area 9:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G027/C-17	MPOW – LNAPL Monitoring
G031/C-21A	MPOW – Sampling Only
G082/G-42	MPOW – Sampling Only
R31L/R31L@†	MPOW – Sampling Only
G31D/C-21C@	MPOW – Gauging and Sampling
R032/R032^	MPOW – Demonstration Well^
R034/C-24^	MPOW – Demonstration Well^
R035/R035^	MPOW – Demonstration Well^
GXXX/G-40#	MPOW – LNAPL Monitoring
GXXX/G-47#	MPOW – LNAPL Monitoring
GXXX/A9BH05#	MPOW – LNAPL Monitoring

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
@Former Riverfront Observation Wells G31L and G31D to be designated as a MPOWs (due to location) as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.
†In April 2023, R31L installed to replace G31L, which was plugged and abandoned in November 2023.
#Illinois EPA Well ID pending; designated MPOW as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.
^Former Riverfront Observation Well proposed to be designated as a Main Plant Demonstration Well. Details regarding the proposed designation of Demonstration Wells are provided in Section C.8.1.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were not detected in any permitted wells in Area 9 during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G082 (arsenic, benzene, and MTBE) during 2021-2023.

Area 10 – East Tank Farm

The following monitoring wells are located within the boundary of Area 10:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G14L/H-24	MPOW – Gauging and Sampling
G35A/G35A†	Main Plant GMZ Boundary Monitoring Well
G35B/G35B†	Main Plant GMZ Boundary Monitoring Well
RG36/H-36R	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†In August 2019, monitoring well G35 was plugged and abandoned and replaced with the well pair G35A and G35B.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G14L (arsenic and benzene), G35A (arsenic and benzene), and RG36 (arsenic) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G14L (arsenic and benzene), G35A (arsenic and benzene), G35B (arsenic and benzene), and RG36 (arsenic) during 2021-2023.

Area 11 – Spray Pond Area (1, 2, and Intake Channel Areas)

No permitted monitoring wells are located within the boundary of Area 11.

Area 12 – South Tank Farm

The following monitoring wells are located within the boundary of Area 12:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G005/B-5D	Main Plant GMZ Boundary Monitoring Well
G008/B-8D	Main Plant GMZ Boundary Monitoring Well
G37/H-37	Main Plant GMZ Boundary Monitoring Well
G301/RP-1	MPOW – Gauging and Sampling
G39/H-39	MPOW – Gauging and Sampling
G501/G501†	MPOW, SE Corner Sentry Well – Gauging and Sampling
G502/G502†	MPOW, SE Corner Sentry Well – Gauging and Sampling
R042/R042†	MPOW, SE Corner Sentry Well – Gauging and Sampling
R083/R083†	MPOW, SE Corner Sentry Well – Gauging and Sampling
GXXX/G08A@	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).
†In September 2018, R042 and R083 replaced G042 and G083, respectively, which were plugged and abandoned.
†In March 2021, G08A was installed to replace G008; however, as the second proposed replacement well was unable to be installed due to subsurface conditions, G008 has not been plugged and abandoned. As noted in **Exhibit C-1, Table 1**, bp proposes to designate G08A as a GMZ Boundary Monitoring Well and only sample G008 when G08A is dry.

These wells are located within the boundary of the KMPH Terminal property and monitor groundwater below elevation 408 ft MSL. G005 is located on the portion of Area 12 that was retained by bp and not sold to KMPH.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G005 (arsenic), G008 (arsenic), G301 (arsenic, benzene, and bis(2-ethylhexyl)phthalate), G39 (arsenic, benzene, and MTBE), G501 (arsenic and bis(2-ethylhexyl)phthalate), G502 (arsenic), R042 (bis(2-ethylhexyl)phthalate), and R083 (arsenic) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G005 (arsenic), G008 (arsenic and benzene), G08A (arsenic and nickel), G37 (lead), G301 (arsenic), G39 (1,2-Dichloroethane and benzene), G501 (arsenic), and G502 (arsenic and lead) during 2021-2023.

Area 13 – Wildlife Enhancement Area

The following monitoring wells are located within the boundary of Area 13:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G006/B-6	Main Plant GMZ Boundary Monitoring Well
G111/SWMU-12/MW-2	Main Plant GMZ Boundary Monitoring Well
G112/GH-1	Main Plant GMZ Boundary Monitoring Well
G91/M-1D	Main Plant GMZ Boundary Monitoring Well
G92/M-2D	Main Plant GMZ Boundary Monitoring Well
G93L/M-3D	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G006 (arsenic), G111 (bis(2-ethylhexyl)phthalate), G112 (arsenic and bis(2-ethylhexyl)phthalate), G91 (bis(2-ethylhexyl)phthalate), G92 (bis(2-ethylhexyl)phthalate), and G93L (benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G006 (arsenic) and G112 (arsenic) during 2021-2023.

Area 14 – Southeast Corner

The following monitoring well are located within the boundary of Area 14:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G128/G128	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

Monitoring well G128 is gauged quarterly as part of the Main Plant GMZ Boundary program and is not required to be sampled.

Area 15 – Administration Building

The following monitoring well is located within the boundary of Area 15:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G017/C-7	Approved for removal from GMP

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring well G017 (arsenic, barium, and benzene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring well G017 (arsenic and benzene) during 2021-2023.

Area 16 – Marketing Operations Area

The following monitoring wells are located within the boundary of Area 16:

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G32R/H-32R	Main Plant GMZ Boundary Monitoring Well
G013/C-3	Approved for removal from GMP
G98L/H-18	MPOW – Gauging and Sampling

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G32R (benzene) and G98L (arsenic, benzene, MTBE, benzo(a)anthracene, and benzo(b)fluoranthene) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G32R (benzene) and G98L (arsenic, benzene, and MTBE) during 2021-2023.

Area 17 – Liquid Propane Gas (LPG) Caverns

No permitted monitoring wells are located within the boundary of Area 17.

Area 18 – North Cell of Spray Pond 1 and South Flare Pit

No permitted monitoring wells are located within the boundary of Area 18.

Area 19 – Spray Pond 3

No permitted monitoring wells are located within the boundary of Area 19.

Offsite Wells

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G056/G-16†	Approved for removal from GMP
G057/G-17#	MPOW – Gauging and Sampling
G058/G-18#	MPOW – Gauging and Sampling
G059/G-19	Main Plant GMZ Boundary Monitoring Well

IEPA/bp WELL ID	GROUNDWATER MONITORING PROGRAM*
G062/G-22	Main Plant GMZ Boundary Monitoring Well
G064/G-24	Approved for removal from GMP
G065/G-25	MPOW – Sampling Only
G067/G-27	Main Plant GMZ Boundary Monitoring Well
G068/G-28	Main Plant GMZ Boundary Monitoring Well
G073/G-33	Main Plant GMZ Boundary Monitoring Well
G078/G-38††	Main Plant GMZ Boundary Monitoring Well-Requested removal from GMP
G079/G-39	Main Plant GMZ Boundary Monitoring Well
G084/G-32R	Main Plant GMZ Boundary Monitoring Well
G085/G-26R	Main Plant GMZ Boundary Monitoring Well
G69R/G-29R	Main Plant GMZ Boundary Monitoring Well
G74L/G-34	Main Plant GMZ Boundary Monitoring Well
G75L/G-35	Main Plant GMZ Boundary Monitoring Well
G76L/G-36	Main Plant GMZ Boundary Monitoring Well
G77L/G-37	Approved for removal from GMP
R063/G-23R	Main Plant GMZ Boundary Monitoring Well

*Details regarding constituents monitored and sampling frequencies provided in the GMP (**Exhibit C-1**).

†In December 2023, R56S, R56M, and R56D were installed to replace G056, which was plugged and abandoned in March 2024. Sentinel Wells R56S, R56M, and R56D have been incorporated into the bp Riverfront Property RCRA Permit.

††In June 2023, G078 was destroyed during an excavation to inspect and repair a natural gas pipeline in the drilling area as detailed in the well condition letter submitted to Illinois EPA on July 11, 2023, proposing a replacement well pair.

#Also a designated Sentinel Well under the bp Riverfront Property RCRA Permit.

@In June 2023, R067 and R068 were installed to replace G067 and G068. As noted in the Illinois EPA approval letter dated January 19, 2023, since replacement wells for G067 and G068 are greater than 10 feet from the original locations, neither Illinois EPA Well ID can be designated with the "R" prefix. Additionally, as R067 and R068 have contained an insufficient volume of groundwater for sampling since installation, G067 and G068 have not been plugged and abandoned. As noted in **Exhibit C-1, Table 1**, bp proposes to designate R067 and R068 as GMZ Boundary Monitoring Wells and only sample G067 when R067 is dry, and only sample G068 when R068 is dry.

A summary of groundwater conditions for 2018-2019 and 2021-2023 is presented below:

- Concentrations above Class I GQS were detected in monitoring wells G059 (arsenic), G062 (benzo(b)fluoranthene), G067 (benzo(a)anthracene, benzo(a)pyrene, and benzo(k)fluoranthene), G068 (benzo(a)anthracene, benzo(a)pyrene, and benzo(k)fluoranthene), G078 (arsenic, benzene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene), G079 (benzene), G74L (benzo(a)anthracene, benzo(a)pyrene, and benzo(b)fluoranthene), G75L (arsenic), and G76L (arsenic) during 2018-2019.
- Concentrations above Class I GQS were detected in monitoring wells G059 (arsenic and chromium), G067 (benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene, G068 (chromium, nickel, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and benzo(k)fluoranthene, and dibenz(a,h)anthracene), G078 (arsenic and benzene), G079 (arsenic and benzene), G69R (chromium), and G76L (arsenic) during 2021-2023.

C.8.1 Description of Corrective Action Program: 703.185(h), 724.200

The Corrective Action Program required by this Permit includes:

1. Control of the horizontal and vertical flow of the entire vertical column of groundwater in the uppermost aquifer such that groundwater flow is towards the interior of the Main Plant Property. This control of groundwater flow will be accomplished by withdrawing groundwater from the uppermost aquifer. Such flow control is necessary as a corrective measure to prevent contaminant migration of on-site releases of product or waste beyond the boundaries of the Main Plant Property, and is the basis for the establishment of the GMZ, except as provided in items 5 and 6 below.
2. Verification that the flow of groundwater is adequately controlled as required by Condition 1 above.
3. Monitoring the quality and movement of the groundwater in the uppermost aquifer beneath the Main Plant Property to determine the effectiveness of the Corrective Action Program, as well as verify compliance with the GMZ.
4. Remediating and/or removing refinery product from above the water table.
5. Demonstrating an inward gradient in the southeast corner of the facility, or demonstrating that the groundwater quality at designated Sentry Wells in this portion of the facility meets applicable water quality standards for VOCs. The requirements of Permit Section V.F.12 apply if groundwater quality in this portion of the Main Plant Property does not meet permit-defin concentrations for VOCs. Contingent actions could include increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary, additional Sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.
6. Demonstrating an inward gradient in the western GMZ Boundary (south of Area 9), or demonstrating that the groundwater quality at designated GMZ Boundary Monitoring Wells and/or designated Demonstration Wells in or down-gradient of the affected portion of the facility meet applicable water quality standards for VOCs downgradient of the western portion of the Main Plant GMZ. The requirements of Permit Section V.F.12 apply if groundwater quality in the affected portion of the facility does not meet water quality standards for VOCs. Contingent actions could include increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentinel well installation and monitoring, increased groundwater extraction, or other alternate measures.
    a. The Illinois EPA approved the COD Well System upgrades in a letter dated January 19, 2023 (Log No. B-147R-CA-115). As part of that approval letter, the Illinois EPA acknowledged the significant influence of the Mississippi River on the gradient of the UMA during cases of extreme or extended drought or flood conditions and further directed bp to submit a Class 1* permit modification proposal for demonstrating Class 1 GQS are being met and contaminant migration is not occurring (i.e., contaminant control) during extreme events when inward gradient cannot be demonstrated. Accordingly, bp submitted a Class 1* permit modification request dated February 28, 2023, requesting modifications to Section V of the Permit.

       Although Main Plant GMZ boundary wells G079, G078, G021, and G023 located between Main Plant Area 9 and the Riverfront GMZ exhibit dissolved phase chemical concentrations above Class 1 GQS, downgradient Riverfront Observation Wells (RFOWs) R032, R034, R035, and MPOW G304 have not exhibited dissolved phase VOC concentrations above Class 1 GQS since groundwater sampling began in Second Quarter 2016. In the Main Plant GMZ Re-evaluation report submitted to Illinois EPA on December 18, 2020, bp proposed three of these four wells

(R032, R034 and G304) become Main Plant GMZ Boundary Monitoring Wells and to abut the Main Plant and Riverfront GMZs in this area.

bp proposes to designate existing RFOWs R032, R034, and R035, and MPOW G304 as Main Plant Demonstration Wells. Similar to the demonstration of contaminant control in the southeast corner of the Main Plant GMZ at designated Sentry Wells as noted above, bp proposes to use the proposed Demonstration Wells to demonstrate groundwater quality data meets water quality standards for VOCs downgradient of the western portion of the Main Plant GMZ, south of Area 9, in the event that bp is unable to demonstrate an inward gradient at the facility. bp will continue to comply with the requirements of Permit Section V.F.12 if groundwater quality in the proposed Demonstration Wells down-gradient of the western portion of the Main Plant GMZ, south of Area 9, does not meet applicable water quality standards for VOCs.

C.8.1.1 Characterization of Contaminated Groundwater: 703.185(h)(1), 724.200(a)(1)

Groundwater quality sampling of the UMA at the bp Main Plant Property is conducted in accordance with the RCRA Part B Permit. The current groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2a**. The optimized groundwater monitoring well network for the bp Main Plant Property is displayed on **Figure C-2b**. Exceedances of Class I GQS for wells in the Main Plant GMZ Boundary Monitoring Well program are shown on **Figures C-5a** (2018-2019) and **C-5b** (2021-2023).

C.8.1.2 Concentration Limits: 703.185(h)(2), 724.194(a), 724.200(a)(2)

bp Main Plant Property concentration limits are specified in Permit Section V.E.1 and are included in Appendix B of **Exhibit C-1**.

C.8.1.3 Compliance Point: 724.195, 724.200(a)(3)

The compliance point is the boundary of the three-dimensional region comprising the bp Main Plant Property GMZ. As shown on **Figure C-3**, the current bp Main Plant Property GMZ boundary is defined by wells listed in the current Permit as follows:

- Northern Boundary: H-31B, G084, G073, R063, G062, G067, G068, G69R, G76L, G75L, and G74L;
    - As noted above in Section C.8, R067 and R068 were installed in June 2023 to replace G067 and G068. As noted in the Illinois EPA approval letter dated January 19, 2023, since replacement wells for G067 and G068 are greater than 10 feet from the original locations, neither Illinois EPA Well ID can be designated with the "R" prefix. Additionally, as R067 and R068 have contained an insufficient volume of groundwater for sampling since installation, G067 and G068 have not been plugged and abandoned. As noted in **Exhibit C-1, Table 1**, bp proposes to designate R067 and R068 as GMZ Boundary Monitoring Wells and only sample G067 when R067 is dry, and only sample G068 when R068 is dry.
- Eastern Boundary: G055, G045, G5B, G085, G04R, RG36, G35 (replaced by G35A and G35B in August 2019), G008, G005, G91, G92, G93L, and G006;
    - As noted above in Section C.8, G08A was installed in March 2021 to replace G008; however, as the second proposed replacement well was unable to be installed due to subsurface conditions, G008 has not been plugged and abandoned. As noted in **Exhibit C-**

1, Table 1, bp proposes to designate G08A as a GMZ Boundary Wells and only sample G008 when G08A is dry.

- Southern Boundary: G302 (replaced by R302 in August 2019), G37, G111, G112, and G128 (gauge only); and
- Western Boundary: G303, G023, G021, G078, G079, G059, G32R, and G500 (replaced G113 in Permit);
- Vertically: From the approximate top of the UMA (30 feet bgs) to the top of the bedrock surface at the Main Plant Property.

Further establishment of a point of compliance will be postponed until such time that the monitoring wells at the Main Plant Property have attained the applicable concentration limits that comprise the groundwater protection standard found in Permit Condition V.E.1. and the GMZ expires. At that time, bp must submit a proposal for the establishment of a point of compliance which satisfies the regulatory requirements found in 35 IAC 724, Subpart F and reflects the current conditions at the facility.

C.8.1.4 Compliance Period: 724.196, 724.200(a)(4)

The compliance period began with the issuance of the Part B Permit in September 1993.

C.8.1.5 Construction Detail: 703.185(h)(3)

bp Main Plant Property COD wells are used to induce inward groundwater flow within the bp Main Plant Property GMZ. In a letter dated January 19, 2023 (Log No. B-147R-CA-115), the Illinois EPA approved the proposed upgrades to the COD Well System. The table below summarizes the dates the legacy COD wells were shut down and the new replacement COD wells were commissioned.

Illinois EPA Well ID	bp Well ID	Well Shutdown Date	Well Commissioning Date
G664	PW-64	May 25, 2023	N/A
G667	HPW-41	March 8, 2023	N/A
G668	HPW-58	September 5, 2023	N/A
G669	HPW-61	September 8, 2023	N/A
HW1B (proposed)	HW01-B	N/A	September 5, 2023
HW2A (proposed)	HW02-A	N/A	October 18, 2023
HW2B (proposed)	HW02-B	N/A	September 7, 2023
VW01 (proposed)	VW01	N/A	N/A*

N/A = Not applicable

*Well is proposed for abandonment as discussed below.

COD Well Shutdowns

As detailed below, bp submitted well condition notification letters to Illinois EPA pursuant to Section V.D.4 of the Permit as the legacy COD wells were taken off-lin

G667: bp submitted a Gradient Control Well Condition Notification letter dated March 15, 2023, notifying Illinois EPA that legacy COD well G667 was turned off due to sand and filter pack entering the well and damaging the pump. bp confirmed the condition of COD well G667 on March 8, 2023. bp did not repair COD well 667 due to the age and overall condition of the well and the impending COD Well System upgrade project.

G664: bp submitted a Gradient Control Well Condition Notification letter dated May 30, 2023, notifying Illinois EPA that legacy COD well G664 was permanently turned off on May 25, 2023, due to the Main Plant electrical upgrade project. bp was replacing aging electrical infrastructure at the Main Plant to improve system reliability. The electrical upgrade project began in December 2022 and was completed in Second Quarter 2023. The Main Plant electrical system cutover from the old service (13.8 kilovolts [kv]) to the new service (12.47 kv) began on May 25, 2023, at which time legacy COD well G664 was turned off.

G668 and G669: bp submitted a Gradient Control Well Condition Notification letter dated September 12, 2023, notifying Illinois EPA that legacy COD wells G668 and G669 were permanently turned off on September 5 and September 8, 2023, respectively. New horizontal COD wells HW1B and HW2B were commissioned on September 5 and 7, 2023, respectively. Following commissioning of new horizontal COD well HW1B, legacy COD well G668 was permanently turned off on September 5, 2023, due to lack of recharge (i.e., low water level). As new horizontal COD wells HW1B and HW2B were operating at a pumping capacity exceeding the combined capacity of the legacy COD wells, COD well G669 was permanently turned off on September 8, 2023.

Proposed Abandonment of Well VW01

As noted in the Basis of Design Summary dated April 29, 2022 (Design Basis), vertical well VW01 is located to provide supplemental hydraulic control of groundwater in the southeast corner of the Main Plant during periods of river levels exceeding flood stage to maintain an inward gradient to the extent possible and control potential plume migration during such conditions.

The Design Basis for the new COD Well System specified:

- A maximum operating pumping capacity of 1,600 gpm to replace the legacy COD Well System historical capacity;
- Redundancy in pumping capacity to be able to maintain 1,600 gpm pumping rate with one well deactivated for maintenance;
- Primary operation of the horizontal COD wells for hydraulic control during normal River stage elevations (400 – 410 ft MSL);
- Contingent operation of COD Well VW01, as needed, at high River stage (approaching flood stage of 416 ft MSL) at a location closer to the southeast corner of Main Plant; and
- New COD Well System was not designed to provide complete hydraulic control under extreme River stage conditions (<400 ft MSL or >416 ft MSL).

The anticipated performance of vertical well VW01 based on the design included typical and maximum pumping rates of 500 gpm and 750 gpm, respectively, and a specific capacity (SC) of approximately 25 gpm/ft of drawdown (gpm/ft-dd).

Upon initial well startup in Third Quarter 2023, the well was found to quickly dewater to the pump intake and was not able to sustain the designed pumping rate; however, following shutdown of the pump, the water level in the well recovered relatively rapidly, indicating that the well had poor communication with the formation and associated well efficiency. Four well development events were conducted to improve the hydraulic communication of the well and gravel pack with the surrounding formation. The well development activities and resultant well performance are summarized in the table belo

DATE	WELL DEVELOPMENT ACTIVITY	SUSTAINED PUMPING RATE	SPECIFIC CAPACITY
May 2023	Full day of surging and air-lifting/pumping with use of non-ionic dispersant to achieve low turbidity (<25 NTU)	~30 gpm	~1 gpm/ft-dd
August 2023	Four days of surging and pumping with use of non-ionic dispersant with specific capacity pump tests	~50 gpm	~1.6 gpm/ft-dd
October 2023	Four days of surge-can/dual surge-block and water surging/pumping with use of non-ionic dispersant with specific capacity pump tests	~60 gpm	~2 gpm/ft-dd
June 2024	Five days of surge-can/water surging and high-velocity circulation/pumping with use of ionic dispersant and surfactant with specific capacity pump tests	~70 gpm	~2.67 gpm/ft-dd

The new COD Well System meets the design requirements of the original Design Basis and meets hydraulic performance expectations with only the horizontal wells operating as summarized below.

- The system can maintain an operating capacity of 1,600 gpm.
- There is redundant capacity in pumping to maintain 1,600 gpm with any two of the three horizontal well pumping centers active.
- During low to normal River stage (400 – 410 ft MSL), the horizontal wells have maintained hydraulic control at pumping rates between 1,200 – 1,400 gpm.
- Even at River flood stage in Third Quarter 2024 (421 ft MSL; higher elevation than design criteria), the horizontal wells were able to maintain contaminant control in accordance with the Permit while pumping at 1,600 gpm.

Furthermore, the new COD Well System was designed with the horizontal wells for primary operation due to the following performance benefits over vertical wells:

- Longer well screens allow for higher groundwater extraction rates with lower groundwater entrance velocities to reduce precipitation and fouling of the screens;
- The longer screens result in less drawdown at the location of the pump, with extended lateral extent of drawdown and area of influence; and
- The longer lateral extent of induced drawdown provides a greater zone of groundwater capture, requiring fewer wells than would be required using vertical wells (and thus a more efficient use of pumping capacity).

The potentiometric surface maps provided in **Exhibit C-4** demonstrate the influence of the new COD Well System under varying groundwater and River stage conditions as compared to the legacy COD wells. The potentiometric surface maps, average river stage condition during the sitewide gauging event, and COD Well System pumping rates for the maps provided in **Exhibit C-4** are summarized in the table below.

Figure No.	Quarterly Sitewide Gauging Event	River Stage Condition	Average Mississippi River Elevation (ft MSL)	COD Well System (Legacy/New)	COD Well System Pumping Rate (gpm)
1	Q2 2022	Normal	409.73	Legacy	1,400

Figure No.	Quarterly Sitewide Gauging Event	River Stage Condition	Average Mississippi River Elevation (ft MSL)	COD Well System (Legacy/New)	COD Well System Pumping Rate (gpm)
2	Q2 2024	Normal	406.99	New	1,200
3	Q1 2012	Low	399.80	Legacy	1,200
4	Q1 2024	Low	399.98	New	1,400
5	Q4 2019	Flood	417.58	Legacy	1,400
6	Q3 2024	Flood	420.46	New	1,600

Based on hydraulic capacity limitations of vertical well VW01 despite significant development efforts and the observed performance of the horizontal COD wells, which are meeting the COD Well System design objectives, bp proposes to abandon well VW01 to eliminate it as an exposure pathway to groundwater.

COD Well Construction

Well construction information for the new COD Wells is summarized in the tables below.

- Horizontal COD Wells

IEPA Well No.*	Facility Well No.	Well Screen Depth (ft.)	Well Screen Elevation (ft. MSL)	Well Screen Length (ft.)
HW1B	HW01-B	75.00	356.12	300
HW2A	HW02-A	75.00	355.71	300
HW2B	HW02-B	75.00	356.37	300

*Proposed

- Vertical COD Well

IEPA Well No.*	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
VW01#	VW01	115.00	315.60	355.60-315.60

*Proposed

#Proposed for abandonment as discussed above.

Available boring logs for the individual COD wells, information regarding the COD Well System component and a schematic diagram that depicts the layout and processes and flows of the system are included in **Exhibit C-2**.

C.8.1.6 Effectiveness of Corrective Action: 703.185(h)(4), 724.200(d) & (g)

The effectiveness of the corrective action at the bp Main Plant Property is demonstrated in semi-annual reporting to Illinois EPA by: (1) quarterly potentiometric surface mapping conducted to verify that an inward gradient toward the bp Main Plant Property COD wells is being maintained, and (2) semi-annual groundwater quality data evaluations which include comparisons with applicable GQS and statistical evaluations

C.8.2 Alternate Concentration Limits: 724.194(b)

Not applicable. bp Main Plant Property concentration limits are 35 IAC 620.410 Class I GQS as discussed in Section C.8.1.2.

C.8.2.1 Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

Not applicable. Alternate concentration limits are not proposed.

C.8.2.2 Potential Adverse Effects on Hydraulically-Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

Not applicable. Alternate concentration limits are not proposed.

C.8.3 Corrective Action Plan: 703.185(h), 724.200(b), 724.200(c), 724.200(e)

bp proposes to conduct groundwater monitoring at the bp Main Plant Property as part of groundwater corrective action as discussed in Section C.8.4.

C.8.4 Groundwater Monitoring Program: 703.185(h)(4), 724.192, 724. 200(d)

The GMP for the bp Main Plant Property is provided as **Exhibit C-1** of this permit renewal application.

bp submitted the *Groundwater Monitoring Optimization Report* dated June 28, 2018 (Log No. B-147R-CA-89) which proposed an optimized well gauging network. bp also submitted the "Groundwater Monitoring Optimization Report Addendum" dated July 20, 2020, based upon Illinois EPA comments emailed to bp on May 5, 2020. In a letter dated January 19, 2023, the Illinois EPA approved the optimized groundwater corrective action monitoring program. Accordingly, bp submitted a Class 1* Permit Modification Request dated February 28, 2023, to propose modifications to Section V of the Permit. As approval of the Class 1* Permit Modification Request is pending, the approved optimized groundwater corrective action monitoring program has been incorporated throughout Section C of this application.

C.8.4.1 General Monitoring Program Requirements: 703.185(e), 724.197

As indicated in the subsections below, bp follows the previously approved GMP as updated by permit modification approvals from the Illinois EPA.

C.8.4.2 Groundwater Monitoring System: 724.197(a) & (b), 724.200(d)

The GMP for the bp Main Plant Property is provided as **Exhibit C-1** of this permit renewal application. The GMP contains groundwater monitoring well information including well identification numbers, well depth, screen interval, ground surface elevation, and top of casing elevation.

C.8.4.3 Description of Sampling and Analysis Procedures: 724.197(d) & (e)

The GMP for the bp Main Plant Property is provided as **Exhibit C-1** of this permit renewal application. The GMP contains a description of sampling and analysis procedures including procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control.

C.8.4.4 Background Quality: 724.197(g), 724.199(c)

bp performed a site-wide (both Main Plant and Riverfront properties) inorganics and metals evaluation for background quality in accordance with the *Site-Wide Inorganics and Metals Evaluation Work Plan* for the bp Main Plant approved by the Illinois EPA in a letter dated June 24, 2019 (Log No. B-147R-CA-94). bp submitted the *Site-Wide Inorganics and Metals Evaluation Report* to the Illinois EPA on January 25, 2022, proposing a site-specific GQS of 36 µg/L for arsenic.

C.8.4.5 Statistical Evaluations 703.185(f), 724.197(h), 724.199(d)

Exhibit C-3 details the methodology of how the Mann-Kendall statistical evaluations will be performed for the Main Plant GMZ Boundary Monitoring Wells and constituents. In accordance with the Illinois EPA approval letter dated February 27, 2020, bp submitted a Class 1* Permit Modification Request dated June 30, 2020, to report the results of the statistical evaluation every five years in the GMZ Re-evaluation Report. As such, bp proposes to complete Mann-Kendall statistical evaluations of the entire GMZ Boundary Monitoring Well network annually as a tool to aid in determining the effectiveness of corrective action but will only be reported to Illinois EPA in the GMZ Re-evaluation Report every 5 years based on the following: (1) the variability of the identified potentially statistically significant increases (SSIs); (2) the potential SSIs typically occur at wells where groundwater concentrations do not exceed Class I GQS; and (3) the general lack of confirmation of these SSIs in subsequent sampling events. The Mann-Kendall statistical evaluations in the GMZ Re-evaluation Report will be comprised of 10 years of data (current 5 years and previous 5 years) for the entire GMZ Boundary Monitoring Well network.

C.8.4.6 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The groundwater surface is currently evaluated on a quarterly basis by collection of static groundwater elevations, which includes the bp Main Plant Property groundwater monitoring network wells (**Figure C-2**) and other non-permitted monitoring wells on or in the vicinity of the bp Main Plant Property. This groundwater monitoring well gauging configuration includes but is not limited to GMZ Boundary Monitoring Wells, MPOWs, and Gradient Control (COD) Wells listed in Sections V.D.1 and V.D.2 of the Permit, and the Sentry Wells listed in Section V.F.12 of the Permit. The groundwater elevation measurement procedure is described in the GMP (**Exhibit C-1**).

bp submitted the *Groundwater Monitoring Optimization Report* dated June 28, 2018 (Log No. B-147R-CA-89) which proposed an optimized well gauging network. bp also submitted the *Groundwater Monitoring Optimization Report Addendum* dated July 20, 2020, based upon Illinois EPA comments emailed to bp on May 5, 2020. In a letter dated January 19, 2023, the Illinois EPA approved the optimized groundwater corrective action monitoring program. Accordingly, bp submitted a Class 1* Permit Modification Request dated February 28, 2023, to propose modifications to Section V of the Permit. The approved optimized groundwater corrective action monitoring program has therefore been incorporated throughout Section C of this application. Potentiometric groundwater surface maps for the UMA are prepared based on groundwater elevations measured quarterly. The groundwater contour lines are evaluated to determine flow direction. Pumping rates for the bp Main Plant Property COD wells are recorded daily and used to calculate monthly withdrawal rates. The groundwater flow rate, groundwater flow direction, and withdrawal rates are reported in the bp Main Plant Property Semi-Annual Groundwater Corrective Action Reports.

C.8.4.7 Extension of Compliance Period: 724.200(f)

IAC 724.200(f) is not applicable to the Main Plant Property as there are no hazardous waste management units present.

C.8.4.8 Effectiveness of Corrective Action: 724.200(g)

The bp Main Plant Property GMP is designed to demonstrate the effectiveness of current corrective action for groundwater flow in the UMA for contaminants and LNAPL associated with the bp Main Plant Property.

The groundwater monitoring well network is used to confirm that impacted groundwater flow is adequately controlled by the bp Main Plant Property COD wells. Groundwater sampling for constituents of concern (COCs) is intended to monitor the progress of corrective action over time. The demonstration of effectiveness of corrective action, based on the GMP, is presented in bp Main Plant Property Semi-Annual Groundwater Corrective Action Reports, and includes applicable statistical evaluations. As noted above in Section C.8.4.5, bp will complete statistical evaluations annually but will only report statistical evaluations every five years in the GMZ Re-evaluation Report along with an evaluation of potential SSIs.

C.8.4.9 Evaluation of the Corrective Action Program: 724.200(h)

Section V.F.12 of the current Permit requires the following in the event that bp is unable to demonstrate an inward groundwater gradient based upon groundwater elevation data in the southeast portion of the GMZ during a quarterly or semi-annual monitoring event:

a) bp will review the groundwater quality data for the most recent sampling event for the Sentry Observation Monitoring Wells (G042R, G083R, GXXX, and GYYY).
b) If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells meets the permit-defined requirements for VOCs, bp shall submit a written report within thirty (30) days regarding the results of this monitoring event. VOCs have the highest migration potential of site-specific COCs; therefore, VOCs are used for this evaluation.
c) If the groundwater quality data from the most recent sampling event for the Sentinel Observation Monitoring Wells does not meet permit-defined requirements for VOCs, bp shall:
    i. Notify the Agency in writing within seven (7) days of the date the determination is made.
    ii. Perform a "Resampling Event" for the Sentry Observation Monitoring Wells within thirty (30) days of the date the determination is made.
d) bp shall provide the data from the Resampling Event for the Sentry Observation Monitoring Wells required by Condition V.12.c to the Agency in writing within 15 days of receipt. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells required by Condition V. 1.c meets permit-defined requirements for VOCs, the Permittee shall submit a written report within thirty (30) days regarding the results of the Resampling Event.
e) If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells required by Condition V.12.c does not meet the permit·defined requirements for VOCs, the Permittee shall:
    i. Notify the Agency in writing within seven (7) days of the date the determination is made.
    ii. Initiate "Contingency Monitoring" consisting of monthly groundwater gauging and monitoring for a period of three (3) months for the Southeast portion of the GMZ, as follows:
        1. The groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine monitoring wells in order to develop a groundwater flow gradient for this southeast portion of the GMZ: G301, G305, R042, R083, GXXX, GYYY, G005, G92, and G112.
        2. The Contingency Monitoring shall include monthly groundwater sampling for a period of three (3) months for the four Sentry Observation Monitoring Wells.

iii. Submit to the Illinois EPA within 15 days of receipt of the analytical report, the results of the monthly Contingency Monitoring, including gauging information [potentiometric surface map(s)] and groundwater quality data from each monthly event to the Illinois EPA.

f) If the Contingency Monitoring monthly groundwater gauging potentiometric maps demonstrate an inward gradient, and/or groundwater quality data from the monthly sampling events for the Sentry Observation Monitoring Wells required by Condition V.1.c.ii meets the permit-defined requirements for VOCs, bp shall submit a written report within thirty (30) days regarding the results of this monitoring event.

g) If the Contingency Monitoring monthly groundwater gauging potentiometric maps do not demonstrate an inward gradient, and the groundwater quality data from the sampling event for the Sentry Observation Monitoring Wells required by Condition V.12.e.ii does not meet the permit defined requirements for VOCs, bp shall submit a written report to the Illinois EPA:

i. Notify the Agency in writing within seven (7) days of the date the determination is made.

ii. Submit a written report to the Illinois EPA within 30 days describing the actions to be taken.

iii. Install additional sentry well(s) in the southeast corner of the GMZ at locations approved by the Illinois EPA.

iv. Implement an Illinois EPA-approved groundwater monitoring program for the new sentry monitoring wells on a monthly basis for three months.

v. Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner, including, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.

h) Design and implement Contingent Corrective Measures approved by the Illinois EPA.

bp proposes to modify the current requirements as follows:

In the event that bp is unable to demonstrate an inward groundwater gradient based upon groundwater elevation data in the southeast portion of the GMZ and/or western GMZ (south of Area 9) during a quarterly or semi-annual monitoring event:

a) bp will review the groundwater quality data for the most recent sampling event for the Sentry Wells (R042, R083, G501, and G502) in the southeast portion of the GMZ and/or the proposed Demonstration Wells (R032, R034, R035, G304) near the western GMZ (south of Area 9).

b) If the groundwater quality data from the most recent sampling event for the Sentry Wells and/or the proposed Demonstration Wells meets the permit-defined requirements for VOCs, bp shall include a summary of the results in the semi-annual report as identified in Condition V.I.2. VOCs have the highest migration potential of site-specific COCs; therefore, VOCs are used for this evaluation.

c) If the groundwater quality data from the most recent sampling event for the Sentry Wells and/or proposed Demonstration Wells does not meet permit-defined requirements for VOCs, bp shall:

i. Notify the Agency in writing within seven (7) days of the date the determination is made.

ii. Perform a "Resampling Event" for the Sentry Wells and/or proposed Demonstration Wells within thirty (30) days of the date the determination is made.

d) If the groundwater quality data from the Resampling Event for the Sentry Wells and/or proposed Demonstration Wells required by Condition V. 12.c meets permit-defined requirements for VOCs, bp shall submit a include a summary of the results in the semi-annual report as identified in Condition V.I.2.

e) If the groundwater quality data from the Resampling Event for the Sentry Wells and/or proposed Demonstration Wells required by Condition V.12.c does not meet the permit-defined requirements for VOCs, bp shall:

   i. Notify the Agency in writing within seven (7) days of the date the determination is made.

   ii. Initiate "Contingency Monitoring" consisting of monthly groundwater gauging and monitoring for a period of three (3) months as follows:

      1. For the Southeast portion of the GMZ:

         a. The groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine monitoring wells in order to develop a groundwater flow gradient for this southeast portion of the GMZ: G301, G305, R042, R083, G501, G502, G005, G92, and G112.

      2. For the western GMZ Boundary (south of Area 9):

         a. The groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine monitoring wells in order to develop a groundwater flow gradient for this southeast portion of the GMZ: R032, R034, R035, G304, G22R, G023, G36R, G103, G107, and G303.

         b. The Contingency Monitoring shall include monthly groundwater sampling for a period of three (3) months for the four Sentry Wells and/or four proposed Demonstration Wells.

f) If the three Contingency Monitoring monthly groundwater gauging potentiometric maps demonstrate an inward gradient, and/or groundwater quality data from the monthly sampling events for the Sentry Wells and/or proposed Demonstration Wells required by Condition V.12.c.ii meets the permit-defined requirements for VOCs, bp shall include a summary of the results in the semi-annual report as identified in Condition V.I.2.

g) If the three Contingency Monitoring monthly groundwater gauging potentiometric maps do not demonstrate an inward gradient, and the groundwater quality data from the three sampling events for the Sentry Wells and/or proposed Demonstration Wells required by Condition V.12.e.ii does not meet the permit-defined requirements for VOCs, bp shall:

   i. Notify the Agency in writing within seven (7) days of the date the determination is made.

   ii. Submit a written report to the Illinois EPA within 30 days of the date the determination is made describing the actions to be taken.

   iii. Install additional Sentry Well(in the southeast corner of the GMZ and/or Demonstration Well(s) along the western GMZ boundary (south of Area 9) at locations approved by the Illinois EPA.

iv. Implement an Illinois EPA-approved groundwater monitoring program for the new Sentry Wells and/or Demonstration Wells on a monthly basis for three months.

v. Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner and/or along the western GMZ boundary (south of Area 9), including modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.

h) Design and implement Contingent Corrective Measures approved by the Illinois EPA in accordance with Condition V.12.g.v.

Potential statistically significant increases (SSIs) are currently reported to the Illinois EPA annually in the Second Semi-Annual (Third and Fourth Quarters) Groundwater Corrective Action Report. On June 30, 2020, bp submitted a Class 1* Permit modification request to report the results of statistical evaluations for the Main Plant GMZ Boundary Monitoring Well Groundwater Monitoring Program every five years within the GMZ Re-evaluation Reports instead of annually as currently specified in Section V.F.2.c.iv of the Main Plant Property Part B RCRA Permit. As noted above in Section C.8.4.5, bp will complete statistical evaluations (via Mann-Kendall methodology) annually but will only report statistical evaluations every five years in the GMZ Re-evaluation Reports. As such, potential SSIs will be evaluated as part of the GMZ re-evaluation completed every five years.

C.9 Reporting Requirements: 724.197(j)

Reporting requirements for this renewal application are specified below with proposed modifications to current Permit requirements. Semi-Annual Groundwater Corrective Action Reports are submitted to the Illinois EPA by August 1 following completion of the First and Second Quarter monitoring period , and by February 1 of the year following completion of the Third and Fourth Quarter monitoring periods.

Reporting and recordkeeping are completed as follows:

1. All monitoring, testing, and analytical data are entered into the operating record.
2. Calculated groundwater withdrawal rates are submitted to the Illinois EPA as part of the Main Plant Property Semi-Annual Groundwater Corrective Action Reports pursuant to V.F.5 of the current bp Main Plant Property Permit, and/or pending modifications, and the above-referenced reporting schedule.
3. Collected gradient control measurements are submitted to the Illinois EPA as part of the Main Plant Property Semi-Annual Groundwater Corrective Action Reports pursuant to Condition V.F.5 of the current bp Main Plant Property Permit, and/or pending modifications, and the above-referenced reporting schedule.
4. bp submitted a Class 1* Permit Modification request dated June 30, 2020, to change the annual statistical reporting period to every five years. Therefore, statistical evaluations of all GMZ Boundary Monitoring Wells for all contaminants are proposed to be submitted every five years as part of the GMZ Re-evaluation Reports. This report will also include evaluation of potential SSIs.

5. Groundwater flow rate and direction are reported in the Main Plant Property Semi-Annual Groundwater Corrective Action Reports, per the above-referen reporting schedule
6. Results of groundwater samples collected during the Second and Fourth Quarters are submitted to the Illinois EPA in the Main Plant Property Semi-Annual Groundwater Corrective Action Reports pursuant to Condition V.F.7 and V.I.2 of the current bp Main Plant Property Permit, and/or pending modifications, and the above-referenced reporting schedule.
7. The elevation of each well is surveyed every five years (during the second semi-annual event), and otherwise at the request of the Illinois EPA, when the elevation changes, and for any new monitoring wells installed.
8. Reporting of the surveyed elevation of top of the well casing ("stick-up"), referenced to MSL, as required by Condition V.G.2, is conducted for wells identified in Condition V.D.1 of the current bp Main Plant Property Permit, and/or pending modifications.
9. The elevation of the bottom of each well, to be taken during the first semi-annual sampling event as referenced to MSL, is reported annually for wells identified in Condition V.D.1 of the current bp Main Plant Property Permit, and/or pending modifications.
10. Required information covered by Conditions V.I.2, V.I.3, V.I.9 and V.I.10 of the current bp Main Plant Property Permit is submitted in electronic format according to the above-referenced reporting schedule.
11. RCRA Facility Groundwater, Leachate and Gas Reporting Form (LPC 592) is used as the cover sheet for any notifications or reports required by the permit. One (1) copy of Form LPC 592 accompanies submittals consisting of one (1) original (excluding the groundwater and leachate monitoring results submitted in an electronic format). bp proposes to submit one original hard copy of each notice or report to the Illinois EPA with electronic copies distributed to the Illinois EPA carbon copy (cc:) list. Form LPC 592 is not used for permit modification requests.
12. All information reported is organized in a manner that can be easily reviewed. All reports contain data tables, figures, and text to accurately describe the information in the submittal.

REVISION DATE: 07/29/2024

TABLES

REVISION DATE: 07/29/2024

TABLE C-1
Main Plant Land Reuse Area
Groundwater Monitoring Wells

IEPA Well ID	BP Well ID	Main Plant Land Reuse Area Location	Main Plant Permit Groundwater Monitoring Program Table V.D.1
G002	G-01R	8	MPOW - Gauging and Sampling
G005	B-5D	12	GMZ Boundary Monitoring
G006	B-6	13	GMZ Boundary Monitoring
G008	B-8D	12	GMZ Boundary Monitoring
G009	B-9	8	MPOW - Gauging and Sampling
G011	C-1	8	MPOW - LNAPL Monitoring
G016	C-6	4	MPOW - Gauging Only
G020	C-10	6	MPOW - Gauging and Sampling
G021	C-11	6	GMZ Boundary Monitoring
G023	C-13	5	GMZ Boundary Monitoring
G027	C-17	9	MPOW - LNAPL Monitoring
G031	C-21A	9	MPOW - Sampling Only
G045	G-5	2	GMZ Boundary Monitoring
G046	G-6	2	MPOW - Gauging Only
G048	G-8	5	MPOW - Gauging and Sampling
G049	G-9	5	MPOW - LNAPL Monitoring
G04R	B-4R	2	GMZ Boundary Monitoring
G050	G-10	8	MPOW - Gauging Only
G055	G-15	2	GMZ Boundary Monitoring
G057	G-17	Offsite Well	MPOW - Gauging and Sampling
G058	G-18	Offsite Well	MPOW - Gauging and Sampling
G059	G-19	Offsite Well	GMZ Boundary Monitoring
G062	G-22	Offsite Well	GMZ Boundary Monitoring
G065	G-25	Offsite Well	MPOW - Sampling Only
G067	G-27	Offsite Well	GMZ Boundary Monitoring
G068	G-28	Offsite Well	GMZ Boundary Monitoring
G073	G-33	Offsite Well	GMZ Boundary Monitoring
G079	G-39	Offsite Well	GMZ Boundary Monitoring
G082	G-42	9	MPOW - Sampling Only
G084	G-32R	Offsite Well	GMZ Boundary Monitoring
G085	G-26R	Offsite Well	GMZ Boundary Monitoring
G10L	H-20	2	MPOW - Gauging and Sampling
G111	SWMU-12/MW2	13	GMZ Boundary Monitoring
G112	GH-1	13	GMZ Boundary Monitoring
G128	G128	14	GMZ Boundary Monitoring
G13L	H-23	3	MPOW - LNAPL Monitoring
G14L	H-24	10	MPOW - Gauging and Sampling
G16L	H-26A	6	MPOW - Gauging and Sampling
G19	H-29	8	MPOW - Sampling Only
G22R	C-12R	6	MPOW - Gauging and Sampling
G301	RP-1	12	MPOW - Gauging and Sampling

REVISION DATE: 07/29/2024

TABLE C-1
Main Plant Land Reuse Area
Groundwater Monitoring Wells

IEPA Well ID	BP Well ID	Main Plant Land Reuse Area Location	Main Plant Permit Groundwater Monitoring Program Table V.D.1
G303	RP-3D	4	GMZ Boundary Monitoring
G304	RP-4	5	MPOW - Demonstration
G305	RP-5	5	MPOW - Gauging and Sampling
G306	RP-6	5	MPOW - Sampling Only
G307	RP-7D	5	MPOW - Gauging and Sampling
G30R	H-30R	8	MPOW - Gauging and Sampling
G31D	C-21C	9	MPOW - Gauging and Sampling
G31R	H-31R	8	MPOW - Gauging Only
G32R	H-32R	16	GMZ Boundary Monitoring
G33	H-33	6	MPOW - Sampling Only
G34	H-34	5	MPOW - LNAPL Monitoring
G35A	G35A	10	GMZ Boundary Monitoring
G35B	G35B	10	GMZ Boundary Monitoring
G37	H-37	12	GMZ Boundary Monitoring
G39	H-39	12	MPOW - Gauging and Sampling
G417	B-17	3	MPOW - LNAPL Monitoring
G500	G500	1	GMZ Boundary Monitoring
G501	G501	12	MPOW - Gauging and Sampling
G502	G502	12	MPOW - Gauging and Sampling
G5B	G-5B	2	GMZ Boundary Monitoring
G603	RC-3	3	MPOW - LNAPL Monitoring
G604	RC-4	8	MPOW - LNAPL Monitoring
G605	RC-5	5	MPOW - LNAPL Monitoring
G613	RC-13	6	MPOW - LNAPL Monitoring
G614	RC-14	6	MPOW - LNAPL Monitoring
G615	RC-15	5	MPOW - LNAPL Monitoring
G617	RC-17	8	MPOW - LNAPL Monitoring
G618	RC-18	8	MPOW - LNAPL Monitoring
G619	RC-19	8	MPOW - LNAPL Monitoring
G620	RC-20	8	MPOW - LNAPL Monitoring
G69R	G-29R	Offsite Well	GMZ Boundary Monitoring
G71L	G-31	8	MPOW - Sampling Only
G74L	G-34	Offsite Well	GMZ Boundary Monitoring
G75L	G-35	Offsite Well	GMZ Boundary Monitoring
G76L	G-36	Offsite Well	GMZ Boundary Monitoring
G83L	H-3	8	MPOW - Gauging Only
G84L	H-4	8	MPOW - Gauging and Sampling
G86L	H-6	8	MPOW - Gauging Only
G87L	H-7	8	MPOW - Gauging and Sampling
G89L	H-9	8	MPOW - Gauging Only
G91	M-1D	13	GMZ Boundary Monitoring

REVISION DATE: 07/29/2024

TABLE C-1
Main Plant Land Reuse Area
Groundwater Monitoring Wells

IEPA Well ID	BP Well ID	Main Plant Land Reuse Area Location	Main Plant Permit Groundwater Monitoring Program Table V.D.1
G92	M-2D	13	GMZ Boundary Monitoring
G92L	H-12	8	MPOW - Gauging and Sampling
G93L	M-3D	13	GMZ Boundary Monitoring
G96L	H-16	8	MPOW - LNAPL Monitoring
G97L	H-17	2	MPOW - Sampling Only
G98L	H-18	16	MPOW - Gauging and Sampling
G99L	H-19	3	MPOW - Gauging Only
GXXX	A3MW01	3	MPOW - LNAPL Monitoring
GXXX	A3MW02	3	MPOW - LNAPL Monitoring
GXXX	A6MW01	6	MPOW - LNAPL Monitoring
GXXX	A6MW02	6	MPOW - LNAPL Monitoring
GXXX	A6MW03	6	MPOW - LNAPL Monitoring
GXXX	A8MW02	8	MPOW - LNAPL Monitoring
GXXX	A8MW04	8	MPOW - Gauging Only
GXXX	A8MW05	8	MPOW - Gauging Only
GXXX	A8MW06	8	MPOW - Gauging Only
GXXX	A9BH05	9	MPOW - LNAPL Monitoring
GXXX	B-14	6	MPOW - LNAPL Monitoring
GXXX	C-9	3	MPOW - LNAPL Monitoring
GXXX	G08A	12	GMZ Boundary Monitoring
GXXX	G-11	8	MPOW - LNAPL Monitoring
GXXX	G-12	8	MPOW - LNAPL Monitoring
GXXX	G-40	9	MPOW - LNAPL Monitoring
GXXX	G-47	9	MPOW - LNAPL Monitoring
GXXX	LS-1	8	MPOW - LNAPL Monitoring
GXXX	Q-14	6	MPOW - LNAPL Monitoring
GXXX	R067	Offsite Well	GMZ Boundary Monitoring
GXXX	R068	Offsite Well	GMZ Boundary Monitoring
GXXX	SVE-2	3	MPOW - LNAPL Monitoring
H31B	H-31B	8	GMZ Boundary Monitoring
R032	R032	9	MPOW - Demonstration
R034	C-24R	9	MPOW - Demonstration
R035	C-25AR	9	MPOW - Demonstration
R042	R042	12	MPOW - Gauging and Sampling
R063	G-23R	Offsite Well	GMZ Boundary Monitoring
R083	R083	12	MPOW - Gauging and Sampling
R11L	H-21R	6	MPOW - Sampling Only
R302	R302	4	GMZ Boundary Monitoring
R31L	R31L	9	MPOW - Sampling Only
RG36	H-36R	10	GMZ Boundary Monitoring

REVISION DATE: 08/28/2024

FIGURES



UPPERMOST AQUIFER
POTENTIOMETRIC SURFACE MAP
STANDARD NETWORK
APRIL 2-4, 2024

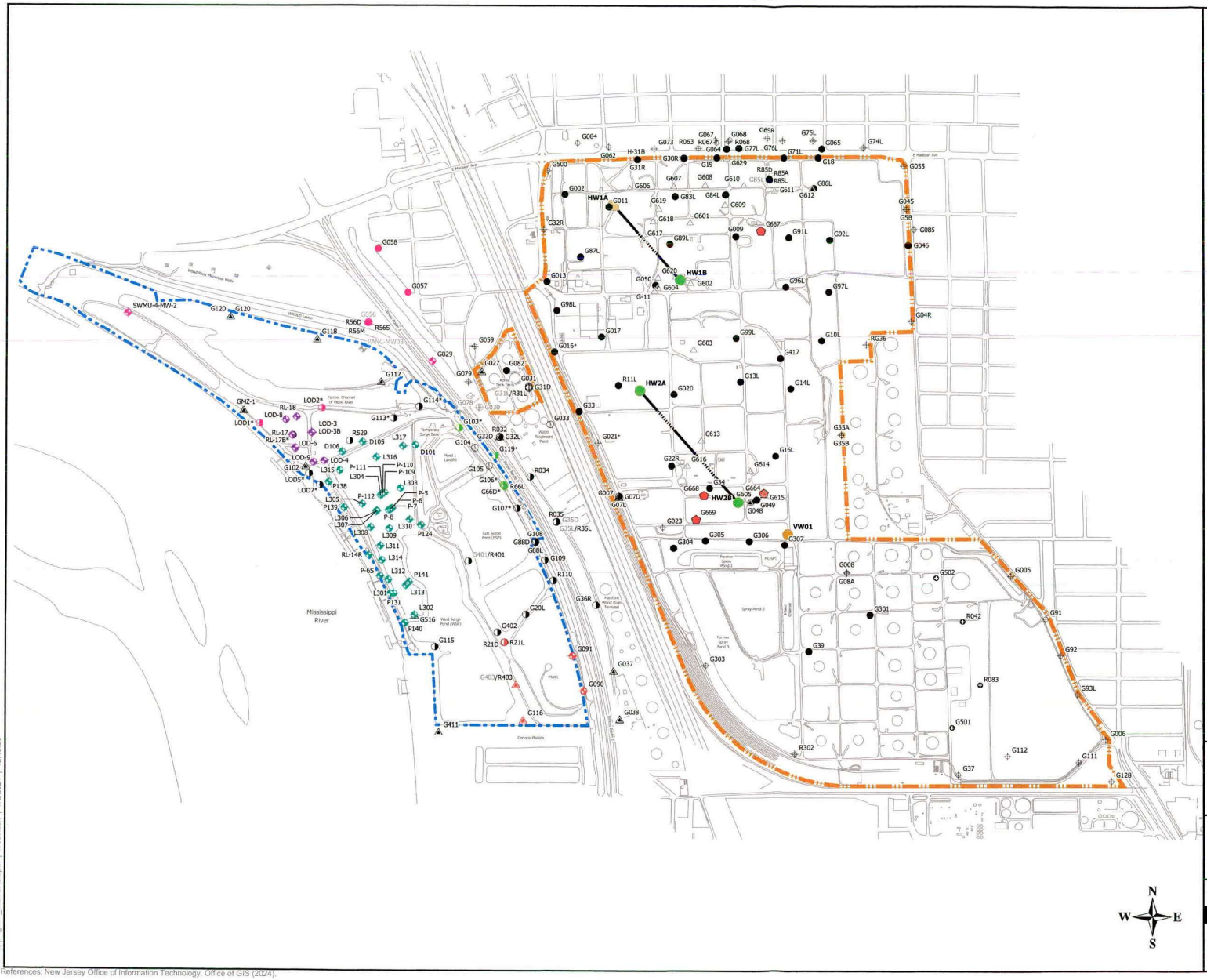
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE:
C-1

R000139

REVISION DATE: 08/28/2024



- Inactive Hydrocarbon System Recovery Well
- Main Plant GMZ Boundary Monitoring Well
- Main Plant Observation Well
- Riverfront Gradient Control Well
- Riverfront Annual Observation Well
- Riverfront Semi-Annual Observation Well
- Sentry Wells
- Active Replacement Cone of Depression Well
- Replacement Cone of Depression Well Proposed for Abandonment
- COD Well Access Point
- Inactive Cone of Depression Well
- Horizontal Well Casing
- Horizontal Well Screen
- Main Plant
- Riverfront

Notes:

1. The following monitoring wells have been installed to replace those in parentheses: G35A and G35B (G35), R31L (G31L), R35L (G35L), R56S, R56M, and R56D (G056), R85L, R85D, and R85A (G85L), R302 (G302), R401 (G401), and R403 (G403).
2. G08A installed in March 2021 to replace Main Plant GMZ Boundary Monitoring Well G008 pending further evaluation.
3. Wells G029, G057, G058, LOD1, LOD2, SWMU4-MW02, R56S, R56M, and R56D are approved sentinel wells by Permit.
4. Replacement monitoring wells for G067 and G068 installed June 2023. Replacement wells referenced as R067 and R068 (bp ID) until formal names are assigned by the Illinois EPA in accordance with the January 19, 2023 Illinois EPA approval letter.
5. Greyed out wells have been abandoned or destroyed.

* - Riverfront GMZ Well
\+ - Riverfront Gradient Control Well

PNWL Program Well symbols shown in **red**.
Sentinel Well symbols shown in **pink**.
LOD Program Well symbols shown in **purple**.
CDF Program Well symbols shown in **teal**.
SWMU7 Program Well symbols shown in **green**.

0 500 1,000 2,000

1 INCH = 1,000 FEET

GROUNDWATER MONITORING WELL NETWORK

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
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Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE:
C-2a

References: New Jersey Office of Information Technology, Office of GIS (2024).

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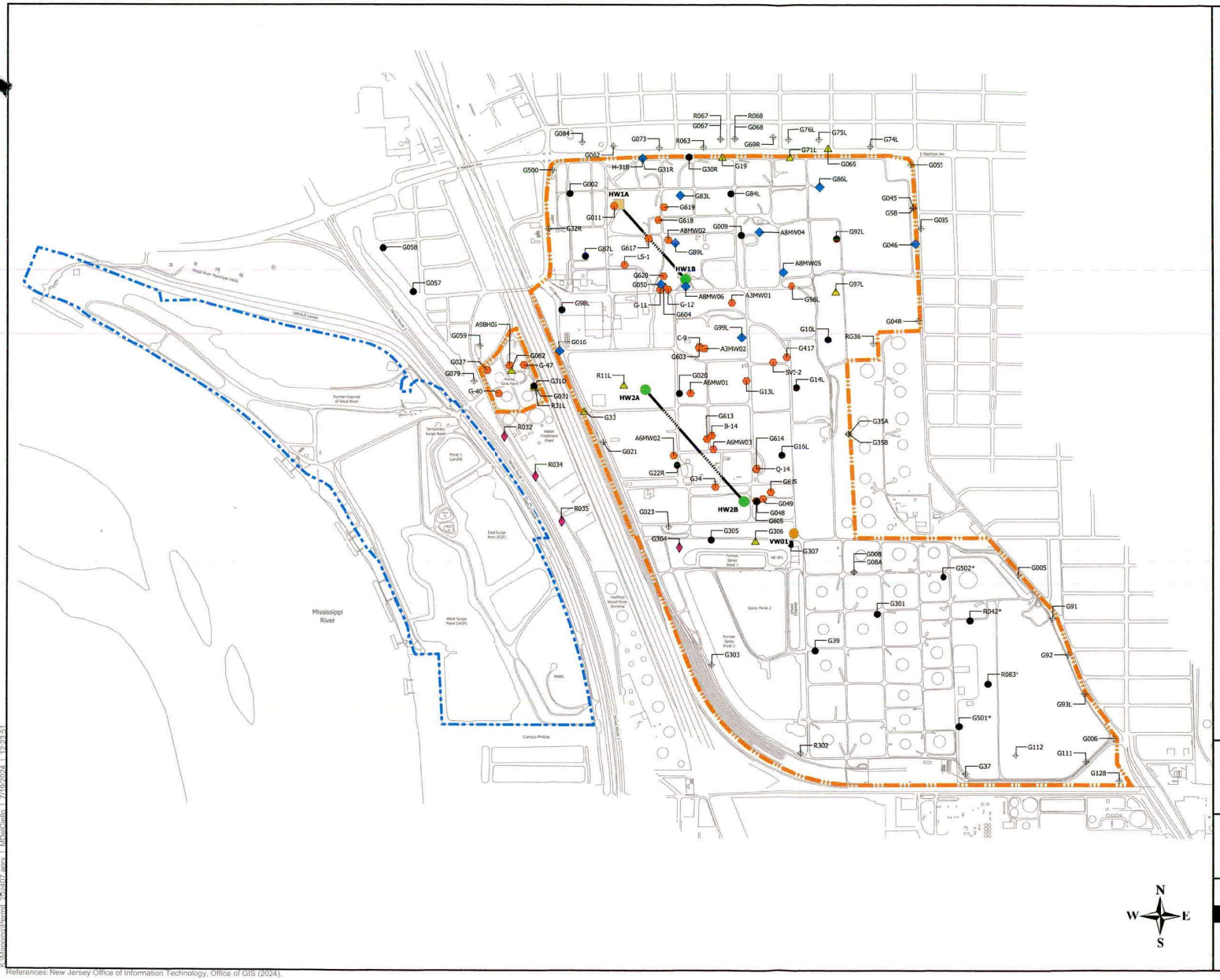
R000140

REVISION DATE: 08/28/2024



- Main Plant GMZ Boundary Monitoring Well
- Main Plant Observation Well - Gauge and Sample
- Main Plant Observation Well - Gauge Only
- Main Plant Observation Well - Sample Only
- Main Plant Observation Well - LNAPL Monitoring
- Main Plant Observation Well - Demonstration Well
- Active Replacement Cone of Depression Well
- Replacement Cone of Depression Well Proposed for Abandonment
- COD Well Access Point
- Horizontal Well Casing
- Horizontal Well Screen
- Main Plant
- Riverfront

Notes:

* - Main Plant Sentry Well

0 500 1,000 2,000

1 INCH = 1,000 FEET

GROUNDWATER MONITORING
OPTIMIZED WELL NETWORK

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE:

C-2b

References: New Jersey Office of Information Technology, Office of GIS (2024).

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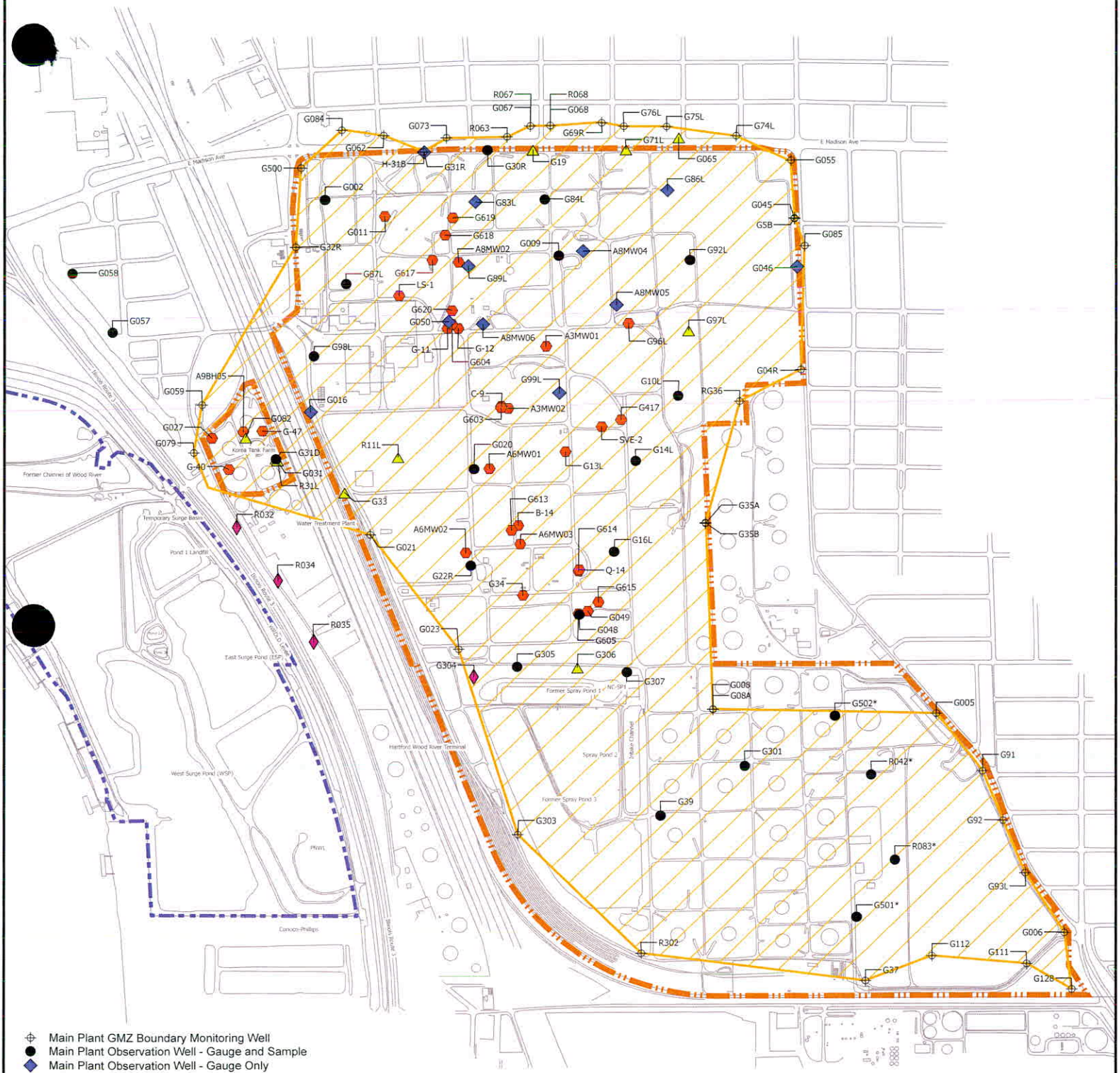
R000141



Main Plant GMZ Boundary Monitoring Well
Main Plant Observation Well - Gauge and Sample
Main Plant Observation Well - Gauge Only
Main Plant Observation Well - Sample Only
Main Plant Observation Well - LNAPL Monitoring
Main Plant Observation Well - Demonstration Well
Main Plant GMZ Boundary
Main Plant
Riverfront

* - Main Plant Sentry Well

N
W E
S

0 500 1,000 2,000

1 INCH = 1,100 FEET

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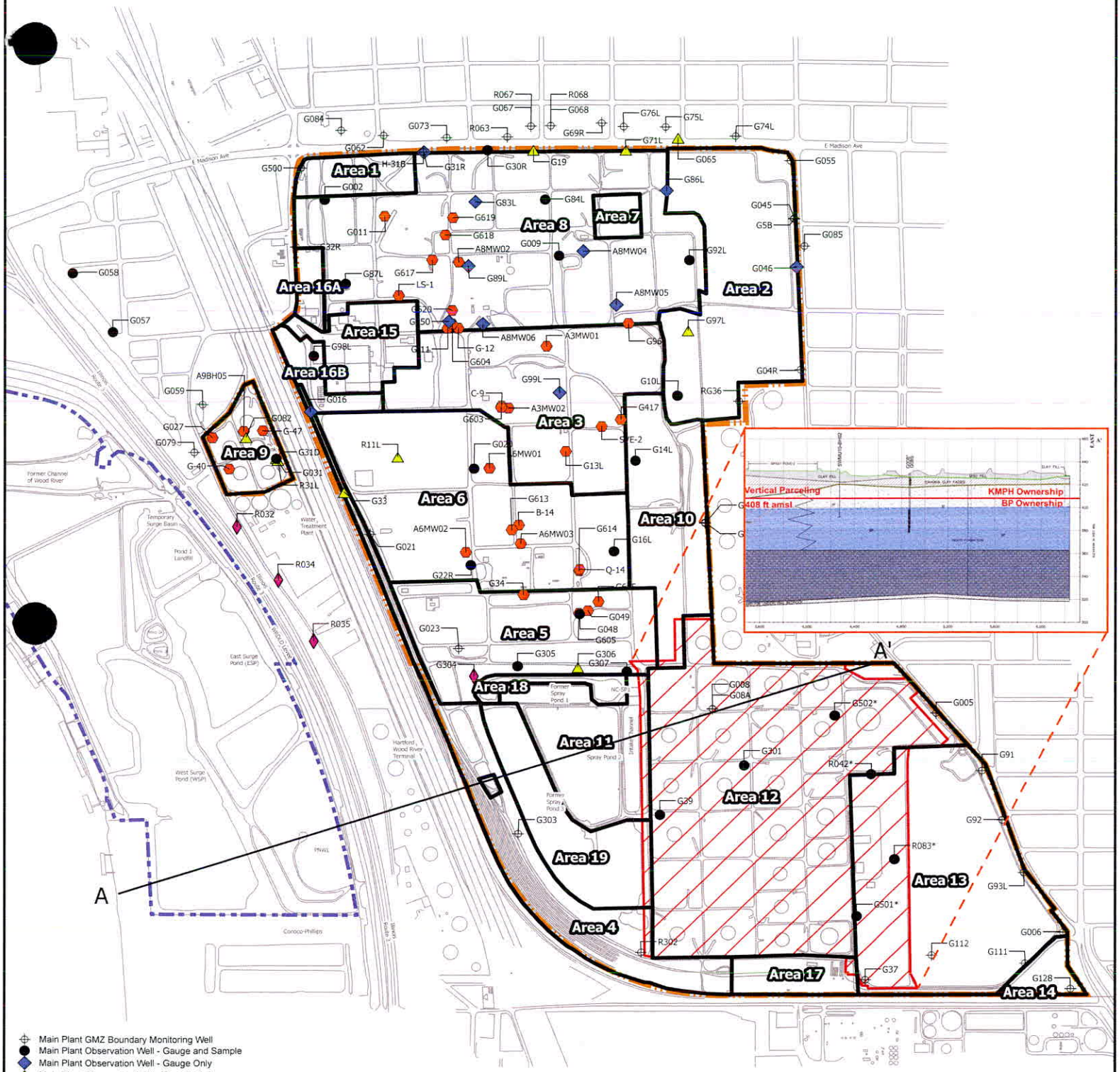
(609) 259-8200 (609) 259-8288 (fax)

Main Plant Groundwater Management Zone

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

FIGURE:
C-3



N
W E
S

0 500 1,000 2,000

1 INCH = 1,100 FEET

SOVEREIGN CONSULTING Inc.

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Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

Main Plant Permitted Wells and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

FIGURE:
C-4

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REVISION DATE: 07/29/2024

Parameter	35 IAC 620.410 Class I Groundwater Quality Standards
Arsenic	0.01
Benzene	0.005
Benzo(a)anthracene	0.00013
Benzo(a)pyrene	0.0002
Benzo(b)fluoranthene	0.00018
Benzo(k)fluoranthene	0.00017
bis(2-Ethylhexyl)phthalate	0.006
Chromium	0.1
Lead	0.0075
Nickel	0.1

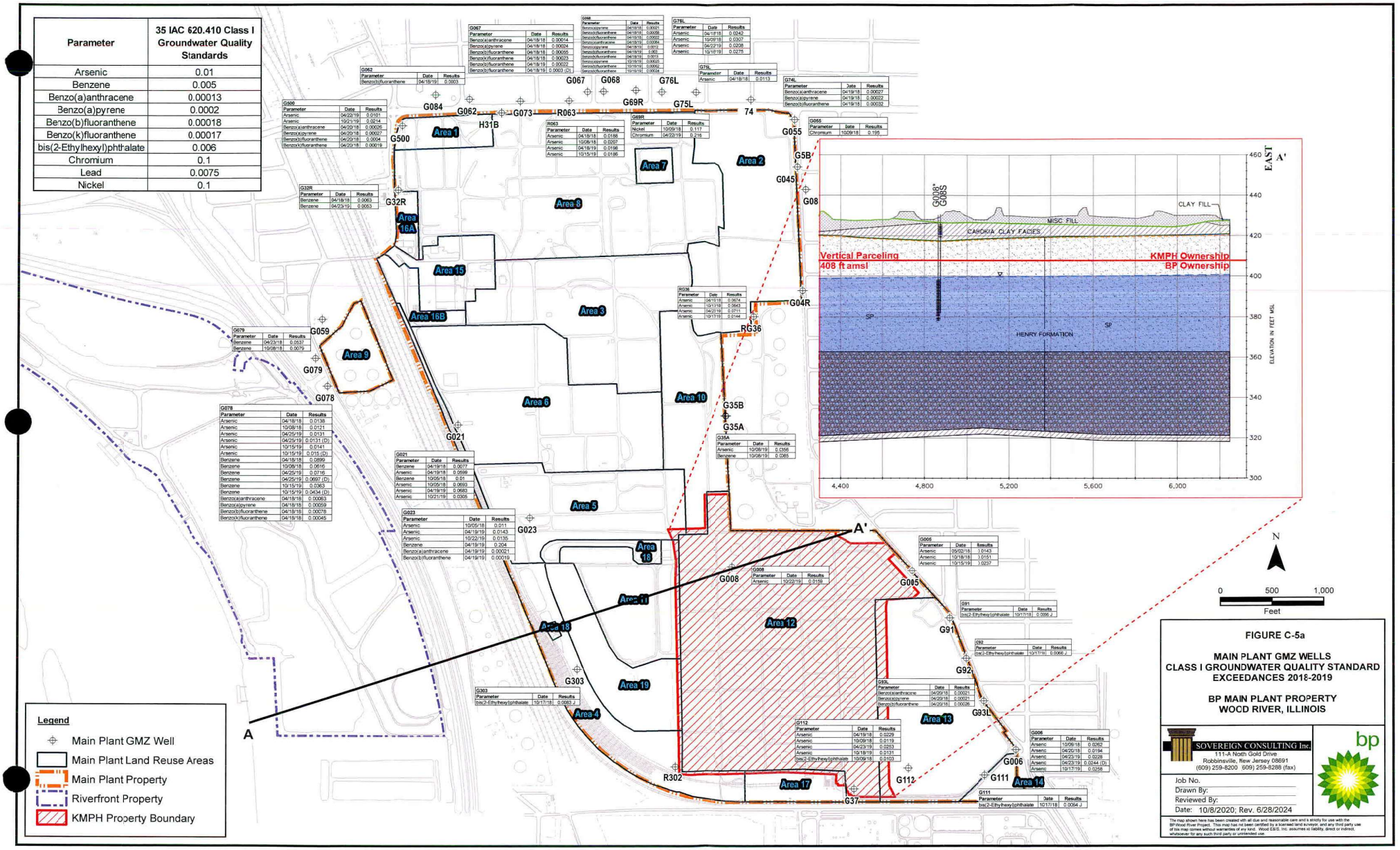

FIGURE C-5a

MAIN PLANT GMZ WELLS
CLASS I GROUNDWATER QUALITY STANDARD EXCEEDANCES 2018-2019

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

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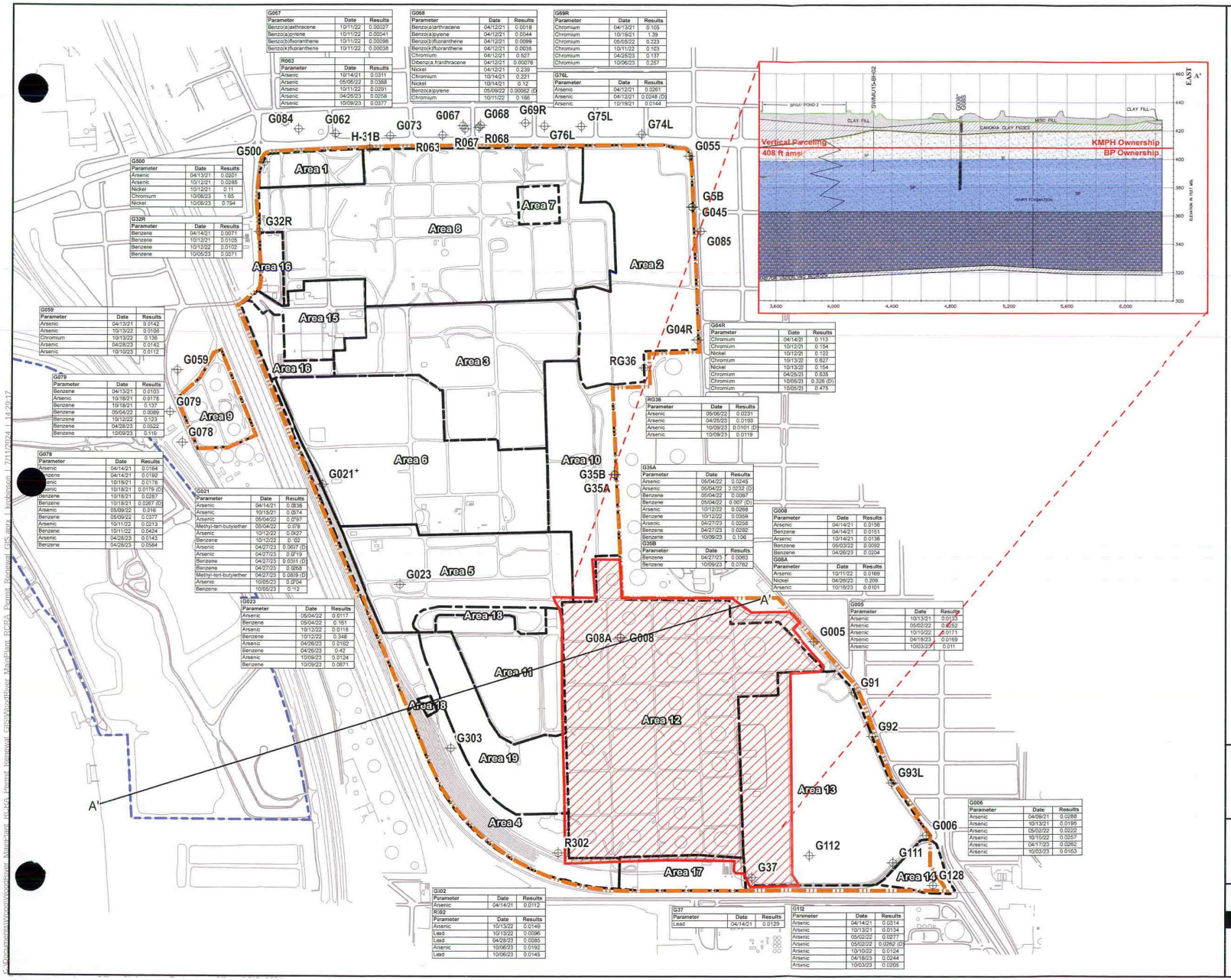
(609) 259-8200 (609) 259-8288 (fax)

Job No.
Drawn By:
Reviewed By:
Date: 10/8/2020; Rev. 6/28/2024

The map shown here has been created with all due and reasonable care and is strictly for use with the BP Wood River Project. This map has not been certified by a licensed land surveyor, and any third party use of this map comes without warranties of any kind. Wood E&IS, Inc. assumes no liability, direct or indirect, whatsoever for any such third party or unintended use.

R000144



Parameter	35 IAC 620.410 Class I Groundwater Quality Standards
Arsenic	0.01
Benzene	0.005
Benzo(a)anthracene	0.00013
Benzo(a)pyrene	0.0002
Benzo(b)fluoranthene	0.00018
Benzo(k)fluoranthene	0.00017
Chromium	0.1
Dibenz(a,h)anthracene	0.0003
Lead	0.0075
Methyl-tert-butylether	0.07
Nickel	0.1

MAIN PLANT GMZ WELLS CLASS I GROUNDWATER QUALITY STANDARD EXCEEDANCES 2021-2023

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

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FIGURE:
C-5b

R000145

REVISION DATE: 08/28/2024

EXHIBITS

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2.1.1 Fluid Level Monitoring Procedure 1
2.2 GROUNDWATER SAMPLING PROCEDURE 2
2.2.1 Quality Control Samples 2
2.2.2 Field Equipment Decontamination 3
2.2.3 Numbering and Labeling 3
2.2.4 Shipping and Handling 4
2.2.5 Field Documentation 4
3.0 REPORTING 5

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Table 1 Groundwater Monitoring Well Network
Table 2 Well Inspection Criteria
Table 3 Analytical Methods, Sampling Containers, Preservation Methods, and Holding Times

FIGURES

Figure 1 Groundwater Monitoring Well Network

APPENDICES

Appendix A Groundwater Monitoring Low-Flow Standard Operating Procedure
Appendix B Sampling Program Parameters and Schedule
Appendix C Groundwater Monitoring Well Boring Logs and Well Construction Reports
Appendix D Slug Test Data Summary

1.0 INTRODUCTION

This document describes the groundwater monitoring program currently being implemented at the BP Products North America, Inc. (bp) Main Plant Property, which is located in Wood River, Illinois. This document is presented as **Exhibit C-1** of the RCRA Part B Permit Renewal Application. The information in this document addresses the groundwater monitoring requirements of Section C in the Part B Permit Renewal Application. The Part B Permit (Permit) for the bp Main Plant Property (B-147) was issued in September 1993 and became effective in November 1993. The current version is Log B-147R-M-17 and M-18 dated May 29, 2018.

2.0 GROUNDWATER MONITORING PROGRAM

The groundwater monitoring program is based on the site's demonstrated ability to control groundwater flow in the uppermost aquifer (UMA) such that contaminants and light non-aqueous phase liquid (LNAPL) will remain within the groundwater management zone (GMZ).

2.1 Evaluation of Groundwater Surface

The groundwater surface is evaluated on a quarterly basis by collection of static groundwater elevations at the wells listed in **Table 1** excluding the Sampling Only Network. The well specifications are also provided in **Table 1**. The groundwater elevation measurement procedure is described in Section 2.1.1 below.

bp prepares potentiometric surface maps of the UMA based on groundwater elevations measured quarterly. The groundwater contour lines are evaluated to determine flow direction. Hydraulic control is defined by an inward gradient towards the bp Main Plant Property Cone of Depression (COD) wells.

bp records daily pumping rates from the bp Main Plant Property COD wells. This data is used to calculate the monthly withdrawal rate of the bp Main Plant Property COD wells. The groundwater flow rate and direction are determined semi-annually and reported in the Semi-Annual Groundwater Corrective Action Reports.

2.1.1 Fluid Level Monitoring Procedure

Static groundwater elevations are measured quarterly to evaluate the groundwater surface at the bp Main Plant Property. The elevations are measured at the groundwater monitoring well network wells shown on Figure 1. The well locations were selected to provide confirmation of inward gradient and the extent of dissolved phase hydrocarbon impacts.

The fluid level measurements collected quarterly include depth to groundwater and depth to product (if present) only. This allows for determination of the extent of the hydrocarbon plume on a quarterly basis. Fluid level measurements are be collected from all wells in the groundwater monitoring system within 72 hours of the first fluid level measurement.

The elevation of the bottom of each well is measured annually and reported as feet above mean sea level (MSL). Measurement of well depths are conducted during the months of April or May and prior to groundwater sampling.

An oil-water interface probe is used to measure for absence/presence and thickness of LNAPL if applicable) in each monitoring well. The groundwater elevations are corrected in wells that contain LNAPL.

Fluid level measurements are conducted in the same manner as that described in the standard operating procedure (SOP) for "low-flow" sampling provided in **Appendix A**.

An inspection of all monitoring wells is performed during each quarterly fluid level measurement event. Each well is visually inspected for the items listed in **Table 2**. Deficiencies or problems observed at a well are recorded on the quarterly fluid level form. All records are kept at the site for future reference. Any damage or deficiency observed at a well will be repaired in a timely manner.

The vented well cap shown on the Illinois EPA Bureau of Land well construction diagram (Attachment B to the current Permit) is not appropriate for the Main Plant Property. Venting of wells at the site is neither advisable nor necessary due to the following site-specific conditions:

- The *Water Level Measurement Standard Operating Procedure (SOP)* includes collection of repeat measurements to ensure accurate depth to water is recorded.
- Under site-specific conditions, the groundwater level equilibrates within seconds of removing well cap as demonstrated via slug test data provided as **Appendix D**.
    - Additionally, barometric pressure continuously collected at the site was reviewed for October – December 2021 and August – December 2023 (**Appendix D**). The average head induced at the site ranges between 0.01 – 0.04 feet. This indicates that wells under barometric pressure will take less than a few seconds to equilibrate once a J-plug is removed whether screened in the Cahokia or Henry.
- Quarterly site-wide groundwater gauging data is collected via a digitized system now, allowing bp to identify monitoring wells with anomalous depth to water measurements and re-gauge them within 72 hours of the depth to water measurement.
- Pressurized wells in impacted areas could release methane and volatile organic compounds, potentially resulting in air permit exceedances.
- Vented well caps are not appropriate for flushmount wells as well vaults may not remain water-tight over time; this could allow surface runoff to enter a well before the well vault is replaced.

2.2 GROUNDWATER SAMPLING PROCEDURE

bp samples the wells using a "low-flow" sampling technique with a submersible, bladder, or equivalent pump. A small diameter sampling tube or pump is lowered carefully through the water column to the desired sampling depth within the screened interval of the well. A sample is then collected after equilibration of the following parameters is achieved: pH, specific conductivity, turbidity. Additional parameter monitoring may include temperature, dissolved oxygen, and oxidation-reduction potential. The SOP for "low-flow" groundwater sampling is provided in **Appendix A**. If LNAPL is detected at a thickness of 0.01 feet or more, a groundwater sample is not collected from that well.

The analytical methods, sampling containers, preservation methods, and holding times for each of the parameter or parameter groups are provided in **Table 3**. Details of each sampling program including the analytical parameters and sample schedule are included in **Appendix B**.

2.2.1 Quality Control Samples

Quality control samples are obtained to ensure the precision and accuracy of field samples and laboratory methods. Precision is a measure of the degree to which two or more measurements are in agreement.

Field precision is assessed through the collection and measurement of field duplicates. Laboratory precision data are derived from duplicate or matrix spike duplicate results.

Accuracy is the degree of agreement between the observed value and an accepted reference value. Accuracy associated with field sampling is evaluated through the use of trip blanks. Laboratory accuracy is expressed as percent recoveries and will be determined through the analysis of matrix spikes.

Field Duplicate Collection Procedure

One field duplicate sample is collected per 10 samples. The field duplicate sample is performed by filling an additional identical set of containers at a selected sampling location. The field duplicate sample is analyzed identically to the sample.

MS/MSD and Laboratory Duplicate Sample Collection

Matrix spike and matrix spike duplicate (MS/MSD) samples are collected a frequency of one per 20 samples. Three times the normal sample volume is needed for organics and double sample volume is needed for other parameters for MS/MSD samples.

Trip Blanks

One trip blank is included in each shipping cooler that contains samples for analysis of volatile organic compounds (VOCs). The trip blanks prepared by the analytical laboratory contain deionized water preserved with hydrochloric acid and accompany containers used for collection of VOC samples.

2.2.2 Field Equipment Decontamination

Groundwater samples are obtained with dedicated or disposable tubing during low-flow sampling and therefore do not require decontamination. However, the pumps used to collect samples are decontaminated between samples by scrubbing with a brush using a non-phosphate detergent-water solution followed by several rinses with distilled water. Detergents that are used for decontamination include Alconox, Liquinox, or equivalent products. The water generated during decontamination is containerized and disposed at the wash pad located on-site.in a place designated by bp.

2.2.3 Numbering and Labeling

All sample labels are completed with indelible ink. Sample labels may be completed and attached prior to sample collection; however, labels are sometimes only partially completed prior to sample collection. The date, time, sampler's initials, and the sample identification (ID) number are completed at the time of sample collection. At a minimum, each sample label contains the following information:

- Sample ID number
- Date and time of sample collection
- Analyses required
- Preservation used
- Sampler's initials

The Sample ID number is unique to each sample collected during the investigation. The unique sample code is based on the date and area in which the sample is collected.

2.2.4 Shipping and Handling

The required sample containers and analytical holding times are presented in **Table 3**. The samples are placed on ice or equivalent and cooled to 4° Celsius immediately after collection and stored in coolers. The samples are packed carefully to ensure that no breakage occurs during shipment. Samples are shipped in custody-sealed coolers via a carrier to the analytical laboratory for delivery the next business morning.

A chain-of-custody form is completed for all samples and includes sample ID numbers, sample dates and times, analytical requirements, and other information. Chain-of-custody procedures are described in Section 2.2.5.

Preparation of the samples for shipment to the laboratory includes:

- Labeling sample containers
- Cleaning the exterior of the container of excessive dirt or moisture
- Packing sample containers in shipping coolers with packing material and ice preservative
- Completing a chain-of-custody form for the cooler(s) and enclosing the form in a zipper-type plastic bag on the inside top cover of the cooler(s)
- Sealing the cooler(s) with tape and custody seal(s)
- Affixing the proper shipping labels, (if needed)

2.2.5 Field Documentation

The following documentation is completed on an on-going basis during field activities:

- Field logbook (which includes the use of forms)
- Chain-of-Custody

Field Logbooks

Field logbooks provide the primary means of recording data-collection activities. As such, entries are completed in adequate detail so that persons going to the site can reconstruct a particular situation without reliance on memory.

Field logbooks are stored in the field project file when not in use. Each field logbook is identified by a project-specific number or name. The title page of each field logbook contains: (1) person or organization to whom the book is assigned, (2) book number, (3) project name, and (4) start and end dates.

Entries into field logbooks contain a variety of information. At the beginning of each entry, the date, start time, weather, names of sampling and/or investigative personnel present, level or personal protective equipment being used, and the signature of the person making the entry is entered. All entries are made in indelible ink without erasures. If an incorrect entry is made, the information is crossed out with a single strike mark and the correcting personnel's initials.

All equipment used to take field measurements and collect samples is identified in the field logbook along with calibration measurements. The following information pertinent to sample collection is documented in the logbook:

- Sample ID number and matrix
- Sample location
- Diagram of sample location if necessary, showing measured distances to known objects
- Sample date

- Sample time
- Sampling personnel
- Order in which bottles were filled
- Description of sample
- Types of containers filled
- Analysis requested
- Preservatives used
- Any additional information deemed necessary on a case-by-case basis

Chain-of-Custody Procedures

The chain-of-custody form is a legal document, which shows dates and times that samples were collected, and the analytical methodologies requested. Each sample is tracked from the time the samples are collected until laboratory data are issued. Information on the custody, transfer, handling, and shipping of samples is recorded on a chain-of-custody form. Copies of the daily chain-of-custody forms are retained.

The sample handler or assigned designee is responsible for initiating and filling out the chain-of-custody form. The chain-of-custody is signed and dated when samples are transferred between personnel/entities. It is not necessary for the shipping company/courier representative to sign the chain-of-custody form. A chain-of-custody form is completed for each set of samples collected daily, and contains the following information:

- Sampler's signature and affiliation
- Project number
- Date and time of collection
- Sample ID number
- Sample type
- Preservation method
- Analyses requested
- Number of containers
- Signature of persons relinquishing custody, dates, and time
- Signature of persons accepting custody, dates, and times (laboratory), and
- Method of shipment (e.g., overnight and shipping or special courier)

The person responsible for delivery of the samples to the courier signs the chain-of-custody form, retains a copy of the chain-of-custody form, documents the method of shipment, and sends the original chain-of-custody form with the sample(s) (taped in resealable plastic bag to inner cooler lid). Upon receipt at the laboratory, the person receiving the samples signs the chain-of-custody form. Copies of the chain-of-custody forms and all custody documentation are kept in the central files. The original chain-of-custody forms remains with the samples until final disposition of the samples by the laboratory. The analytical laboratory will dispose of the samples in an appropriate manner after data reporting or by contract terms. A copy of the chain-of-custody provided in analytical laboratory report(s) are archived into the central files.

3.0 REPORTING

Groundwater monitoring reports will be submitted to the Illinois EPA by August 1 for Second Quarter groundwater monitoring and February 1 of the year following the Fourth Quarter monitoring period. The reports will include the following:

- All monitoring, testing and analytical data collected during the monitoring period
- Groundwater surface elevation data and potentiometric surface maps to verify hydraulic control
- Information on groundwater flow rate and direction
- Monthly average groundwater withdrawal rate from the COD wells
- Measured thickness of LNAPL encountered in each well
- Evaluation of monitoring results and groundwater flow direction
- Evaluation of the effectiveness of the corrective action

REVISION DATE: 08/28/2024

TABLES

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Table 1
Groundwater Monitoring System
BP Main Plant Property
Wood River, Illinois

IEPA WELL No.	BP WELL No.	TOP OF CASING ELEVATION (ft MSL) [1]	GROUND SURFACE ELEVATION (ft MSL) [1]	STICK-UP LENGTH (ft)	WELL DEPTH (ft bgs)	WELL DEPTH ELEVATION (ft MSL) [1]	WELL SCREEN INTERVAL (ft bgs)	WELL SCREEN INTERVAL ELEVATION (ft MSL) [1]	WELL DESIGNATION [10]
GMZ Boundary Monitoring Wells									
G005 [8]	B-5D	432.25	430.10	2.15	44.00	386.10	24.00-44.00	406.10-386.10	UMA H
G006	B-6	429.90	428.01	1.89	44.00	384.01	24.00-44.00	404.01-384.01	UMA H
G008 *	B-8D	430.15	428.21	1.94	50.00	378.21	20.00-50.00	408.21-378.21	UMA H
G021	C-11	433.75	431.77	1.98	49.50	382.27	14.50-49.50	417.27-382.27	UMA C
G023	C-13	433.95	431.24	2.71	49.50	381.74	14.50-49.50	416.74-381.74	UMA C
G04R	B-4R	444.04	442.04	2.00	59.50	382.54	39.50-59.50	402.54-382.54	UMA H
G045	G-5	443.17	443.54	-0.37	40.87	402.67	30.87-40.87	412.67-402.67	UMA H
G055	G-15	444.92	445.20	-0.29	52.19	393.02	32.19-52.19	413.02-393.02	UMA H
G059	G-19	429.03	429.33	-0.30	45.00	384.33	25.00-45.00	404.33-384.33	UMA C
G062	G-22	432.70	433.01	-0.31	45.00	388.01	25.00-45.00	408.01-388.01	UMA H
R063	G-23R	431.52	431.82	-0.30	46.24	385.58	26.00-46.00	405.82-385.82	UMA H
G067 #	G-27	435.06	435.28	-0.21	49.00	386.28	29.00-49.00	406.28-386.28	UMA H
G068 @	G-28	441.75	442.24	-0.49	50.00	392.24	28.00-50.00	414.24-392.24	UMA H
G073	G-33	430.89	431.15	-0.26	44.00	387.15	24.00-44.00	407.15-387.15	UMA H
G079	G-39	422.84	423.12	-0.28	40.00	383.12	19.00-39.00	404.12-384.12	UMA C
G084	G-32R	433.71	434.13	-0.43	45.00	389.13	25.00-44.80	409.13-389.33	UMA H
G085	G-26R	442.04	442.74	-0.70	54.15	388.59	33.80-53.80	408.94-388.94	UMA H
G111	SWMU12-MW02	434.59	432.06	2.53	38.17	393.89	28.00-38.00	404.06-394.06	UMA H
G112	SWMU12-GH1	435.01	432.09	2.92	43.22	388.87	23.22-43.22	408.87-388.87	UMA C
G128 [2]	G128	432.22	429.51	2.71	33.65	395.86	23.47-33.25	406.04-396.26	UMA H
G32R	H32R	431.56	429.14	2.41	44.50	384.64	23.81-43.81	405.34-385.34	UMA C
G35A	G35A	432.84	430.15	2.70	32.20	397.95	22.00-32.00	408.15-398.15	UMA H
G35B	G35B	432.99	430.46	2.53	40.20	390.26	30.00-40.00	400.46-390.46	UMA H
G37	H-37	434.60	432.47	2.13	46.00	386.47	31.00-46.00	401.47-386.47	UMA C
G5B	G-5B	443.32	443.58	-0.26	75.85	367.73	65.85-75.85	377.73-367.73	UMA H
G500 [7]	G500	433.27	430.45	2.82	29.39	401.06	19.39-29.39	411.06-401.06	UMA C
G69R	G-29R	445.43	445.83	-0.39	59.96	385.87	39.95-59.95	405.87-385.87	UMA H
G74L	G-34	446.94	446.69	0.25	60.00	386.69	40.00-60.00	406.69-386.69	UMA H
G75L	G-35	446.20	446.51	-0.32	60.00	386.51	40.00-60.00	406.51-386.51	UMA H
G76L	G-36	445.34	445.81	-0.47	60.00	385.81	40.01-60.01	405.81-385.81	UMA H
G91	M-1D	429.92	427.83	2.09	39.70	388.13	29.70-39.70	398.13-388.13	UMA H
G92	M-2D	429.23	426.48	2.75	40.40	386.08	25.40-40.40	401.08-386.08	UMA H
G93L	M-3D	429.02	426.98	2.04	40.80	386.18	25.80-40.80	401.18-386.18	UMA H
H31B	H-31B	434.24	432.34	1.90	75.02	357.32	65.02-75.02	367.32-357.32	UMA H
RG36	H36R	448.24	445.37	2.87	60.43	384.94	41.10-55.80	404.27-389.57	UMA H
R302	R302	435.92	433.04	2.88	33.20	399.84	23.01-33.01	410.04-400.04	Cahokia Clay
G303	RP-3D	435.74	433.08	2.65	39.85	393.24	34.35-39.35	398.74-393.74	UMA C

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Table 1
Groundwater Monitoring System
BP Main Plant Property
Wood River, Illinois

IEPA WELL No.	BP WELL No.	TOP OF CASING ELEVATION (ft MSL) [1]	GROUND SURFACE ELEVATION (ft MSL) [1]	STICK-UP LENGTH (ft)	WELL DEPTH (ft bgs)	WELL DEPTH ELEVATION (ft MSL) [1]	WELL SCREEN INTERVAL (ft bgs)	WELL SCREEN INTERVAL ELEVATION (ft MSL) [1]	WELL DESIGNATION [10]
GXXX [8]	G08A	430.48	428.20	2.28	32.00	396.20	22.00-32.00	406.20-396.20	UMA H
GXXX [8]	R067	436.06	436.50	-0.44	32.12	404.38	26.82-31.82	409.68-404.68	UMA H
GXXX [8]	R068	441.35	441.60	-0.25	37.70	403.90	27.40-37.40	414.20-404.20	UMA H
Observation Monitoring Wells									
Gauging and Sampling Network									
G002	G-01R	430.88	428.66	2.22	37.32	391.34	17.50-37.10	411.16-391.56	UMA C
G009	B-9	433.49	431.66	1.83	49.00	382.66	24.00-49.00	407.66-382.66	UMA H
G020	C-10	432.83	432.00	0.83	49.50	382.5	14.50-49.50	417.50-382.50	UMA C
R042 [3]	R042	433.31	430.68	2.63	37.20	393.48	27.20-36.66	403.48-394.02	UMA H
G048	G-8	432.55	429.68	2.86	48.00	381.68	28.00-48.00	401.68-381.68	UMA H
G057 [4]	G-17	426.70	426.92	-0.22	35.02	391.9	15.02-35.02	411.90-391.90	UMA C
G058 [4]	G18	427.09	427.27	-0.18	36.00	391.27	16.00-36.00	411.27-391.27	UMA C
R083 [3]	R083	434.61	432.23	2.38	38.79	393.44	28.25-37.71	403.98-394.52	UMA H
G10L	H-20	432.58	430.25	2.33	58.43	371.82	33.43-53.43	396.82-376.82	UMA H
G14L	H-24	432.17	429.85	2.32	57.00	372.85	32.00-52.00	397.85-377.85	UMA H
G16L	H-26A	435.53	433.24	2.29	55.00	378.24	25.00-55.00	408.24-378.24	UMA H
G22R	C-12R	435.49	432.80	2.69	54.70	378.1	34.70-54.70	398.10-378.10	UMA C
G30R	H-30R	434.17	431.02	3.14	43.04	387.98	22.40-42.40	408.63-388.63	UMA H
G31D	C-21C	430.72	427.98	2.74	70.00	357.98	65.00-70.00	362.98-357.98	UMA H
G39	H-39	429.87	427.84	2.03	42.10	385.74	27.10-42.10	400.74-385.74	UMA H
G84L	H-4	435.05	433.19	1.87	59.00	374.19	34.01-54.01	399.19-379.19	UMA H
G87L	H-7	430.94	429.18	1.76	51.50	377.68	26.50-46.50	402.68-382.68	UMA C
G92L	H-12	445.24	442.82	2.42	69.00	373.82	32.00-64.00	410.82-378.82	UMA H
G98L	H-18	432.57	430.72	1.86	52.50	378.22	27.50-47.50	403.22-383.22	UMA C
G301	RP-1	430.23	427.38	2.85	49.00	378.38	39.00-49.00	388.38-378.38	UMA H
G305	RP-5	432.38	430.06	2.32	49.00	381.06	39.01-49.01	391.06-381.06	UMA C
G307	RP-7D	435.23	432.13	3.10	49.00	383.13	39.00-49.00	393.13-383.13	UMA H
G501 [3]	G501	436.20	433.44	2.75	40.89	392.55	30.35-39.81	403.09-393.63	UMA H
G502 [3][8]	G502	431.71	429.30	2.41	35.55	393.75	25.01-34.47	404.29-394.83	UMA H
Sampling Only Network [5]									
G031	C-21A	430.45	428.18	2.27	35.00	393.18	25.00-35.00	403.18-393.18	Cahokia Clay
G065	G-25	444.14	444.58	-0.43	55.00	389.58	35.00-55.00	409.58-389.58	UMA H
G082	G-42	431.19	428.81	2.38	40.00	388.81	19.00-40.00	409.81-388.81	UMA C
R11L	H-21R	432.02	429.32	2.69	57.47	371.85	37.48-57.48	391.85-371.85	UMA C
G19	H-29	436.43	433.67	2.77	47.24	386.42	32.24-47.24	401.42-386.42	UMA H
R31L [8]	R31L	431.57	428.10	3.47	55.00	373.10	50.00-55.00	378.10-373.10	UMA H
G33	H-33	433.29	431.37	1.92	44.00	387.37	24.00-44.00	407.37-387.37	UMA C
G71L	G-31	447.23	445.95	1.28	58.70	387.25	38.70-58.70	407.25-387.25	UMA H

R000156

REVISION DATE: 08/28/2024

Table 1
Groundwater Monitoring System
BP Main Plant Property
Wood River, Illinois

IEPA WELL No.	BP WELL No.	TOP OF CASING ELEVATION (ft MSL) [1]	GROUND SURFACE ELEVATION (ft MSL) [1]	STICK-UP LENGTH (ft)	WELL DEPTH (ft bgs)	WELL DEPTH ELEVATION (ft MSL) [1]	WELL SCREEN INTERVAL (ft bgs)	WELL SCREEN INTERVAL ELEVATION (ft MSL) [1]	WELL DESIGNATION [10]
G97L	H-17	437.76	435.09	2.67	58.00	377.09	33.00-53.00	402.09-382.09	UMA H
G306	RP-6	432.92	430.34	2.58	49.00	381.34	39.00-49.00	391.34-381.34	UMA H
Gauging Only Network									
G016	C-6	433.46	430.50	2.96	49.50	381.00	14.50-49.50	416.00-381.00	UMA C
G046	G-6	443.51	441.37	2.14	50.00	391.37	30.00-50.00	411.37-391.37	UMA H
G050	G-10	432.78	430.65	2.13	44.00	386.65	24.00-44.00	406.65-386.65	UMA C
G31R [8]	H-31R	435.28	432.10	3.18	42.22	389.88	22.02-42.02	410.08-390.08	UMA H
G83L	H-3	430.05	427.59	2.46	52.50	375.09	27.50-47.50	400.09-380.09	UMA H
G86L	H-6	442.90	441.22	1.69	64.30	376.92	39.31-59.31	401.92-381.92	UMA H
G89L	H-9	433.18	429.46	3.72	53.50	375.96	28.50-48.50	400.96-380.96	UMA H
G99L [8]	H-19	432.17	430.10	2.07	53.50	376.60	28.00-48.00	402.10-382.10	UMA H
GXXX	A8MW04	436.32	433.34	2.98	50.00	383.34	15.00-50.00	418.34-383.34	UMA H
GXXX	A8MW05	434.80	431.74	3.06	48.00	383.74	18.00-48.00	413.74-383.74	UMA H
GXXX	A8MW06	433.10	429.97	3.13	48.00	381.97	13.00-48.00	416.97-381.97	UMA H
LNAPL Monitoring Network [6]									
G011	C-1	432.84	429.80	3.04	49.50	380.30	14.51-49.51	415.30-380.30	UMA C
G027	C-17	432.35	430.32	2.03	40.00	390.32	30.00-40.00	400.32-390.32	UMA C
G049	G-9	431.69	429.75	1.94	47.00	382.75	27.00-47.00	402.75-382.75	UMA H
G13L	H-23	433.77	431.64	2.12	51.50	380.14	23.00-43.00	408.64-388.64	UMA H
G34	H-34	433.90	431.58	2.32	38.47	393.11	28.47-38.47	403.11-393.11	UMA C
G96L	H-16	433.55	431.78	1.77	58.50	373.28	33.50-53.50	398.28-378.28	UMA H
G417	B-17	433.38	431.48	1.90	51.00	380.48	31.00-51.00	400.48-380.48	UMA H
G603	RC-3	431.96	431.30	0.66	54.00	377.30	34.00-54.00	397.30-377.30	UMA H
G604	RC-4	433.57	431.38	2.19	51.46	379.92	31.46-51.46	399.92-379.92	UMA H
G605	RC-5	432.69	430.10	2.59	51.19	378.91	31.19-51.19	398.91-378.91	UMA H
G613	RC-13	433.36	431.50	1.86	63.12	368.38	28.12-58.12	403.38-373.38	UMA H
G614	RC-14	433.49	431.80	1.69	61.81	369.99	26.81-56.81	404.99-374.99	UMA H
G615	RC-15	432.05	430.14	1.91	59.66	370.48	24.66-54.66	405.48-375.48	UMA H
G617	RC-17	430.22	428.91	1.31	58.00	370.91	25.00-42.00	403.91-386.91	UMA H
G618	RC-18	431.73	429.28	2.45	57.50	371.78	17.50-52.50	411.78-376.78	UMA H
G619	RC-19	429.13	427.30	1.83	58.00	369.3	20.00-55.00	407.30-372.30	UMA H
G620	RC-20	432.23	429.87	2.36	85.36	344.51	23.59-80.23	406.28-349.64	UMA H
GXXX [9]	B-14	434.84	431.20	3.64	54.83	376.37	34.83-54.83	396.37-376.37	UMA H
GXXX +[8]	C-9	433.98	431.70	2.28	+	+	+	+	unknown
GXXX	G-11	435.21	431.46	3.75	43.08	388.38	23.25-43.25	408.21-388.21	UMA H
GXXX [9]	G-12	435.25	431.50	3.75	45.37	386.12	25.25-45.25	406.25-386.25	UMA H
GXXX	G-40	431.48	428.26	3.22	40.00	388.26	19.00-39.00	409.26-389.26	UMA C
GXXX [9]	G-47	430.66	428.00	2.66	38.67	389.33	20.34-38.34	407.66-389.66	UMA C
GXXX +[9]	Q-14	434.08	432.37	1.71	+	+	+	+	unknown

R000157

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Table 1
Groundwater Monitoring System
BP Main Plant Property
Wood River, Illinois

IEPA WELL No.	BP WELL No.	TOP OF CASING ELEVATION (ft MSL) [1]	GROUND SURFACE ELEVATION (ft MSL) [1]	STICK-UP LENGTH (ft)	WELL DEPTH (ft bgs)	WELL DEPTH ELEVATION (ft MSL) [1]	WELL SCREEN INTERVAL (ft bgs)	WELL SCREEN INTERVAL ELEVATION (ft MSL) [1]	WELL DESIGNATION [10]
GXXX	A3MW01	432.74	429.80	2.94	45.00	384.8	15.00-45.00	414.80-384.80	UMA H
GXXX	A3MW02	433.65	430.50	3.15	50.00	380.5	15.00-50.00	415.50-380.50	UMA H
GXXX	A6MW01	432.97	430.01	2.96	50.00	380.01	15.00-50.00	415.01-380.01	UMA H
GXXX	A6MW02	435.41	432.17	3.24	50.00	382.17	15.00-50.00	417.17-382.17	UMA C
GXXX	A6MW03	434.37	431.26	3.11	55.00	376.26	15.00-55.00	416.26-376.26	UMA H
GXXX	A8MW02	432.62	429.67	2.95	50.00	379.67	15.00-50.00	414.67-379.67	UMA H
GXXX	A9BH05	431.29	428.28	3.01	37.00	391.29	22.99-36.99	405.29-391.29	UMA C
GXXX	LS-1	431.34	428.58	2.76	33.87	394.71	13.87-33.87	414.71-394.71	UMA C
GXXX [9]	SVE-2	436.50	432.59	3.91	36.62	395.97	16.09-36.09	416.50-396.50	UMA C
Demonstration Wells									
R032	R032	427.97	428.26	-0.29	39.27	388.99	28.79-38.55	399.47-389.71	UMA C
R034	C-24R	428.33	428.88	-0.56	35.24	393.64	25.00-35.00	403.88-393.88	UMA C
R035	C-25AR	427.25	427.61	-0.36	35.57	392.04	25.11-34.89	402.50-392.72	UMA C
G304	RP-4D	434.62	431.26	3.36	45.75	385.51	34.92-44.92	396.34-386.34	UMA C

Notes:

* = Groundwater sampling only required at G008 when G08A is dry.
+ = Well construction information is incomplete.
# = Groundwater sampling only required at G067 when R067 (bp Well No.) is dry.
@ = Groundwater sampling only required at G068 when R068 (bp Well No.) is dry.
1 = Top of casing and ground surface elevation measurements are from the 2020 Monitoring Well Survey unless otherwise noted.
2 = Groundwater gauging only, groundwater sampling not required.
3 = Sentry Well
4 = Also a designated Sentinel Well under the Riverfront RCRA Permit.
5 = Groundwater sampling only, well will still be gauged when sampled in accordance with Condition V.G.1; however, water level data will not be utilized for developing potentiometric surface maps or evaluation of hydraulic gradients as required under Condition V.F.6.
6 = LNAPL monitoring only, groundwater sampling not required (32 wells).
7 = G500 installed on November 20, 2017 as the well listed in the May 29, 2018 RCRA Permit as IEPA Well No. G113 "to be installed." The designation G500 was used because there is a different well designated as G113 under the Riverfront RCRA Permit.
8 = Top of casing and ground surface elevation measurements measured on the following dates: June 17, 2021 (G31R, G08A, C-9); March 7, 2022 (G005, G99L, G502); and September 19, 2023 (R31L, R067, R068).
9 = Top of casing and ground surface elevation measurements are from 2015 Monitoring Well Survey.
10 = Well designations are identified based on zones within the uppermost aquifer (UMA) being monitored: within the silt / clay layer of the Cahokia Clay facies (Cahokia Clay); within the silty sandy layer of the Cahokia Sand facies (UMA C); within the coarse sand and gravel of the Henry formation (UMA H).

R000158

Table 2
Well Inspection Criteria
BP Former Wood River Refinery
Main Plant Property
Wood River, Illinois

Inspect each well for the following and record any deficiencies or problems in the remarks column of the Fluid Level Table:

1 Access to well restricted
2 Standing water around well
3 Insects in/around well
4 Label on well missing or unreadable
5 Bad protective casing (tilted, damaged or loose)
6 Protective cover will not close
7 Protective lock missing or damaged
8 Well survey marker missing
9 Well cap missing or damaged
10 Bad well riser (tilted, damaged or loose)
11 Bad concrete pad (Missing, damaged or inadequate)
12 Gap between pad and ground
13 Evidence of frost heaving
14 Evidence of well subsidence
15 Bumper post damage
16 Standing water at flush mount well
17 Standing water inside protective casing on a stick-up well
18 Grout level insufficient
19 Well needs repairs or further action
20 Discrepancy between measured and recorded well depth during annual measurement (April or May)

Table 3
Analytical Methods, Sampling Containers, Preservation Methods, and Holding Times for Groundwater Samples
BP Former Wood River Refinery
Main Plant Property
Wood River, Illinois

Matrix	Parameter	Method SW846	Container	MS/MSD	Preservative	Holding Time
Water	VOCs	5030B/8260	3- 40 mL vials	6- 40 mL vials, additional	pH<2 HCl, ≤6°C (Zero Headspace)	14 days
Water	SVOCs	8270/8270C by SIM	3- 100 mL amber glass	6- 100 mL amber glass, additional	≤6°C	7 days
Water	Metals	SW846-6010/6020	250 mL Plastic	250 mL Plastic	pH<2 HNO_3	180 days
Water	Biogeochemical(1)	SW846-6010/6020, Dissolved - Field Filtered	250 mL Plastic	250 mL Plastic	pH<2 HNO_3	180 days
Water	Biogeochemical(1)	USEPA 300.0	250 mL Plastic	250 mL Plastic	≤6°C	28 days
Trip Blank, Water	BTEX	5030B/8260	3- 40-ml vials	Not applicable	HCl, Cool to 4°C±2°	14 days

Notes:

BTEX - benzene, toluene, ethylbenzene, xylenes

°C - degrees Celsius

HCl - hydrochloric acid

HNO_3 - nitric acid

mL - milliliter

MS/MSD - matrix spike/matrix spike duplicate SVOCs - semivolatile organic compounds

SW846 - Test Methods for Evaluating Solid Wastes, Physical/Chemical, Update III (1996)

VOCs - volatile organic compounds: 1,2-Dichloroethane, 1,3-Dichlorobenzene, Benzene, Chloroform, Ethylbenzene, Toluene, Total Xylenes, Methyl Tertiary-Butyl Ether, and Styrene

SVOCs - semi-volatile organic compounds: 2,4-Dimethylphenol, 4-Methylphenol (p-cresol), Benzo(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Bis(2-ethylhexyl)phthalate, Chrysene, Dibenzo(a,h)anthracene, Naphthalene, and Phenol

Metals: Antimony, Arsenic, Barium, Chromium, Lead, Nickel, Selenium

Biogeochemical: dissolved iron, dissolved sulfate, dissolved manganese

(1) To monitor natural attenuation conditions

R000160

FIGURES

REVISION DATE: 07/29/2024



- Main Plant GMZ Boundary Monitoring Well
- Main Plant Observation Well - Gauge and Sample
- Main Plant Observation Well - Gauge Only
- Main Plant Observation Well - Sample Only
- Main Plant Observation Well - LNAPL Monitoring
- Main Plant Observation Well - Demonstration Well
- Active Replacement Cone of Depression Well
- Replacement Cone of Depression Well Pending Commissioning
- COD Well Access Point
- Horizontal Well Casing
- Horizontal Well Screen
- Main Plant
- Riverfront

Notes:

* - Main Plant Sentry Well

0 500 1,000 2,000

1 INCH = 1,000 FEET

GROUNDWATER MONITORING
OPTIMIZED WELL NETWORK
Revision Date: 07/29/2024

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

EXHIBIT C-1
FIGURE:
C-1

R000162

Appendix A

Groundwater Monitoring Low-Flow Standard Operating Procedure

REVISION DATE: 07/29/2024

STANDARD OPERATING PROCEDURE FOR LOW-FLOW GROUNDWATER ACQUISITION

TABLE OF CONTENTS

LOW-FLOW GROUNDWATER PURGING AND SAMPLING PROCEDURE

1.0 PURPOSE
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5.0 POTENTIAL INTERFERENCES AND PROBLEMS
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    6.1 Low-flow Well Purging
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7.0 QUALITY ASSURANCE RECORDS
8.0 ATTACHMENTS

REVISION DATE: 07/29/2024

STANDARD OPERATING PROCEDURE
FOR LOW-FLOW GROUNDWATER ACQUISITION

LOW-FLOW GROUNDWATER PURGING AND SAMPLING PROCEDURE

1.0 PURPOSE

This document defines the standard operating procedure (SOP) for collecting groundwater samples using a low-flow sampling technique where the purge and sampling rates do not result in significant drawdown within the sampled well. This SOP provides descriptions of equipment and field procedures necessary to collect groundwater samples using the low-flow sampling technique.

2.0 SCOPE AND APPLICATION

The method described in this SOP generally is applicable to the collection of groundwater samples that are representative of aqueous phase concentrations at ambient flow rates. This method is based on the premise that at very low pumping rates (less than 0.5 liters/minute), there is little vertical mixing of the water column within the monitoring well and laminar groundwater flow occurs through the screen at the location of the sampling pump inlet. This condition allows for the collection of a sample that is representative of the monitored groundwater unit. Other sampling techniques (bailers or pumps that are not used in the low-flow mode) can cause vertical mixing of the water column which may make the collection of a representative sample more difficult.

The low-flow sampling procedures described herein follow the low-stress (low flow) sampling recommendations outlined in the SOP provided in the United States Environmental Protection Agency's (US EPA) 2002 groundwater sampling guidance, entitles, *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers* (EPA 542-S-02-001).

3.0 RESPONSIBILITIES

Project Manager- The Project Manager is responsible for ensuring that project-specific plans are in accordance with these procedures, where applicable, or that other approved procedures are developed.

Field Team Leader- The Field Team Leader is responsible for ensuring that these procedures are implemented in the field, and for ensuring that personnel performing these activities have been briefed and trained to execute these procedures.

Sampling Personnel- It is the responsibility of the sampling personnel to follow these procedures or to follow documented, project-specific procedures as directed by the Field Team Leader and/or the Project Manager. The sampling personnel are responsible for the proper collection of samples with minimal alterations to water chemistry.

4.0 SAMPLING EQUIPMENT AND CALIBRATION EQUIPMENT

Equipment that may be used during well purging and sampling:

1. Well keys
2. 5-gas meter (e.g., MultiRae)
3. Oil-water interface probe with 0.01-foot increments
4. Low-flow submersible or bladder pump
5. Multi-meter with flow cell or equivalent (e.g., YSI ProDSS)
6. LDPE (polyethylene) tubing
7. Field calibration fluids
8. Plastic buckets or truck-mounted tank for holding purged water
9. Stainless steel buckets for decontamination of pump and probes
10. Liquinox for decontamination of pump and probes
11. Sample containers, labels, and applicable preservatives
12. Coolers and ice
13. Safety and personal protective equipment (Level D)
14. Graduated cylinder or beaker
15. Rope
16. Ziploc® bags, paper towels
17. Markers, custody seals, tape
18. Paper and/or electronic Chain of custody forms, paper field data sheets and/or electronic data collection forms
19. Compass/Global Position System (GPS) or compass/GPS apps on smart device (phone or tablet)
20. Camera or camera app on smart device
21. Tablet and/or logbook/waterproof pen
22. Sampling and analysis plan, workplan, or other document where the groundwater sampling scope of work is specified.

5.0 POTENTIAL INTERFERENCES AND PROBLEMS

The two primary interferences that could potentially affect representativeness of a collected groundwater sample are cross-contamination and improper sample collection. Cross-contamination problems can be eliminated or minimized through the use of dedicated sampling equipment and/or thorough decontamination procedures. If available, cross-contamination potential can be further minimized by using historical concentration data at the site to sample the locations with the lowest concentrations first and those with the highest concentrations last.

Improper sample collection involves using contaminated sample equipment, applying excessive or irregular pumping rates, or practicing improper sample handling procedures. Contaminant stratification can also exist in the aquifer formation that could be a result from concentration gradients induced by dispersion and diffusion effects in the targeted formation. A groundwater sample must be representative of the particular zone being sampled. Excessive pumping at a sample point can bias the contaminant concentrations by causing mixing within the vertical groundwater profile and increasing

the turbidity of the samples. Accordingly, every effort must be made to collect the sample from the same interval during each sampling event and sample collection pumping rates and volumes for non-production wells should be low to moderate.

Following collection of the groundwater sample, the physical and chemical integrity of the sample must be maintained from the time of sampling to the time of testing in order to minimize any changes in water chemistry.

Following proper decontamination procedures and minimizing disturbance of the sample will eliminate these problems.

6.0 PURGING AND SAMPLING PROCEDURES

This section gives step-by-step procedures for purging and collecting groundwater samples using the low-flow technique. Purging and sampling of a new or redeveloped monitoring well will proceed only after a minimum of 48 hours following well development.

Wells that have chemicals of concern (COCs) detected will be sampled at the end of the sampling event to minimize cross-contamination. The order of sampling is provided in the quarterly Sampling and Analysis Plan (SAP) tables for each program.

6.1 Low-Flow Well Purging

The purpose of low-flow purging is to establish steady flow conditions from the targeted groundwater aquifer/interval to the sampling pump intake and to minimize any vertical mixing within the well annulus. These conditions are evaluated during the sampling procedure by measuring the drawdown response in the monitoring well and monitoring field water quality parameters until they stabilize.

Before well purging begins, inspect the condition of outer protective casing, concrete well pad, well cap, well casing and any unusual conditions of the area around the well. Notify the Field Team Leader and note any need for repairs in the field logbook.

Purging Procedure:

1. Prior to use each day, calibrate all meters to be used in the collection of groundwater samples in accordance with the *Comprehensive Quality Assurance Project Plan for the BP Former Wood River Refinery* (QAPP), and at the manufacturer's recommended frequencies. Record calibration times and readings in the logbook in accordance with the QAPP.
2. Decontaminate the pump prior to use at each well according to Section 6.2 below and the BP Wood River QAPP. Wash the flow through cell and probes with distilled water only.
3. Maximize pump tubing diameter to the extent practicable for the given pump type and minimize pump tubing length. Dedicated tubing at each well is used to facilitate accurate pump placement.
4. Measure the depth to water below top of casing and record on the purge log.
    a. Do not purge if light non-aqueous phase liquid (LNAPL) is detected in the well.

b. Do not measure depth to bottom of well prior to insertion of the sampling pump; establish the depth of the well and the interval of the well screen from the well construction log. Note these depths on the purge log.

5. Re-lower the oil-water interface probe to the top of water and leave the meter in place.
6. Slowly lower the pump to one to two feet below the top of screen interval for submerged screens or one to two feet below the top of the water column if the screen is not completely submerged. Do not lower the pump to the bottom of the well, which may stir up sediments and lengthen the purging time.
7. Pump the well at 0.05 to 0.5 liters/minute through a flow-through cell. Use graduated cylinder or beaker to measure flow rate. Create no more than 4 inches (0.33 feet) of drawdown during purging. Try to stabilize the pump rate immediately to achieve the required minimal drawdown. During purging, leave the meter beeping. If it stops beeping, that indicates further drawdown, meaning the pumping rate is too high. Slowly **lower the water level indicator to obtain the new water level.**
8. If unable to maintain less than a 0.33-foot drawdown at the required purge rate and the water level is approaching the top of the screen interval, reduce the flow rate or turn the pump off (for at least 15 minutes) to allow for recovery. **Under no circumstances should the well be pumped dry.** Begin pumping at a lower flow rate. If two tubing volumes (including the volume of water in the pump and flow cell) have been removed during purging, then sampling can proceed next time the pump is turned on.
9. Measure and record field parameters every 3 to 5 minutes until stabilization occurs for pH, specific conductivity, and turbidity. Other field parameters that will be collected include, temperature, oxygen-reduction potential (ORP), and dissolved oxygen.
10. Stabilization will be considered acceptable when the field parameters meet the criteria below for **three** consecutive readings. After one hour of purging, if the field parameters do not reach stabilization criteria, make note of this on the sampling form and collect sample.

Parameter	Stabilization Criteria
pH	+/- 0.1 SU
Specific Conductivity	+/- 3% (mmhos or Siemens)
Turbidity	at or below 5 Nephelometric Turbidity Units (NTU)

11. **Disconnect the flow-through cell prior to collecting samples and collect the sample directly from the pump discharge tubing.**
12. Fill the sampling containers in the following order: volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), ammonia-nitrogen, pesticides, PCBs, herbicides, metals, miscellaneous inorganics, then others. Conduct field filtering for dissolved metals samples last. When collecting samples that require field filtering, run 1 liter of sample through the filter prior to filling the sample bottles.
13. Adjust sample flow rate to minimize aeration, bubble formation, turbulent filling of bottles, or loss of volatiles due to extended residence time in tubing. Flow rate adjustments should be made slowly to minimize disturbance to the system and prevent surges to the pump motor.

14. Place samples on ice immediately after collection.
15. Collection of QC samples: Collection of decontamination blank samples, equipment blank samples, and source water samples are described below. Collect one field duplicate per 10 samples or part thereof; collect one set of Matrix Spike/Matrix Spike Duplicate (MS/MSD) samples per 20 samples or part thereof.
16. Measure and record the depth to bottom of well **after** completion of sampling.
17. Decontaminate pump and water level by running decontamination solution followed by distilled and deionized water through the pump in accordance with the QAPP, and as described in Section 6.2 below.

6.2 Decontamination of Equipment

Purging and sampling equipment that come into contact with groundwater must be decontaminated using the following steps before use in each well:

PUMPS

1. Prepare a solution consisting of non-phosphate detergent (Liquinox) and tap water in a clean decontamination bucket for cleaning all reusable equipment. Also fill (1), additional clean decontamination bucket with tap water.
2. Immerse pump in bucket with soapy water and run pump; remove pump and place in bucket with tap water and run pump; use fresh tap water for each well.
3. Remove pump and rinse with distilled water provided by the laboratory.
4. Remove pump and rinse with fresh laboratory grade organic-free deionized water (supplied by the laboratory).

WATER LEVEL INDICATORS/INTERFACE PROBES

1. As tape is being drawn up from well, use paper towels to wipe off the excess water/LNAPL.
2. If LNAPL is present on the interface probe use isopropyl to clean prior to washing in Liquinox solution.
3. Decontaminate tape with Liquinox spray followed by a deionized water rinse making sure that sufficient decon water is applied so that the tape surface is saturated. Air dry.

Portions of the equipment that do not come in contact with groundwater, but may encounter incidental contact during use, shall also be decontaminated using the above steps.

6.3 Decontamination Blank Sample Collection

The purpose of collecting a decontamination blank sample is to verify that the rented equipment is clean prior to use. Decontamination blanks are collected on the first day of sampling before the first well sample is collected. One decontamination blank sample for each sampling pump used will be collected. The procedure for collection of a decontamination blank is below:

- After the final rinse of equipment, pour at least one gallon of laboratory grade deionized water into a decontaminated stainless steel bucket;
- Immerse the sampling pump into the laboratory grade deionized water in the bucket;

- Attach new disposable tubing to the pump for sample collection;
- Activate the pump and run the deionized water through the pump and tubing into the sample containers;
- Fill the sample containers in the same order as the project water samples are collected; and
- The decontamination blank should be analyzed for the same methods and parameters as the environmental samples (Submit the samples for the most extensive list of analytes from the program being sampled).

6.4 Equipment Blank Sample Collection

The purpose of collecting equipment blanks is to verify that the proper decontamination procedures are being implemented during sampling from well to well. Equipment blanks will be collected by rinsing laboratory grade deionized water (supplied by the laboratory) over and through the sampling pump following decontamination and prior to use at the first well for that day of sampling. The procedure for collection of equipment blanks is below:

- After the final rinse of equipment, pour at least one gallon of laboratory grade deionized water into a decontaminated stainless steel bucket;
- Place the sampling pump into the laboratory grade deionized bucket;
- Attach new disposable tubing to the pump for sample collection;
- Activate the pump and run the deionized water through the pump and tubing into the sample containers;
- Fill the sample containers in the same order as the project water samples are collected (i.e., volatiles, ammonia, SVOCs, etc.); and
- The equipment blank should be analyzed for the same methods and parameters as the environmental samples. (Submit the samples for the most extensive list of analytes from the program being sampled).

Equipment blank samples will be collected at a frequency of one blank per day or one blank per 20 samples, whichever is more frequent.

6.5 Collection of Source Water Used for Decontamination

One sample from each source of water used for decontamination will be collected each quarter for the entire project (tap water, distilled water, and/or deionized water). These samples will be placed on hold until the equipment blank is analyzed and if there are detections in the equipment blank, then the source water blank will be analyzed. Tap water from the site and unused aliquots of distilled water and deionized water, supplied by the laboratory, will be used to collect these samples. These samples will be collected by filling the sample containers with the tap water, distilled water, and deionized water for analysis of volatile organics and semi-volatile organics. The samples will be submitted to the laboratory (and placed on hold) for analysis of the most extensive list of volatile organic compounds and semi-organic compounds from the quarterly analyte lists. If more than one brand of distilled water is used or the water used for decontamination is purchased from more than one laboratory, then additional source water samples should be collected for each water source.

7.0 QUALITY ASSURANCE RECORDS

The field sampling forms and logbook and/or electronic data collection (EDC) device (i.e., tablet, laptop, phone) shall serve as the quality assurance record for all groundwater field monitoring activities and the following data should be recorded on the field sampling forms and logbook or EDC device:

- Well identification, screen interval and length, and diameter;
- Water level measurements, date, times, and measurement technique;
- Pump set point, pumping rate, drawdown, water quality parameter values, time, and calculated or measured total volume pumped;
- Well sampling sequence and time of collection of each sample;
- Types and volumes of sample bottles used and sample identification numbers (including Quality Assurance/Quality Control [QA/QC] samples);
- Preservatives used;
- Filtration used;
- Total well depth (after sampling) and measurements technique;
- Field observations during sampling event;
- Name of sample collector;
- Project and program names;
- Weather conditions;
- Any problems encountered; and
- Description of all sampling equipment used, including trade names, model numbers, diameters, material composition, etc.

8.0 ATTACHMENTS

USEPA. 2002 *Ground-Water Sampling Guidelines for Superfund and RCRA Project Managers* (EPA 542-S-02-001).

ASTM. 2021 *Standard Practice for Low-Flow Purging and Sampling Used for Groundwater Monitoring. Method D 6771-21.*

Appendix B

Sampling Program Parameters and Schedule

REVISION DATE: 07/29/2024

Main Plant GMZ Boundary Wells
BP Main Plant Property
Wood River, Illinois

IEPA Well ID	Flag	BP Well ID	Well Depth (ft bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)	Analytical Parameters
G005		B-5D	44.00	386.10	406.10-386.10	V.E.1
G006		B-6	44.00	384.01	404.01-384.01	V.E.1
G008	*	B-8D	50.00	378.21	408.21-378.21	V.E.1
G021		C-11	49.50	382.27	417.27-382.27	V.E.1
G023		C-13	49.50	381.74	416.74-381.74	V.E.1
G04R		B-4R	59.50	382.54	402.54-382.54	V.E.1
G045		G-5	40.87	402.67	412.67-402.67	V.E.1
G055		G-15	52.19	393.02	413.02-393.02	V.E.1
G059		G-19	45.00	384.33	404.33-384.33	V.E.1
G062		G-22	45.00	388.01	408.01-388.01	V.E.1
R063		G-23R	46.24	385.58	405.82-385.82	V.E.1
G067	#	G-27	49.00	386.28	406.28-386.28	V.E.1
G068	@	G-28	50.00	392.24	414.24-392.24	V.E.1
G073		G-33	44.00	387.15	407.15-387.15	V.E.1
G079		G-39	40.00	383.12	404.12-384.12	V.E.1
G084		G-32R	45.00	389.13	409.13-389.33	V.E.1
G085		G-26R	54.15	388.59	408.94-388.94	V.E.1
G111		SWMU12-MW02	38.17	393.89	404.06-394.06	V.E.1
G112		SWMU12-GH1	43.22	388.87	408.87-388.87	V.E.1
G128	1	G128	33.65	395.86	406.04-396.26	V.E.1
G32R		H32R	44.50	384.64	405.34-385.34	V.E.1
G35A		G35A	32.20	397.95	408.15-398.15	V.E.1
G35B		G35B	40.20	390.26	400.46-390.46	V.E.1
G37		H-37	46.00	386.47	401.47-386.47	V.E.1
G5B		G-5B	75.85	367.73	377.73-367.73	V.E.1
G500	2	G500	29.39	401.06	411.06-401.06	V.E.1
G69R		G-29R	59.96	385.87	405.87-385.87	V.E.1
G74L		G-34	60.00	386.69	406.69-386.69	V.E.1
G75L		G-35	60.00	386.51	406.51-386.51	V.E.1
G76L		G-36	60.00	385.81	405.81-385.81	V.E.1
G91		M-1D	39.70	388.13	398.13-388.13	V.E.1
G92		M-2D	40.40	386.08	401.08-386.08	V.E.1
G93L		M-3D	40.80	386.18	401.18-386.18	V.E.1
H31B		H-31B	75.02	357.32	367.32-357.32	V.E.1
RG36		H36R	60.43	384.94	404.27-389.57	V.E.1
R302		R302	33.20	399.84	410.04-400.04	V.E.1
G303		RP-3D	39.85	393.24	398.74-393.74	V.E.1
GXXX		G08A	32.00	396.20	406.20-396.20	V.E.1
GXXX		R067	32.12	404.38	409.68-404.68	V.E.1
GXXX		R068	37.70	403.90	414.20-404.20	V.E.1

The **Main Plant GMZ Boundary Wells** shall be monitored **semi-annually** (Second and Fourth Quarters) for the constituents in List V.E.1.

Flags:

* = Groundwater sampling only required at G008 when G08A is dry.

= Groundwater sampling only required at G067 when R067 (bp Well No.) is dry.

@ = Groundwater sampling only required at G068 when R068 (bp Well No.) is dry.

1 = Groundwater gauging only, groundwater sampling not required

2 = G500 installed on November 20, 2017 as the well listed in the May 29, 2018 RCRA Permit as IEPA Well No. G113 "to be installed." The designation G500 was used because there is a different well designated as G113 under the Riverfront RCRA Permit.

REVISION DATE: 07/29/2024

Main Plant Observation Wells
BP Main Plant Property
Wood River, Illinois

IEPA Well ID	Flag	BP Well ID	Well Depth (ft bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)	Sampling Required
Gauging and Sampling Network						
G002		G-01R	37.32	391.34	411.16-391.56	V.E.1
G009		B-9	49.00	382.66	407.66-382.66	V.E.1
G020		C-10	49.50	382.50	417.50-382.50	V.E.1
R042	1	R042	37.20	393.48	403.48-394.02	V.E.1
G048		G-8	48.00	381.68	401.68-381.68	V.E.1
G057	2	G-17	35.02	391.90	411.90-391.90	V.E.1
G058	2	G18	36.00	391.27	411.27-391.27	V.E.1
R083	1	R083	38.79	393.44	403.98-394.52	V.E.1
G10L		H-20	58.43	371.82	396.82-376.82	V.E.1
G14L		H-24	57.00	372.85	397.85-377.85	V.E.1
G16L		H-26A	55.00	378.24	408.24-378.24	V.E.1
G22		C-12R	54.70	378.10	398.10-378.10	V.E.1
G30R		H-30R	43.04	387.98	408.63-388.63	V.E.1
G31D		C-21C	70.00	357.98	362.98-357.98	V.E.1
G39		H-39	42.10	385.74	400.74-385.74	V.E.1
G84L		H-4	59.00	374.19	399.19-379.19	V.E.1
G87L		H-7	51.50	377.68	402.68-382.68	V.E.1
G92L		H-12	69.00	373.82	410.82-378.82	V.E.1
G98L		H-18	52.50	378.22	403.22-383.22	V.E.1
G301		RP-1	49.00	378.38	388.38-378.38	V.E.1
G305		RP-5	49.00	381.06	391.06-381.06	V.E.1
G307		RP-7D	49.00	383.13	393.13-383.13	V.E.1
G501	1	G501	40.89	392.55	403.09-393.63	V.E.1
G502	1	G502	35.55	393.75	404.29-394.83	V.E.1
Sampling Only Network						
G031		C-21A	35.00	393.18	403.18-393.18	V.E.1
G065		G-25	55.00	389.58	409.58-389.58	V.E.1
G082		G-42	40.00	388.81	409.81-388.81	V.E.1
R11L		H-21R	57.47	371.85	391.85-371.85	V.E.1
G19		H-29	47.24	386.42	401.42-386.42	V.E.1
R31L		R31L	55.00	373.10	378.10-373.10	V.E.1
G33		H-33	44.00	387.37	407.37-387.37	V.E.1
G71L		G-31	58.70	387.25	407.25-387.25	V.E.1
G97L		H-17	58.00	377.09	402.09-382.09	V.E.1
G306		RP-6	49.00	381.34	391.34-381.34	V.E.1
Gauging Only Network						
G016		C-6	49.50	381.00	416.00-381.00	N/A
G046		G-6	50.00	391.37	411.37-391.37	N/A
G050		G-10	44.00	386.65	406.65-386.65	N/A
G31R		H-31R	42.22	389.88	410.08-390.08	N/A
G83L		H-3	52.50	375.09	400.09-380.09	N/A
G86L		H-6	64.30	376.92	401.92-381.92	N/A
G89L		H-9	53.50	375.96	400.96-380.96	N/A
G99L		H-19	53.50	376.60	402.10-382.10	N/A
GXXX		A8MW04	50.00	383.34	418.34-383.34	N/A
GXXX		A8MW05	48.00	383.74	413.74-383.74	N/A
GXXX		A8MW06	48.00	381.97	416.97-381.97	N/A

REVISION DATE: 07/29/2024

Main Plant Observation Wells
BP Main Plant Property
Wood River, Illinois

IEPA Well ID	Flag	BP Well ID	Well Depth (ft bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)	Sampling Required
LNAPL Monitoring Network						
G011		C-1	49.50	380.3	415.30-380.30	N/A
G027		C-17	40.00	390.32	400.32-390.32	N/A
G049		G-9	47.00	382.75	402.75-382.75	N/A
G13L		H-23	51.50	380.14	408.64-388.64	N/A
G34		H-34	38.47	393.11	403.11-393.11	N/A
G96L		H-16	58.50	373.28	398.28-378.28	N/A
G417		B-17	51.00	380.48	400.48-380.48	N/A
G603		RC-3	54.00	377.3	397.30-377.30	N/A
G604		RC-4	51.46	379.92	399.92-379.92	N/A
G605		RC-5	51.19	378.91	398.91-378.91	N/A
G613		RC-13	63.12	368.38	403.38-373.38	N/A
G614		RC-14	61.81	369.99	404.99-374.99	N/A
G615		RC-15	59.66	370.48	405.48-375.48	N/A
G617		RC-17	58.00	370.91	403.91-386.91	N/A
G618		RC-18	57.50	371.78	411.78-376.78	N/A
G619		RC-19	58.00	369.3	407.30-372.30	N/A
G620		RC-20	85.36	344.51	406.28-349.64	N/A
GXXX		B-14	54.83	376.37	396.37-376.37	N/A
GXXX	+	C-9	+	+	+	N/A
GXXX		G-11	43.08	388.38	408.21-388.21	N/A
GXXX		G-12	45.37	386.12	406.25-386.25	N/A
GXXX		G-40	40.00	388.26	409.26-389.26	N/A
GXXX		G-47	38.67	389.33	407.66-389.66	N/A
GXXX	+	Q-14	+	+	+	N/A
GXXX		A3MW01	45.00	384.8	414.80-384.80	N/A
GXXX		A3MW02	50.00	380.5	415.50-380.50	N/A
GXXX		A6MW01	50.00	380.01	415.01-380.01	N/A
GXXX		A6MW02	50.00	382.17	417.17-382.17	N/A
GXXX		A6MW03	55.00	376.26	416.26-376.26	N/A
GXXX		A8MW02	50.00	379.67	414.67-379.67	N/A
GXXX		A9BH05	37.00	391.29	405.29-391.29	N/A
GXXX		LS-1	33.87	394.71	414.71-394.71	N/A
GXXX		SVE-2	36.62	395.97	416.50-396.50	N/A
Demonstration Wells						
R032		R032	39.27	388.99	399.47-389.71	V.E.1
R034		C-24R	35.24	393.64	403.88-393.88	V.E.1
R035		C-25AR	35.57	392.04	402.50-392.72	V.E.1
G304		RP-4D	45.75	385.51	396.34-386.34	V.E.1

The **Main Plant Observation Wells** in the *Gauging and Sampling* and *Sampling Only Networks* shall be monitored *annually* (Second Quarter), designated *Demonstration Wells* shall be monitored *semi-annually* (Second and Fourth Quarters), and designated Sentry Wells shall be monitored *quarterly*.
All **Main Plant Observation Wells** shall be monitored at the frequencies noted above for the constituents in List V.E.1.

Flags:
+ = Well construction information is incomplete.
1 = Sentry Well
2 = Also a designated Sentinel Well under the Riverfront RCRA Permit
N/A = Not applicable; sampling not required

REVISION DATE: 07/29/2024

Main Plant List V.E.1

Analytical Parameters

BP Main Plant Property

Wood River, Illinois

Hazardous Constituents	CAS No.	Storet No.	Concentration Limits (mg/L)
Total Metals			
Antimony	7440-36-0	01097	0.006
Arsenic	7440-38-2	01002	0.01*
Barium	7440-39-3	01007	2.0
Chromium	7440-47-3	01034	0.1
Lead	7439-92-1	01051	0.0075
Nickel	7440-02-0	01067	0.1
Selenium	7782-49-2	01147	0.05
VOCs			
1,2-Dichloroethane	107-06-2	34531	0.005
1,3-Dichlorobenzene		34561	0.0002
Benzene	71-43-2	34030	0.005
Chloroform	67-66-3	32106	0.0002
Ethylbenzene	100-41-4	78113	0.7
Toluene	108-88-3	34010	1
Xylenes (Total)		34020	10
Methyl Tertiary-Butyl Ether (MTBE)	1634-04-4	46491	0.07
Styrene	100-42-5	77128	0.1
SVOCs			
2,4-Dimethylphenol	105-67-9	34606	0.14
4-Methylphenol (p-cresol)		77146	0.035
Benzo(a)anthracene	56-55-3	34526	0.00013
Benzo(a)pyrene	50-32-8	34247	0.0002
Benzo(b)fluoranthene	205-99-2	34230	0.00018
Benzo(k)fluoranthene	207-08-9	34242	0.00017
Bis(2-ethylhexyl)phthalate	117-81-7	39100	0.006
Chrysene	218-01-9	34320	0.0015
Dibenzo(a,h)anthracene	53-70-3	34556	0.0003
Naphthalene	91-20-3	34696	0.14
Phenol	108-95-2	34466	0.035

* Site-specific concentration limit may be used if approved by the Illinois EPA

Biogeochemical Analytes [1]	CAS No.	Storet No.	Concentration Limits (mg/L)
Dissolved iron	7439-89-6	01046	N/A
Dissolved sulfate	14808-79-8	00946	N/A
Dissolved manganese	7439-96-5	01056	N/A

1 - To monitor natural attenuation conditions

N/A - Not applicable

Field Parameters	Storet No.	Units
pH	00400	
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	degrees F
Turbidity	45626	NTUs
Depth to Water (below land surface)	72019	Feet
Depth to Water (before measuring point)	72109	Ft bgs
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Bottom of Well #	72020	Ft MSL
Elevation of Measuring Point (top of casing) ##	72110	Ft MSL

- Shall be determined during Second Quarter

- Surveyed once every 5 years

Appendix C

Groundwater Monitoring Well Boring Logs and Well Construction Reports

IEPA #s G005 & G055

RECORD OF SUBSURFACE EXPLORATION

PROJECT AMOCO, Refinery Monitoring Wells BORING B5 & B5A

DRILLED BY Simoncini LOGGED BY Harding

DATE DRILLED [illegible] PIEZOMETER Yes

DRILLING METHOD Hollow Auger

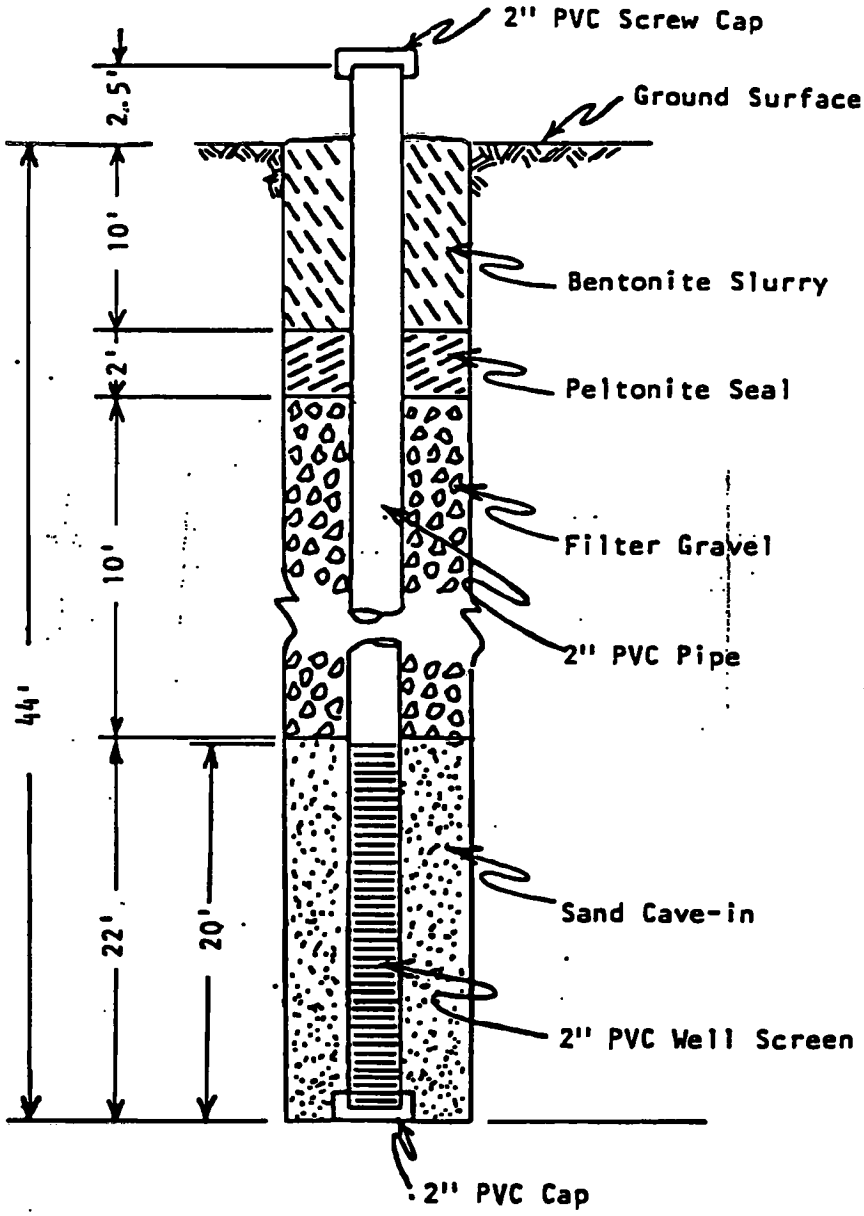
DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	NOTES	DESCRIPTION OF MATERIAL (SURFACE ELEVATION 99.55)	BLOWS	DRY UNIT WEIGHT PCF	SHEAR STRENGTH TSF (0 0.5 1.0 1.5 2.0) / WATER CONTENT % (0 20 40 60 80)
				Cinders			
				-w/Traces of Clay Below 1.5'			
	1	SS			1-1		
				Gray CLAY			
5	2	SS		-w/Moderate contaminant Odor @ 4.0'	3-3		
	3	SS		-w/Slight Contaminant Odor Below 6.5'	3-4		
				Gray Sandy CLAY			
10	4	SS			4-4		SE
				Brown Fine SAND			
	5	SS		-w/Slight Contaminant Odor Odor From 11.5 to 20.5'	13-14		SE
15	6	SS			8-9		SE
20	7	SS			8-10		
25	8	SS			14-7		
30	9	SS			9-9		
35	10	SS	Encountered Water @ 34.0'	contd.	7-8		

GROUND WATER DEPTH AT COMPLETION _____ AFTER 23 days 35.2' AFTER _____ _____

SCALE 1" = 5.0'

JOHN MATHES & ASSOCIATES, INC.

IEPA #: G005



MONITORING WELL INSTALLATION SKETCH

Monitoring Well B-5

AMOCO Oil Company
Wood River, Illinois

JOHN MATHES & ASSOCIATES, INC.

IEPA #: G006

RECORD OF SUBSURFACE EXPLORATION

JOHN MATHES & ASSOCIATES, INC.

PROJECT AMOCO, Refinery Monitoring Wells BORING 3 6

SURFACE ELEVATION 99.51

DEPTH (FT)	SAMPLE NUMBER	SAMPLE TYPE	NOTES	DESCRIPTION OF MATERIAL	BLOWS	DRY UNIT WEIGHT PCF
	1	SS		Black Cinders -Below 1.5' Intermixed Black Sa & Cinders w/Trc ofClayey Pocket & TrcOfOilvSubstance @ The Bottom Of Sample	2-1	
5	2	SS		Dark Gray CLAY -w/Traces Of Cinders @ 4.0'	2-2	
	3	SS			3-3	
10	4	SS			4-4	
	5	SS		-Gray w/Slight Contaminant Odor & Traces of Fine Sand Below 11.5'	3-4	
15	6	SS	Encountered Water @ 14.0' Possibly Perched	Gray Sandy CLAY w/Slight Contaminant Odor	3-6	
				Gray Fine SAND -w/Traces of Clay @ 16.5' -w/Slight Contaminant From 14.0 to 20.5' -Brown & Gray @ 19.0'	10-10	
20	8	SS			15-13	
				-Brown From 24.0 to 30.5'		
25	9	SS			16-15	
30	10	SS			13-17	
			Encountered Water @ 34.0'			
35	11	SS		Contd.	11-13	

SHEAR STRENGTH, TSF: SV ___ QP ___ QU ___ (0, 0.5, 1.0, 1.5, 2.0, 2.5)

WATER CONTENT % (0, 20, 40, 60, 80, 100)

LOGGED BY Harding

PIEZOMETER Yes

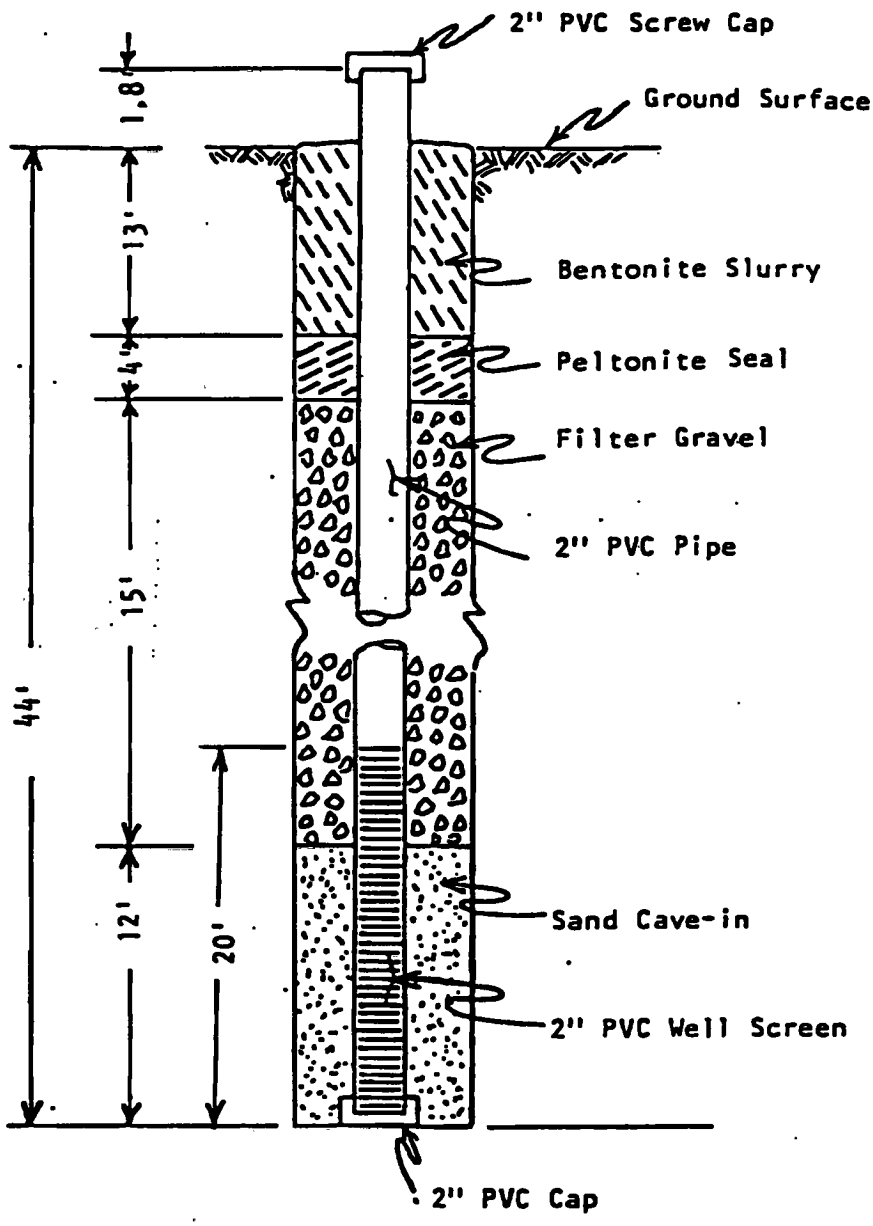
ING METHOD Hollow Auger

GROUND WATER DEPTH AT COMPLETION _____ AFTER 31 days 34.7' AFTER _____

SCALE 1" = 5.0'

JOHN MATHES & ASSOCIATES, INC.

IEPA #6006



MONITORING WELL INSTALLATION SKETCH

Monitoring Well #6

AMOCO Oil Company
Wood River, Illinois

JOHN MATHES & ASSOCIATES, INC.

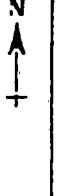
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

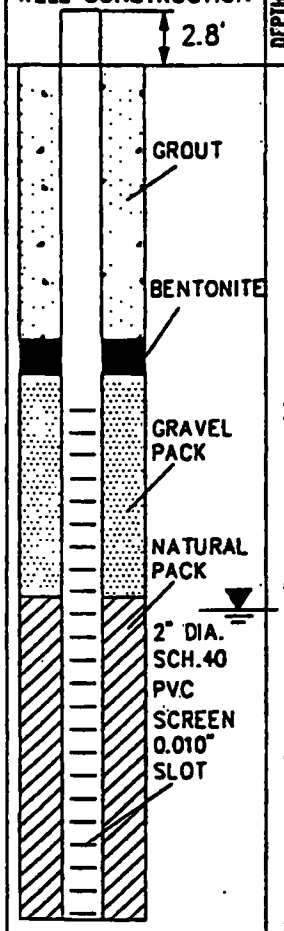
IEPA # 6008

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K081.10	AMOCO OIL CO.	WOOD RIVER	B-8D	1 OF 1

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CUTTINGS
DRILLING START 7-10-91 FINISH 7-10-91	DEVEL. START FINISH
STATIC DTW 34.70 DTO - TIME 0835 DATE 7-11-91	DRILLED BY: HUGHES DRILLING
ELEVATION TOC - GL -	LOGGED BY: RANDY PRYOR

WELL LOCATION





DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		FILL	BKBR	CLAY: GRAVELLY, LITTLE SAND, F.-MED., SL. HC ODOR.	M						
	CL	CLAY	TNGY	LITTLE SILT, TRACE SAND, VF-FINE, SL. SHALEY, FIRM.	M						
10	SW	SAND	TNBR	FINE-MEDIUM, LITTLE SILT.	M						
	SW	SAND	TNGY	FINE-MEDIUM, LITTLE SILT, MILD TO STRONG HC ODOR.	M						
20											
	SW	SAND	TN-BRGY	FINE-MEDIUM, LITTLE-SOME SILT, STRONG HC ODOR.	M						
30											
40											
	SW	SAND	TN-BRGY	FINE-MEDIUM, LITTLE SILT, STRONG HC ODOR.	W						
50											
60											
70											

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G08A Monitor Well No. G08A

Site File Name BP Wood River - Main Plant Property Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 3/30/21 Finish 3/30/21

UTM (or State Plane) Coord. N.(Y) 38.847586 E.(X) 90.089006

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location _____

Drilling Equipment Geoprobe 7782DT

PERSONNEL: G - M.OMalley; D - E.Wetzel; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(0-1) Silty gravel with sand; dark grey; saturated; loose		1						0.0	
	(1-2) Silty gravel with sand; dark grey; saturated; loose		2						64.1	
	(2-3) Clayey gravel with sand; dark grey; saturated; soft		3						97.4	
	(3-4) Clayey gravel with sand; dark grey; saturated; soft		4						51.6	
	(4-5) clayey gravel with sand; dark grey; saturated; soft; transitions to CL towards bottom		5						53.0	
	(5-6.5) Sandy lean clay with gravel; very dark grey; saturated; soft		6						20.2	
	(6.5-8) Sandy lean clay; very dark grey; wet; medium plasticity; firm		7						1.1	
	(8-10) Lean clay; bluish grey with minor tan mottling; wet; silty clay; medium plasticity, firm		8						16.0	
			9							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G08A Monitor Well No. G08A

Site File Name BP Wood River - Main Plant Property Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 3/30/21 Finish 3/30/21

UTM (or State Plane) Coord. N.(Y) 38.847586 E.(X) 90.089006

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location _____

Drilling Equipment Geoprobe 7782DT

PERSONNEL
G - M.OMalley
D - E.Wetzel
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(10-12) Lean clay; bluish grey with minor tan mottling; wet; mild odor; silty clay and becomes sandy at bottom few inches; medium plasticity; firm		11						151.9	
	(12-13.5) no recovery		12							
	(13.5-14) Clayey sand; olive grey; moist; loose		13						393.1	
	(14-16) Poorly graded sand; yellowish orange / brown; moist; loose		14						62.6	
			15							
	(16-18) Well-graded sand; yellowish orange / brown; dry; loose		16						0.0	
			17							
	(18-20) Well-graded sand; yellowish orange / brown; dry; loose		18						0.0	
			19							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G08A Monitor Well No. G08A

Site File Name BP Wood River - Main Plant Property Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 3/30/21 Finish 3/30/21

UTM (or State Plane) Coord. N.(Y) 38.847586 E.(X) 90.089006

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location _____

Drilling Equipment Geoprobe 7782DT

PERSONNEL
G - M.OMalley
D - E.Wetzel
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(20-22) Well-graded sand; yellowish orange / light brown; dry; loose		21						0.0	
	(22-24) Well-graded sand; yellowish orange / light brown; dry loose		22 23						0.0	
	(24-25) No recovery		24							
	(25-26) Well-graded sand; yellowish orange / light brown; dry; loose		25						0.0	
	(26-28) Well-graded sand; dark grey; moist; loose		26 27						3.2	
	(28-30) No Recovery		28 29							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G08A Monitor Well No. G08A

Site File Name BP Wood River - Main Plant Property Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 3/30/21 Finish 3/30/21

UTM (or State Plane) Coord. N.(Y) 38.847586 E.(X) 90.089006

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location _____

Drilling Equipment Geoprobe 7782DT

PERSONNEL
G - M.OMalley
D - E.Wetzel
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(30-32) Well-graded sand; dark grey; wet; loose		31						1.0	
			32							

R000187

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191155009 County: Madison

Site Name: BP Wood River Well #: G08A

State Plane Coordinate: X ____ Y ____ (or) Latitude: 38° 50 ' 51.3096 " Longitude: -90° 5 ' 20.4216 " Borehole #: G08A

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: Roberts Environmental Drilling, Inc. (REDI) Driller: E. Wetzel (REDI)

Consulting Firm: Sovereign Consulting, Inc. Geologist: Michael O'Malley (Wood)

Drilling Method: Hollow stem auger Drilling Fluid (Type): ____

Logged By: Michael O'Malley (Wood) Date Started: 3/30/21 Date Finished: 3/30/21

Report Form Completed By: Jordan Benningfield (Sovereign) Date: 7/3/24

ANNULAR SPACE DETAILS

Type of Surface Seal: Cement

Type of Annular Sealant: Bentonite

Installation Method: gravity

Setting Time: ____

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: gravity

Setting Time: ____

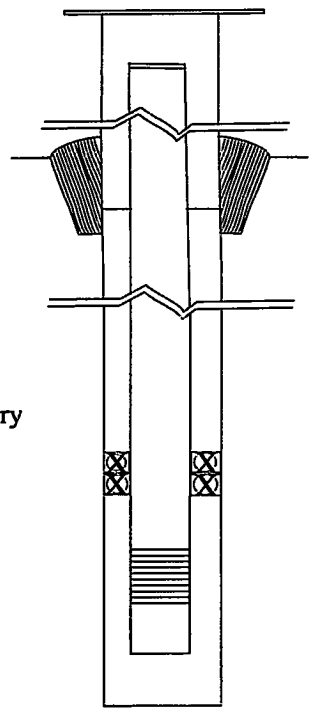
Type of Sand Pack: Sand

Grain Size: ____ (Sieve Size)

Installation Method: gravity

Type of Backfill Material: n/a (if applicable)

Installation Method: n/a



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
Top of Protective Casing	433.48	+3.0	
Top of Riser Pipe	430.48	+2.28	
Ground Surface	428.2	0	
Top of Annular Sealant	427.7	0.5	
Static Water Level (After Completion)	395.21	32.99	
Top of Seal	427.7	0.5	
Top of Sand Pack	408.2	20	
Top of Screen	406.2	22	
Bottom of Screen	396.2	32	
Bottom of Well	396.2	32	
Bottom of Borehole	396.2	32	

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	6.25
ID of Riser Pipe (inches)	2.047
Protective Casing Length (feet)	3
Riser Pipe Length (feet)	25
Bottom of Screen to End Cap (feet)	0.3
Screen Length (1st slot to last slot) (feet)	10
Total Length of Casing (feet)	35
Screen Slot Size **	0.010

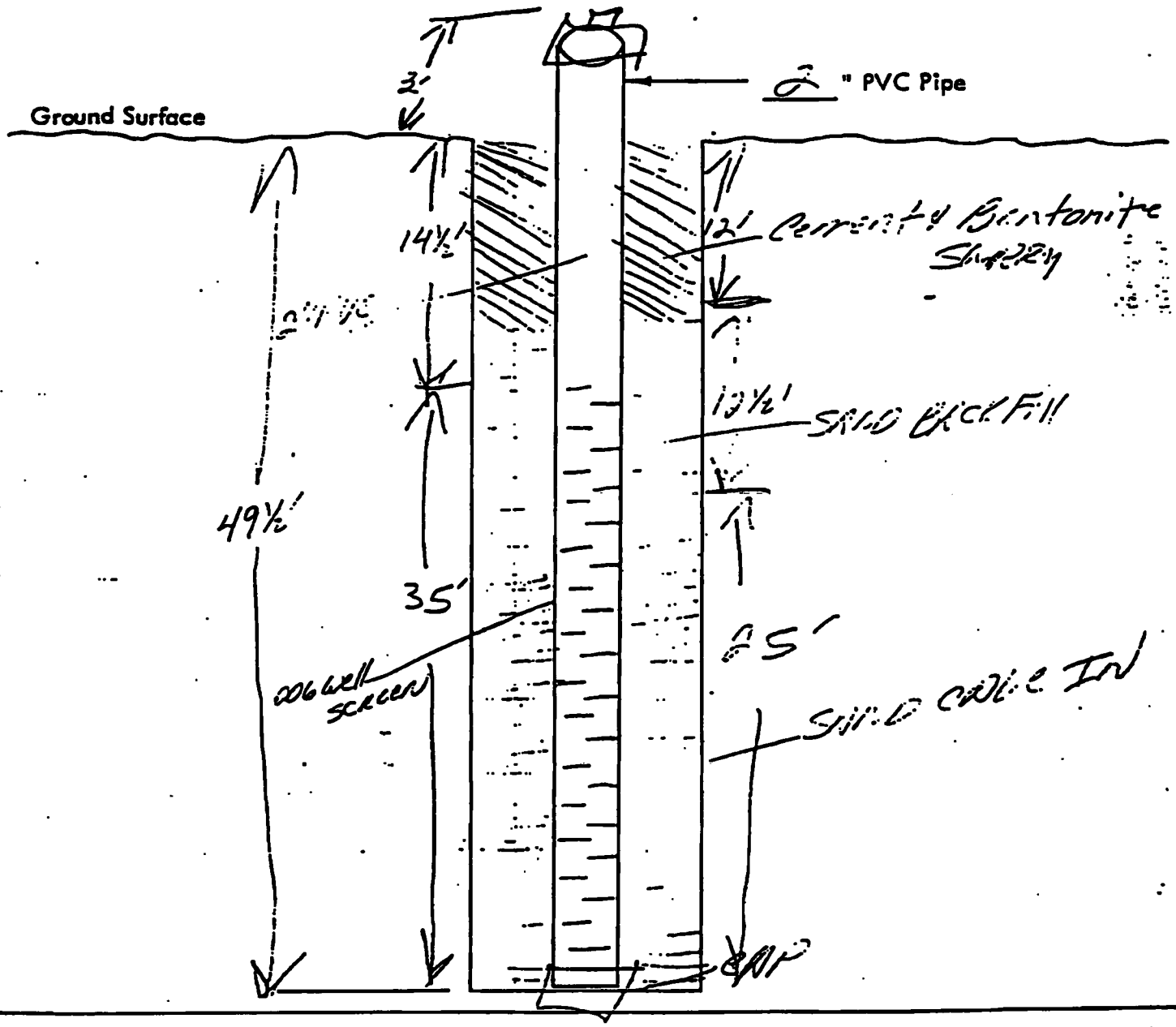
**Hand-Slotted Well Screens are Unacceptable

IEPA #6021

RECORD OF PIEZOMETER INSTALLATION

JOHN MATHES & ASSOCIATES

Boring No. C-11 Contract No. 1437 Date Installed 5-12-83



NOTES:

Information Checklist: Type of Backfill Soil Strata

Type of Screen Length of Screen Length of Pipe Height of Pipe Above Ground

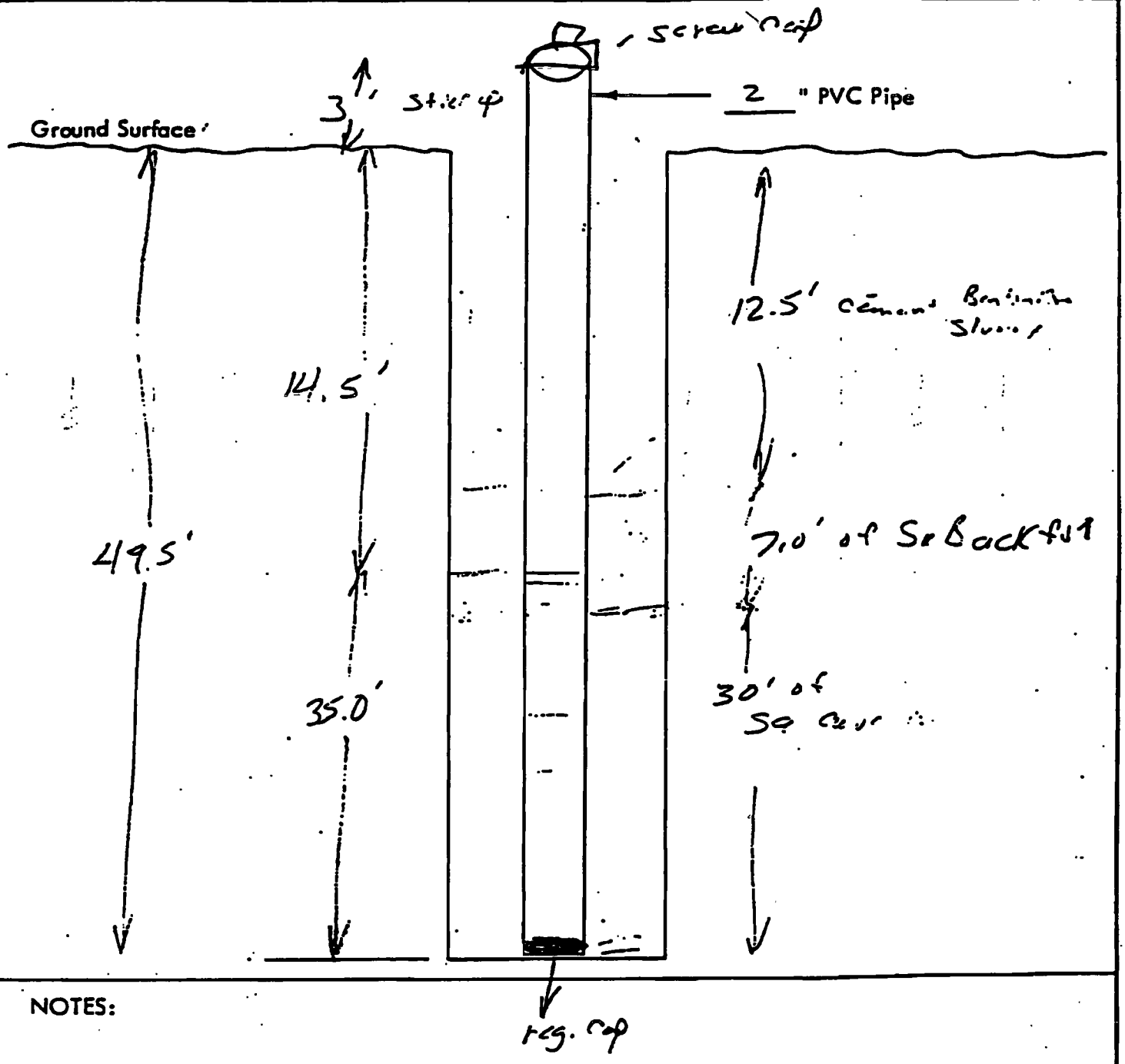
Cap on Bottom Cap on Top How Sealed at Surface

IEPA # 6023

RECORD OF PIEZOMETER INSTALLATION

JOHN MATHES & ASSOCIATES

Boring No. C-13 Contract No. 1439 Date Installed 5-24-83



NOTES:

Information Checklist:

Type of Backfill | Soil Strata

Type of Screen | Length of Screen | Length of Pipe | Height of Pipe Above Ground

Cap on Bottom | Cap on Top | How Sealed at Surface

GERAGHTY &
MILLER, INC.

IEPA # G045

SAMPLE/CORE LOG

[redacted]ng/Well G-5 Project/No. AMOCO-OK0365HR01 Page 1 of 1

[redacted]e
Location Wood River, IL Drilling Started 9:25 Drilling Completed 12:05

Total Depth Drilled 50.0 feet Hole Diameter 7.25 inches Type of Sample/ Coring Device Split spoon

Length and Diameter of Coring Device 2.0 ft by 2.0 in. dia Sampling Interval 25,30,35,&40 feet

Land-Surface Elev. 442.6 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling Driller Tom Hughes Helper Mike

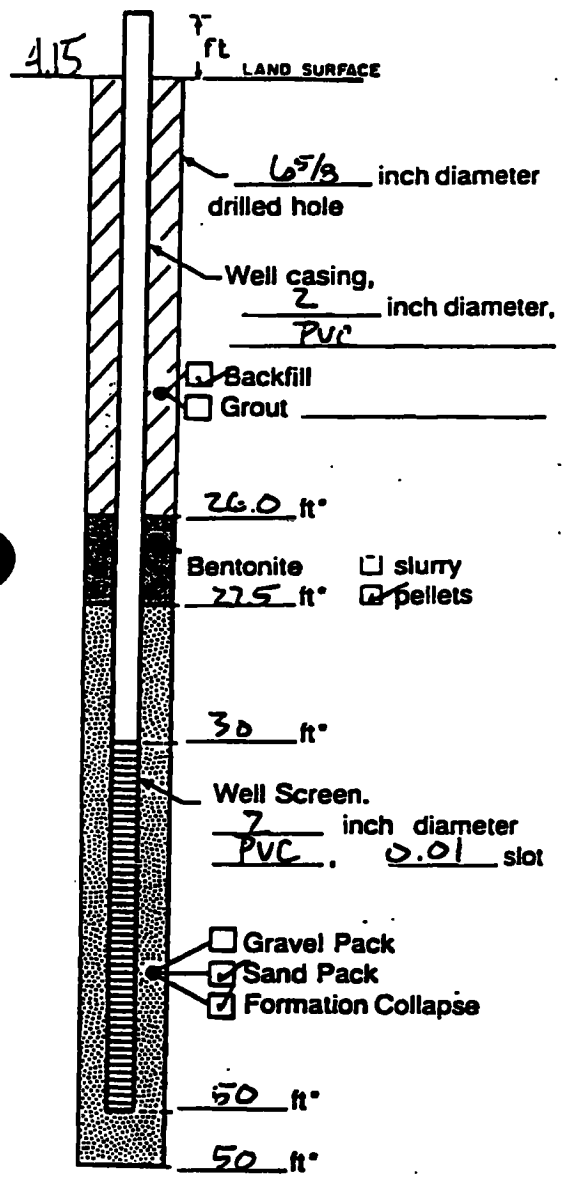
Prepared By J. Shonfelt Hammer Weight N/A Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
[redacted]	0.5			CINDERS- silty, blk to brnish orange
.5	3.5			SILT- wl. sorted, brnish-orange, no odor
3.5	8.0			SILT- clayey, wl. sorted, drk, brnish-orange
8.0	25.0			SAND- v. fine grained, wl. sorted, lt. brn.
25.0	26.5	1.5		" " " " " " "
26.5	30.0			" " " " " " "
30.0	31.5	0.5		" " " " " " "
31.5	35.0			" " " " " " "
35.0	36.0	0.5		" " " " " " "
36.0	40.0			" " " " " " "
40.0	40.5	0.5		" " " " " " "
40.5	45.0			SAND= v. fine grained, wl. sorted, lt. brn.
				no odor.
[redacted]0	50.0			" " " " " " "

IEPA #: 6045

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project Amoco/OK0365HR01 Well G-5
Town/City Wood River, IL
County Madison State Illinois
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 10-11-88
Drilling Method HS Auger
Drilling Contractor Hughes Drilling
Drilling Fluid N/A
_____
Development Technique(s) and Date(s)
_____
_____
_____
Fluid Loss During Drilling _____ gallor
Water Removed During Development _____ gallor
Static Depth to Water 42 feet below M.I
Pumping Depth to Water _____ feet below M.I
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose monitoring
_____
_____
Remarks _____
_____
_____
_____
_____
_____

Prepared by LHW

GERAGHTY &
MILLER, INC.

IEPA #: G055

SAMPLE/CORE LOG

ing/Well G-15 Project/No. Amoco/OK0365HR03 Page 1 of 1

ce
Location Wood River, IL Drilling Started 12:15 Drilling Completed 13:45

Total Depth Drilled 55.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J & R Drilling Driller Ray Coons Helper Greg

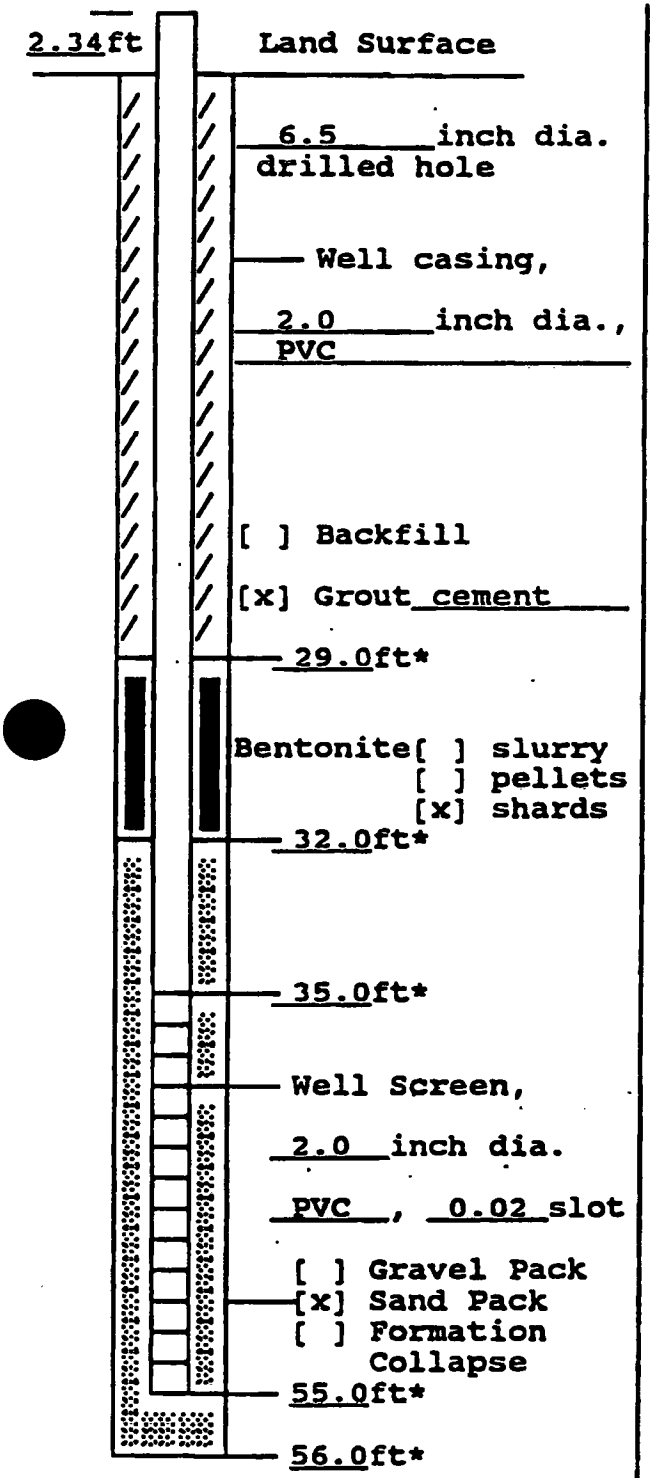
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
.0	0.25			GRAVEL, cover material
.25	1.0			SILT, black, koch-like material
1.0	14.0			SAND, vf-grained, tan, no odor, moist
14.0	17.0			SAND, vf-grained, clayey, tan, wet (upper
				water table)
17.0				SAND, vf-fine grained, tan, moist, no odor,
	55.0			coarsening downward to vf-medium grained sand

GERAGHTY & MILLER, INC.

IEPA #: 6055

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

NA = Not Applicable

* = Depth below land surface

Project AMOCO/OK0365HR03 Well G-15

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point(*)Elevation
[x]surveyed
447.24 ft AMSL [ ]estimated
(*)Measuring Point is top of casing

Installation Dates(s) 6-6-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

GERAGHTY &
MILLER, INC.

IEPA # G059

SAMPLE/CORE LOG

ing/Well G-19 Project/No. Amoco/OK0365HR03 Page 1 of 1

Site Location Wood River, IL | Drilling Started 15:10 | Drilling Completed 15:45

Total Depth Drilled 45.0 feet | Hole Diameter 6.5 inches | Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA | Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None | Drilling Method H.S. Auger

Drilling Contractor J & R Drilling | Driller Ray Coons | Helper Greg

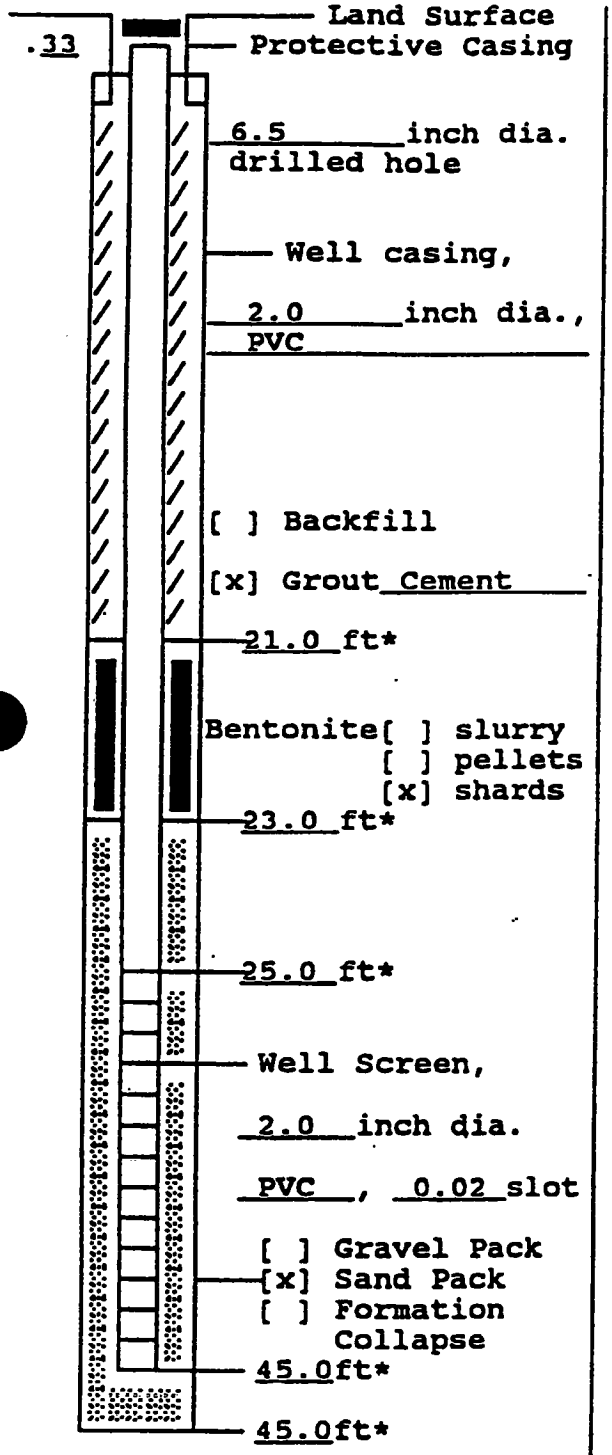
Prepared By LHW | Hammer Weight NA | Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	1.0			TOPSOIL, brown, silty, no odor, moist
1.0				CLAY, slightly silty, lt. brown, plastic,
				no odor, moist, grading to gray color, silt %
	18.0			increasing
18.0	26.0			sharp color change to gray-green
26.0				SAND, vf-grained, clayey, gray, moist, no odor,
				coarsening with depth (wet from 33 feet depth).
				Coarsens to SAND, fine-medium grained
	45.0			containing minor vf-grained sand and gravel

IEPA # 6059

GERAGHTY & MILLER, INC.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well: G19

Town/City Wood River

County Madison State

Permit No.

Measuring Point * Elevation
428.97 ft [x]surveyed [ ]estimated
* Measuring Point is top of casing

Installation Dates(s) 6-7-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 1.0 gal

Static Depth to Water N/A ft below

Pumping Depth to Water N/A ft below

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks

GERAGHTY &
MILLER, INC.

SAMPLE/CORE LOG

IEPA # 6062

ing/Well G-22 Project/No. Amoco/OK0365HR03 Page 1 of 1

e
Location Wood River, IL Drilling Started 10:10 Drilling Completed 11:10

Total Depth Drilled 45.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J & R Drilling Driller Ray Coons Helper Greg

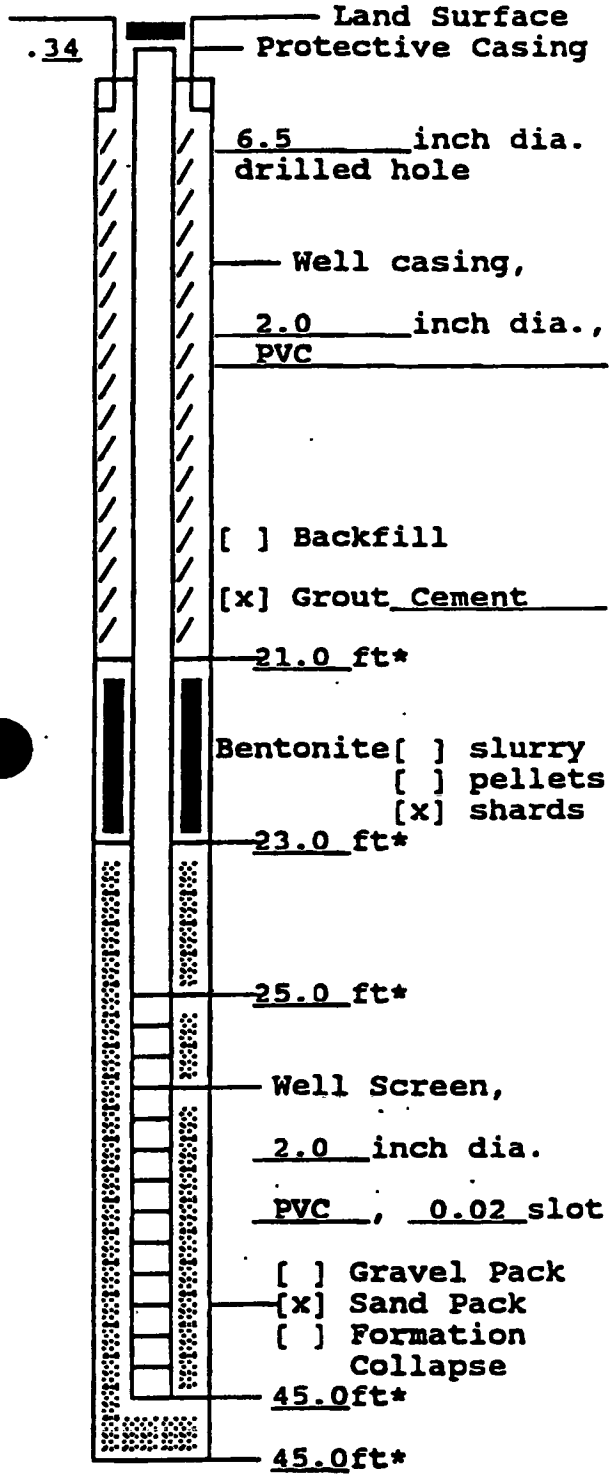
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0				SAND (fill), orange-brown, silty, dry, no odor,
	6.0			fine-medium grained, grading to dark brown
6.0				SAND, vf-medium grained, tan-brown to orange-
	10.0			brown, moist, no odor
10.0	13.0			CLAY, sandy and silty, orange-brown, plastic
				moist
13.0				SAND, orange-brown, fine-medium grained, moist,
	18.0			no odor
18.0	45.0			SAND, vf-medium grained, moist, no odor

GERAGHTY & MILLER, INC.

IEPA # 0062

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-22

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
[x]surveyed
432.66 ft [ ]estimated
* Measuring Point is top of casing

Installation Dates(s) 6-8-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

Prepared by rww

URS
CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
R063

Project: BP WOODRIVER		Project No.: 25365889	
Location: WOODRIVER IL		Elevation: 431.8 ft msl	Coordinates (N,E): 798768.4, 2317101.5
Drilling Company: Robert's Environmental Drilling		Date Started: 04/05/06	Date Finished: 04/05/06
Drilling Equipment: CME750ATV		Refusal Depth (ft bgs):	Rock Depth (ft bgs): Completion Depth (ft bgs): 50.0
Drilling Method: Hollow Stem Auger		Water Level (ft bgs)	Number of Samples
Drill Bit Type/Diameter: HSA4.25		First Encount.: 32.0 / At Completion: NR / Well Installed? MW-1	Dist.: 22 / Undist.: 0 / Core: 0
Sampler Type/Diameter: S-1 / 1.75		Driller: Jim Breeding	Field Logger: Ronnie Sawyer
Boring Location Description:		Reviewed by: Emily Fox	

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	Type	Rec (ft)	Blow Count 6"	Pocket Pen (TSF)	PID/ FID Scan (ppm)	PID/ FID Head (ppm)	REMARKS
		(TOPSOIL), some slag, dry.									0 - 6 ft Hand dug to 3', HSA to 6', start sampling at 6'
430			2								
428			4								
426			6								
		Loose, light gray, fine to medium **POORLY GRADED SAND**, (SM), some silt, moist to wet.		S-1	SS	1.0	1 1 2 2	NA			
424			8								
		Medium dense, light gray, fine to medium **POORLY GRADED SAND**, (SM), some silt, moist.		S-2	SS	1.3	1 2 3 3	NA			
		Medium dense, orange to tan, fine to medium **POORLY GRADED SAND**, (SM), trace silt, moist.									
422			10								
		Medium dense, orangeish tan, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-3	SS	1.3	1 3 5 9	NA			
420			12								
		Medium dense, orangeish tan, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-4	SS	1.3	1 3 5 9	NA			
418											

URS-CHICAGO BP RIVER.GPJ URS-CHICAGO.GDT 5/4/06

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING R063

Project:	Project No.:	
BP WOODRIVER	25365889	
Location:	**Elevation:**	**Coordinates (N,E):**
WOODRIVER IL	431.8 ft msl	798768.4, 2317101.5

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	Type	Rec (ft)	Blow Count 6"	Pocket Pen (TSF)	PID/ FID Scan (ppm)	PID/ FID Head (ppm)	REMARKS
		Medium dense, orangeish tan.		S-5	SS	1.2	1 5 6 10	NA			
416			16								
		Medium dense, light brown to dark brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-6	SS	1.4	5 7 7 8	NA			
414			18								
		Medium dense, tan to light brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-7	SS	1.3	3 5 7 8	NA			
412			20								
		Medium dense, light brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-8	SS	0.0	3 5 7 8	NA			
410			22								
		Medium dense, light brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-9	SS	1.5	3 5 7 9	NA			
		Medium dense, black, fine to medium **POORLY GRADED SAND**, (SP), moist.									23 - 24 ft .Black sand with no odor
408			24								
		Medium dense, light brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-10	SS	1.7	7 10 11 11	NA			
		Medium dense, light black, fine to medium **POORLY GRADED SAND**, (SP), moist.									
406			26								
		Medium dense, light black to dark brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-11	SS	1.7	3 7 9 12	NA			
404			28								
		Dense, light brown, fine to medium **POORLY GRADED SAND**, (SP), moist.		S-12	SS	1.3	3 10 11 18	NA			
402			30								
		Dense, light brown, fine to medium **POORLY GRADED SAND**, (SP), moist to wet.		S-13	SS	1.2	5 7 12	NA			

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
R063

Project:	Project No.:	
BP WOODRIVER	25365889	
Location:	**Elevation:**	**Coordinates (N,E):**
WOODRIVER IL	431.8 ft msl	798768.4, 2317101.5

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	Type	Rec (ft)	Blow Count 6"	Pocket Pen (TSF)	PID/ FID Scan (ppm)	PID/ FID Head (ppm)	REMARKS
							22				31 - 32 ft Ground water suspected at 32 ft.
400			32 ▽								
		Very dense, gray, fine to medium **POORLY GRADED SAND**, (SP), saturated.		S-14	SS	1.3	11 15 38 47	NA			
398			34								
		Dense, gray, fine to medium **SILTY POORLY GRADED SAND**, (SM), trace to some silt, saturated.		S-15	SS	1.3	11 23 50 50	NA			
396			36								
		Gray, fine to medium **SILTY POORLY GRADED SAND**, (SM), trace to some silt, wet.		S-16	SS	1.4	5 12 25 38	NA			
394			38								
		Loose, gray to orangeish tan, fine to medium **SILTY POORLY GRADED SAND**, (SM), trace to some silt, wet.		S-17	SS	1.7	1 1 2 19	NA			
392			40								
		Gray to orangeish tan, fine to medium **SILTY POORLY GRADED SAND**, (SM), trace to some silt, saturated.		S-18	SS	1.4	2 10 12 14	NA			
390			42								
		Loose, tan, **SAND**, (SP), saturated.		S-19	SS	1.6	1 1 1 3	NA			
388			44								
		Loose, tan, fine to medium **POORLY GRADED SAND**, (SP), saturated.		S-20	SS	1.5	1 1 2 3	NA			
386			46								
		Tan, medium to coarse **POORLY GRADED SAND**, (SP), moist to wet.		S-21	SS	1.6	1 1 4 3	NA			

URS-CHICAGO BP RIVER.GPJ URS-CHICAGO.GDT 5/4/06

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
R063

SHEET 4 OF 4

Project:	Project No.:	
BP WOODRIVER	25365889	
Location: WOODRIVER IL	**Elevation:** 431.8 ft msl	**Coordinates (N,E):** 798768.4, 2317101.5

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	SAMPLES Type	SAMPLES Rec (ft)	SAMPLES Blow Count 6"	SAMPLES Pocket Pen (TSF)	PID/ FID Scan (ppm)	PID/ FID Head (ppm)	REMARKS
384			48								
		Medium dense, tan, fine to medium **POORLY GRADED SAND**, (SP), saturated.		S-22	SS	1.4	4 9 10 24	NA			
382			50								

URS-CHICAGO BP RIVER.GPJ URS-CHICAGO.GDT 5/4/06

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: BP Products North America Inc. Well #: R063

Plane Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: ____

Surveyed by: Crawford, Murphy, and Tilly, Inc. IL Registration #: 092-006865

Drilling Contractor: Roberts Environmental Drilling, Inc. Driller: Jim Breeding

Consulting Firm: URS Corporation Geologist: Ron Sawyer

Drilling Method: Hollow Stem Auger Drilling Fluid (Type): NA

Logged By: Ron Sawyer Date Started: 4/4/06 Date Finished: 4/5/06

Report Form Completed By: Emily Fox Date: 5/4/06

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite

Installation Method: Placed/Poured

Setting Time: ____

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Placed/Poured

Setting Time: ____

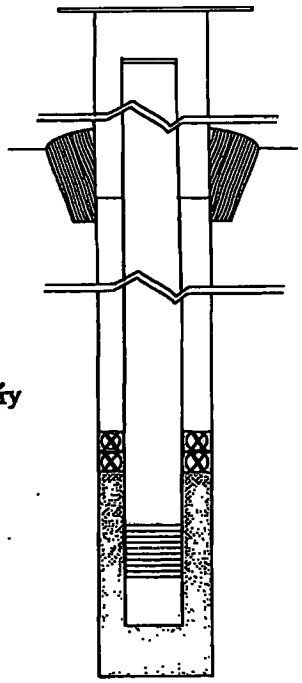
Type of Sand Pack: Filter Sil

Grain Size: ____ (Sieve Size)

Installation Method: Placed/Poured

Type of Backfill Material: NA (if applicable)

Installation Method: NA



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
	____	____	Top of Protective Casing
	431.54	-0.24	Top of Riser Pipe
	431.78	0	Ground Surface
	____	0	Top of Annular Sealant
	____	NM	Static Water Level (After Completion)
	411.78	20	Top of Seal
	407.78	24	Top of Sand Pack
	405.78	26	Top of Screen
	385.76	46	Bottom of Screen
	385.78	46	Bottom of Well
	381.78	50	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9.5
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	
Riser Pipe Length (feet)	27.76
Bottom of Screen to End Cap (feet)	.24
Screen Length (1st slot to last slot) (feet)	20
Total Length of Casing (feet)	49.76
Screen Slot Size **	.01"

**Hand-Slotted Well Screens are Unacceptable

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

IEPA # G067

Boring/Well G-27 Project/No. Amoco/OK0365HR03 Page 1 of 1

Site Location Wood River, IL Drilling Started 10:30 Drilling Completed 11:10

Total Depth Drilled 49.0 feet Hole Diameter 6 5/8 inches Type of Sample/Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used None Drilling Method H S Auger

Drilling Contractor J&R Drilling Driller Ray Coons Helper Mark

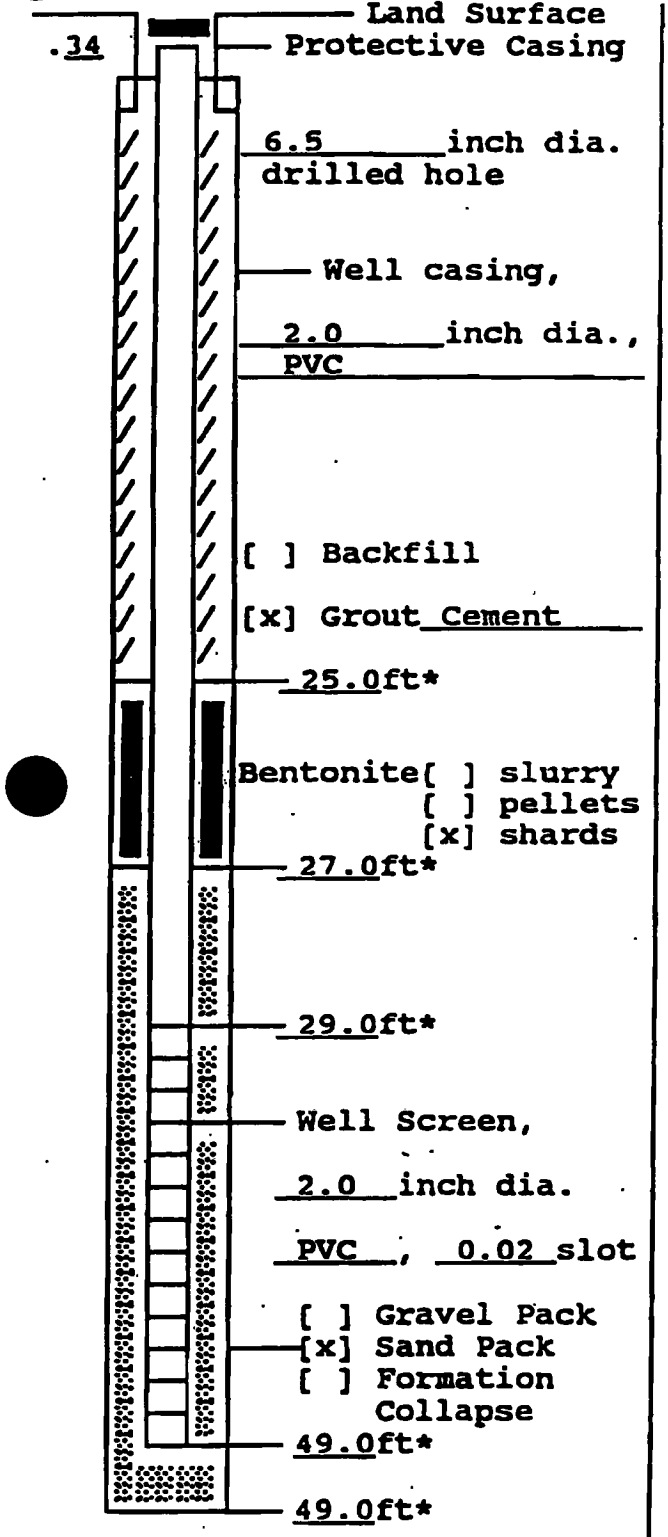
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0.0	2.0			TOPSOIL, silty, dry, lt. brown
2.0	9.0			SAND, vf-fine grained, damp, silty
9.0	12.0			SAND, vf-fine grained, damp, clayey.
12.0				SAND, as above, tan-brown, silty
	49.0			
				TD @ 49.0 ft
				H_2O encountered ~ 38.0'
				No HC odor to TD.

GERAGHTY &
MILLER, INC.

IEPA # 6067

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-27

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
435.46 ft [x] surveyed [ ] estimated
* Measuring Point is top of casing

Installation Dates(s) 7-11-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)
Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

Prepared by _____

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R067 Monitor Well No. R067

Site File Name BP Wood River Surface Elevation _____ Completion Depth 32.12

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/16/23

UTM (or State Plane) Coord. N.(Y) 798854.8 E.(X) 2317282.8

Latitude 38 ° 51 ' 37.97 " Longitude -90 ° 5 ' 38.3 "

Boring Location R067

Drilling Equipment GeoProbe 8150LS

PERSONNEL

G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Other; landscaping gravel.									
	Poorly graded sand with silt; subround grains; weak cementation; brown with gray mottling; moist; no odor; fine grained sand.		1							
			2							
			3							
			4							
			5							
			6							
	Poorly graded sand with silt; subround grains; weak cementation; yellowish brown; moist; no odor; fine grained sand.		7							
			8							
			9							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R067 Monitor Well No. R067

Site File Name BP Wood River Surface Elevation _____ Completion Depth 32.12

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/16/23

UTM (or State Plane) Coord. N.(Y) 798854.8 E.(X) 2317282.8

Latitude 38 ° 51 ' 37.97 " Longitude -90 ° 5 ' 38.3 "

Boring Location R067

Drilling Equipment GeoProbe 8150LS

PERSONNEL

G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

SAMPLES

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand with silt; subround grains; weak cementation; yellowish brown; moist; no odor; fine grained sand. *(continued)*									
	Silt; firm; low plasticity; slow dilatancy; black; moist; no odor; fine grained sand.		11							
	Silty sand; subangular grains; moderate cementation; light brown with brown mottling; moist; no odor; fine grained sand.		12							
	Poorly graded sand with silt; subround grains; weak cementation; brown with gray mottling; moist; no odor; fine grained sand.		13							
			14							
	Poorly graded sand with silt; subround grains; weak cementation; brown with gray mottling; moist; no odor; fine to medium grained.		15							
			16							
			17							
			18							
			19							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R067 Monitor Well No. R067

Site File Name BP Wood River Surface Elevation _____ Completion Depth 32.12

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/16/23

UTM (or State Plane) Coord. N.(Y) 798854.8 E.(X) 2317282.8

Latitude 38 ° 51 ' 37.97 " Longitude -90 ° 5 ' 38.3 "

Boring Location R067

Drilling Equipment GeoProbe 8150LS

PERSONNEL

G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

SAMPLES

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand with silt; subround grains; weak cementation; brown with gray mottling; moist; no odor; fine to medium grained. *(continued)*		21							
			22							
			23							
			24							
			25							
			26							
			27							
			28							
			29							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R067 Monitor Well No. R067

Site File Name BP Wood River Surface Elevation _____ Completion Depth 32.12

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/16/23

UTM (or State Plane) Coord. N.(Y) 798854.8 E.(X) 2317282.8

Latitude 38 ° 51 ' 37.97 " Longitude -90 ° 5 ' 38.3 "

Boring Location R067

Drilling Equipment GeoProbe 8150LS

PERSONNEL
G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand with silt; subround grains; weak cementation; brown with gray mottling; moist; no odor; fine to medium grained. *(continued)*		31							
			32							

(950226)

R000209

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: BP Wood River Well #: R067

State Plane Coordinate: X ____ Y ____ (or) Latitude: 38° 51' 37.97" Longitude: -90° 5' 38.3" Borehole #: R067

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: Environmental Works, Inc. Driller: Jeremy Nash (EWI)

Consulting Firm: Sovereign Consulting, Inc. Geologist: Jordan Benningfield (Sovereign)

Drilling Method: Sonic Drilling Fluid (Type): ____

Logged By: Jordan Benningfield (Sovereign) Date Started: 6/16/23 Date Finished: 6/16/23

Report Form Completed By: Jordan Benningfield (Sovereign) Date: 6/24/23

ANNULAR SPACE DETAILS

Type of Surface Seal: Cement

Type of Annular Sealant: Bentonite

Installation Method: gravity

Setting Time: ____

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: gravity

Setting Time: ____

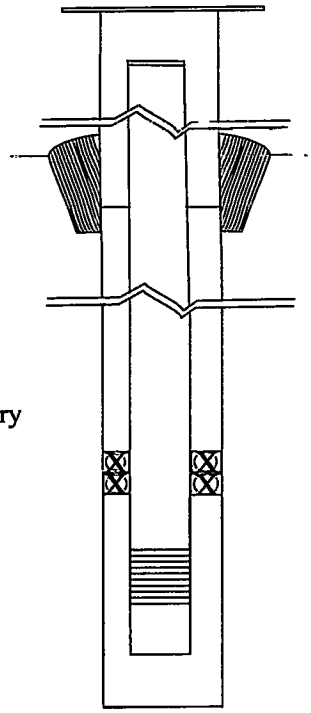
Type of Sand Pack: Glass beads

Grain Size: 30-40 (Sieve Size)

Installation Method: gravity

Type of Backfill Material: ____ (if applicable)

Installation Method: ____



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
Top of Protective Casing	____	0	
Top of Riser Pipe	____	0.45	
Ground Surface	____	0	
Top of Annular Sealant	____	2	
Static Water Level (After Completion)	____	31.04	
Top of Seal	____	2	
Top of Sand Pack	____	24.8	
Top of Screen	____	26.82	
Bottom of Screen	____	31.82	
Bottom of Well	____	32.12	
Bottom of Borehole	____	32.12	

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	6
ID of Riser Pipe (inches)	2.047
Protective Casing Length (feet)	1
Riser Pipe Length (feet)	26.37
Bottom of Screen to End Cap (feet)	0.3
Screen Length (1st slot to last slot) (feet)	5
Total Length of Casing (feet)	31.67
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

IEPA# 6068 1 Sacrete

Boring/Well G-23 Project/No. 0K0365HR03 Page 1 of 1

Site Location Wood River, IL Drilling Started 13:30 Drilling Completed 17:55

Total Depth Drilled 52.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J+R Drilling Driller Ray Coons Helper Mark

Prepared By LHW Hammer Weight NA Hammer Drop NA inches

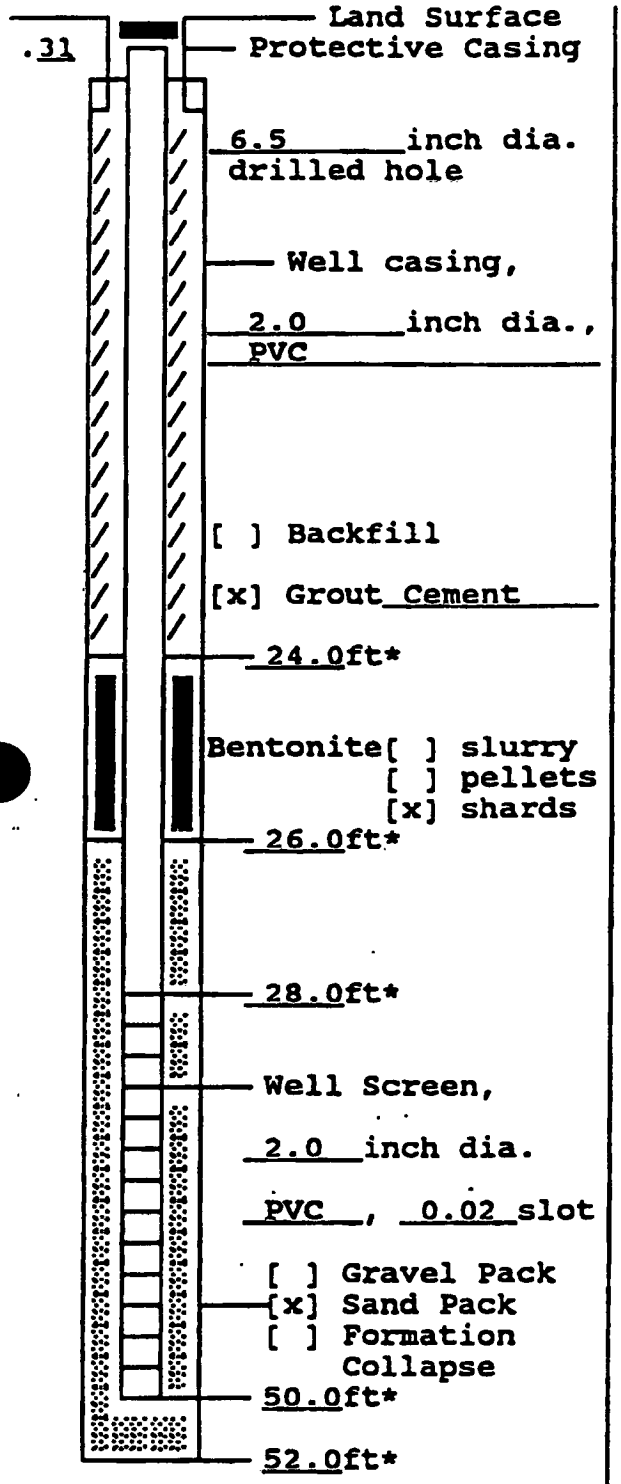
Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0.0	1.5			TOPSOIL, tan, dry, silty & clayey, grades
				down into [redacted]
1.5				SAND, silty, tan-brown, damp, no odor
	52.0			TD @ 52.0, sand coarsens
				downward to VF-med grained,
				no HC odor to TD.

EPA Form 03 6-86

GERAGHTY &
MILLER, INC.

IEPA # G068

WELL CONSTRUCTION LOG



Measuring Point is Top of Well
Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-28

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
442.29 ft
[x] surveyed
[ ] estimated
* Measuring Point is top of casing

Installation Dates(s) 7-11-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

Prepared by LHW

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R068 Monitor Well No. R068

Site File Name BP Wood River Surface Elevation _____ Completion Depth 38.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/17/23

UTM (or State Plane) Coord. N.(Y) 798858.3 E.(X) 2317437.6

Latitude 38 ° 51 ' 37.97" Longitude -90 ° 5 ' 36.34 "

Boring Location R068

Drilling Equipment GeoProbe 8150LS

PERSONNEL

G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	fill; topsoil									
	Poorly graded sand with silt; subround grains; moderate cementation; reddish brown; moist; no odor; fine grained sand.		1							
			2							
			3							
			4							
			5							
			6							
			7							
			8							
			9							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R068 Monitor Well No. R068

Site File Name BP Wood River Surface Elevation _____ Completion Depth 38.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/17/23

UTM (or State Plane) Coord. N.(Y) 798858.3 E.(X) 2317437.6

Latitude 38 ° 51 ' 37.97" Longitude -90° 5 ' 36.34"

Boring Location R068

Drilling Equipment GeoProbe 8150LS

PERSONNEL
G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand with silt; subround grains; moderate cementation; reddish brown; moist; no odor; fine grained sand. *(continued)*		11							
			12							
	Poorly graded sand; subround grains; weak cementation; yellowish brown; moist; no odor; fine grained sand.		13							
			14							
			15							
			16							
			17							
			18							
	Poorly graded sand with silt; subangular grains; weak cementation; reddish brown; moist; no odor; fine grained sand, small discontinuous sandy clay lenses ~0.05' thickness.		19							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R068 Monitor Well No. R068

Site File Name BP Wood River Surface Elevation _____ Completion Depth 38.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/17/23

UTM (or State Plane) Coord. N.(Y) 798858.3 E.(X) 2317437.6

Latitude 38 ° 51 ' 37.97 " Longitude -90 ° 5 ' 36.34 "

Boring Location R068

Drilling Equipment GeoProbe 8150LS

PERSONNEL
G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand with silt; subangular grains; weak cementation; reddish brown; moist; no odor; fine grained sand, small discontinuous sandy clay lenses ~0.05' thickness. *(continued)*		21							
	Poorly graded sand; subangular grains; weak cementation; brown; moist; no odor; fine to medium grained sand, trace silt.		22							
			23							
			24							
			25							
			26							
			27							
			28							
			29							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R068 Monitor Well No. R068

Site File Name BP Wood River Surface Elevation _____ Completion Depth 38.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 6/16/23 Finish 6/17/23

UTM (or State Plane) Coord. N.(Y) 798858.3 E.(X) 2317437.6

Latitude 38 ° 51 ' 37.97" Longitude -90 ° 5 ' 36.34"

Boring Location R068

Drilling Equipment GeoProbe 8150LS

PERSONNEL

G - J. Benningfield
D - J. Nash
H - Z. Slindee
H - R. Winchell

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	Poorly graded sand; subround grains; weak cementation; yellowish brown; moist; no odor; fine grained sand, last foot logged from overdrill cuttings during well installation.		31 32 33 34 35 36 37 38							

(950226)

R000216

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: BP Wood River Well #: R068

State Plane Coordinate: X ____ Y ____ (or) Latitude: 38° 51' 37.97" Longitude: -90° 5' 36.34" Borehole #: R068

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: Environmental Works, Inc. Driller: Jeremy Nash (EWI)

Consulting Firm: Sovereign Consulting, Inc. Geologist: Jordan Benningfield (Sovereign)

Drilling Method: Sonic Drilling Fluid (Type): ____

Logged By: Jordan Benningfield (Sovereign) Date Started: 6/16/23 Date Finished: 6/17/23

Report Form Completed By: Jordan Benningfield (Sovereign) Date: 6/24/23

ANNULAR SPACE DETAILS

Type of Surface Seal: Cement

Type of Annular Sealant: Bentonite

Installation Method: gravity

Setting Time: ____

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: gravity

Setting Time: ____

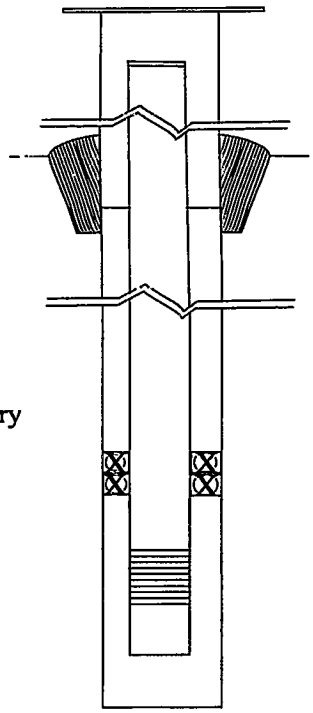
Type of Sand Pack: Glass Beads

Grain Size: 30-40 (Sieve Size)

Installation Method: gravity

Type of Backfill Material: ____ (if applicable)

Installation Method: ____



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
		0	Top of Protective Casing
		0.28	Top of Riser Pipe
		0	Ground Surface
		2	Top of Annular Sealant
		35.8	Static Water Level (After Completion)
		2	Top of Seal
		25	Top of Sand Pack
		27.4	Top of Screen
		37.4	Bottom of Screen
		37.7	Bottom of Well
		38	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	6
ID of Riser Pipe (inches)	2.047
Protective Casing Length (feet)	1
Riser Pipe Length (feet)	27.12
Bottom of Screen to End Cap (feet)	0.3
Screen Length (1st slot to last slot) (feet)	10
Total Length of Casing (feet)	37.42
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA #: 6073

SAMPLE/CORE LOG

Boring/Well G33 Project/No. OK00303 05901 Page 3 of 1

Site Location Wood River Refinery Drilling Started 11/3/89 Drilling Completed 11/3/89

Total Depth Drilled 44 feet Hole Diameter 7¼ OD inches 3¾ ID Type of Sample/ Coring Device

Length and Diameter of Coring Device Sampling Interval feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used none Drilling Method Hollowstem

Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

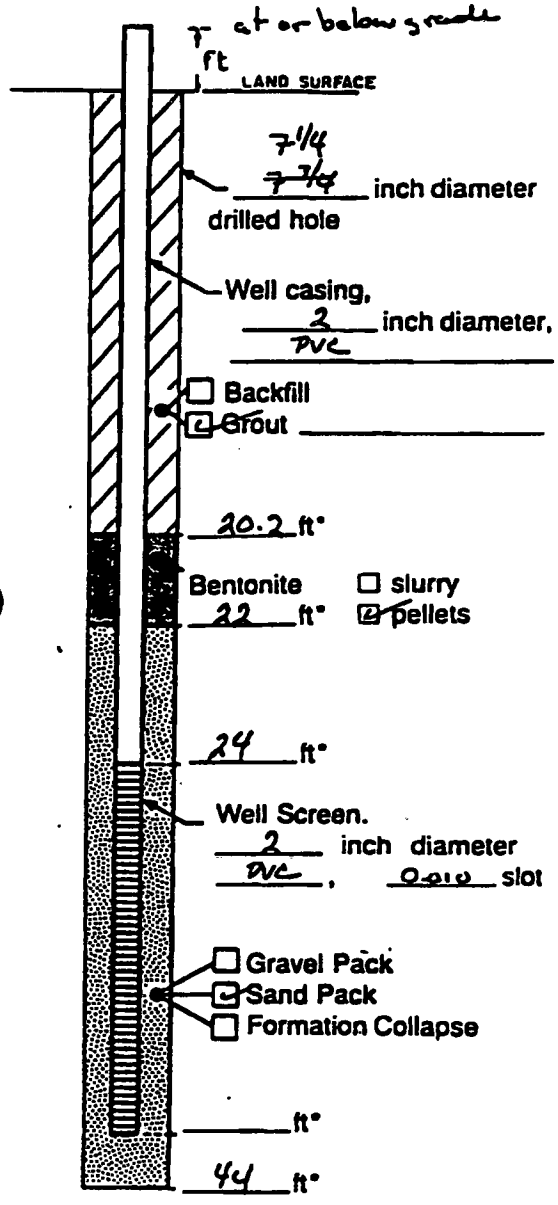
Prepared By Rick Dotson Hammer Weight — Hammer Drop — inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1			tan, silty sand
1	3			top soil, loam, dark brn,
3	4			sandy, lean clay, gray
4	8			clay, med. dense, brn, ; coming out in balls
8	10			silty sand, sl. moist, f-grained, brn.
10	44			sand, f-grained, sl. moist, well-sorted, brn.
				- formation collapse to 33' below l.s.
				sand - 3 bags (100lbs)
				top of sand . 22' below l.s.
				clay - 2 - ½ bags - chunks
				top of clay — 20.2'

IEPA #: G073

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK00203 05901 Well G33
Town/City Grand River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 11/3/89
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

Fluid Loss During Drilling _____ gallo
Water Removed During Development 5 gallo
Static Depth to Water _____ feet below M.
Pumping Depth to Water _____ feet below M.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitor

Remarks No hydrocarbon odor.

Prepared by R. Dotson

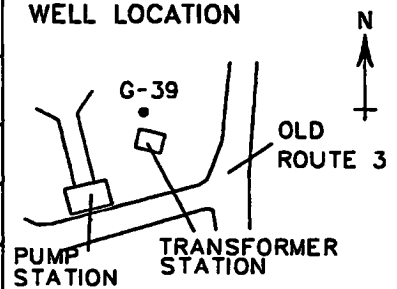
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

IEPA #: G079

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K269.01	AMOCO-KOREA	WOOD RIVER, IL	G-39	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS
DRILLING START 1515 12/5/91 FINISH 1015 12/5/91	DEVEL. START 10:00 12-16-91 FINISH 10:30 12-16-91
STATIC DTW 24.62 TIME 1050 DTO - DATE 12/9/91	DRILLED BY: BROTCKE ENGINEERING
ELEVATION TOC 422.77 GL 422.97	LOGGED BY: LEE WHITE

WELL LOCATION



WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
FLUSH MOUNT COVER			CLAY	GY-BR	DENSE, BLOCKY, LOW PLASTICITY, (5YR 3/1) NO ODOR	D		1				CB
	1											
	2											
	3											
2" DIA. PVC RISER	4		GRAVEL	BK	BLACK, COARSE GRAVEL AND PEBBLES RESEMBLING OLD	D						
	5				ASPHALT PAVEMENT. ASPHALT ODOR		4.8	2				CB
	6											
BENTONITE GROUT	7		CLAY	YW-BR	SILTY, YELLOWISH-BROWN (10YR 4/2), ORANGE STAINED PATCHES, LOW PLASTICITY, SOFT	M						
	8											
	9											
	10		CLAY	GY	OLIVE GRAY (5Y 4/1), SILTY IN LAYERS, ORANGE AND BROWN STAINING, LOWER 1.5 FT. IS WET, MED. PLASTICITY	M	22	3				CB
	11											
	12											
	13											
	14					W						
BENTONITE SLURRY	15		SAND	GY-BR	FINE-COARSE GRAINED W/ GRAVEL, HC ODOR	M	18	4				CB
	16		CLAY	GY-BR	DENSE, BLOCKY, OLIVE-GREENISH STAINS, HC ODOR (5Y 4/2)							
	17											
	18											
	19											

Log of Boring: G084 **Project:** BP Wood River **Project No:** 25365458
Client: BP Products North America Inc. **Reviewed By:** J. Dennison
Location: Wood River, IL **Completion Depth (ft):** 45
Logged by: M. Wallace **Surface Elevation (ft):**
Date Started: 8/17/05 **Boring Diameter (in):** 2
Date Finished: 8/17/05 **Groundwater Depth (ft):**
Easting: **Northing:** **Sheet:** 1 of 4

Subsurface Profile				Sample Information					Remarks
Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID	Well Construction	
	-1								
0.00	0		Ground Surface						
-0.50	0		Very dense, dry, black, asphalt pavement						Well completed as a flushmount well.
	1		***SAND (SP)*** medium dense, moist, brown, fine-grained, trace clay						
	2								
	3				Geo-P				Top 6 ft. excavated via air knife.
00	4		without clay						
	5								
	6								
	7				Geo-P	24/24			
	8								
-9.00	9		intermittent 1/2-2" dark brown lenses						
	10				Geo-P	48/48			
	11								
	12								
-13.20	13		1" black lense						
	14				Geo-P	48/48			

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Joe Cox/Jeff Crank
Drilling Equipment: Geo-Cat and CME 75 Truck Mount Rig
Drilling Method: GeoProbe and Hollow Stem Auger

Drill Bit Size/Type: 2 inches
Borehole Backfill: Well
Type of sampler: 4-inch Macrosampler
Hammer weight/drop: NA

Log of Boring: G084 **Project:** BP Wood River **Project No:** 25365458 **Sheet** 2 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
-15	15		becoming loose to medium dense						
-17	16		1/2" lense of grey low plastic clay						
	17								
	18				Geo-P	48/48			
-19	19		6" lense of dark grey to brown sand						
	20							Seal Pack Bentonite Chips	
	21								
	22				Geo-P	46/48			
	23								
	24								
	25								
	26				Geo-P	47/48		Screen	
	27								
	28							Seal Pack Sand	
	29								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Joe Cox/Jeff Crank
Drilling Equipment: Geo-Cat and CME 75 Truck Mount Rig
Drilling Method: GeoProbe and Hollow Stem Auger

Drill Bit Size/Type: 2 inches
Borehole Backfill: Well
Type of sampler: 4-inch Macrosampler
Hammer weight/drop: NA

Log of Boring: G084 **Project:** BP Wood River **Project No:** 25365458 **Sheet** 3 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
-30	30		brown to dark brown, medium to fine-grained sand		Geo-P	48/48			
	31								
-32	32		becomes fine-grained						
	33								
	34				Geo-P	48/48			
	35								
	36								Began using Center Point System
	37								
	38				Geo-P	30/48			
	39								
	40								
	41								
	42				Geo-P				
	43								
	44								

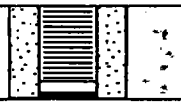
URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Joe Cox/Jeff Crank
Drilling Equipment: Geo-Cat and CME 75 Truck Mount Rig
Drilling Method: GeoProbe and Hollow Stem Auger

Drill Bit Size/Type: 2 inches
Borehole Backfill: Well
Type of sampler: 4-inch Macrosampler
Hammer weight/drop: NA

Log of Boring: G084 **Project:** BP Wood River **Project No:** 25365458 **Sheet** 4 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (Inches)	Sample PID (ppm)	Well Construction	Remarks
-45	45								
	45		End of Borehole						Well installed using a CME 75 Truck Mount Rig. Lithology obtained using a Geo-Cat. A geoprobe boring was advanced prior to installing the well within the same hole.
	46								
	47								
	48								
	49								
	50								
	51								
	52								
	53								
	54								
	55								
	56								
	57								
	58								
	59								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Joe Cox/Jeff Crank
Drilling Equipment: Geo-Cat and CME 75 Truck Mount Rig
Drilling Method: GeoProbe and Hollow Stem Auger

Drill Bit Size/Type: 2 inches
Borehole Backfill: Well
Type of sampler: 4-inch Macrosampler
Hammer weight/drop: NA

Log of Boring: G085 **Project:** BP Terminal **Project No:** 25365889.0073505
Client: BP Products North America Inc. **Reviewed by:**
Location: Wood River, IL **Completion Depth (ft):** 55.00
Logged By: William Howland **Surface Elevation (ft):**
Date Started: 10-30-06 **Boring Diameter (in):** 8 1/2
Date Finished: 10-30-06 **Groundwater Depth (ft):** See Remarks

Sheet 1 of 4

Depth	Subsurface Profile: Description	Sample: Sample Type	Sample: Recovery (ft)	Strength: Blow Count (0.5 ft)		Remarks
0	Ground Surface					
0–1	med stiff, orange brown, ~~silty~~ int sand with silt (SP) moist, poorly graded.		0	— — —		
2–3			0	— — —		1'-5' observed from Air knife hole.
4			0	—		
5	becomes sand with clay		12/12	—		
6–7	becomes fine sand with silt.		24/24	3 4 4 3		
8–9	grades to lt. brown fine sand		24/24	4 4 4 4		
10–11	grades to very moist sand with clay. grades to fine sand.		24/24	3 4 5 7		
12–13	becomes very moist sand with clay becomes moist, lt. brown, fine sand with trace med. sand		24/24	3 5 5 6		
14–15			24/24	3 4 5 6		

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jim Breeding
Drilling Equipment: 55 CMP
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 41/4 inch
Borehole Backfill:
Type of sampler: Split Spoon
Hammer weight/drop:

Log of Boring: G085 **Project:** BP Terminal **Project No:** 25365889 **Sheet** 2 of 4

Depth	Description	Sample R Type	Recovery (ft)	Blow Count (0.5 ft)	Penetrometer (tsf)	Remarks
	Same as above		↑	↑		
16			24/24	3/5/6/9		
18			24/24	4/5/7/8		
20			24/24	5/6/7/9		
22			24/24	3/4/7/7		
24			24/24	4/5/7/10		
26			24/24	5/5/5/12		
28	grades to Dense		24/24	7/9/12/10		
30	Becomes fine with med. sand.					

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jim Breedlove
Drilling Equipment: 550 CMP
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 inch
Borehole Backfill:
Type of sampler: Split Spoon
Hammer weight/drop:

Log of Boring: G085 **Project:** BP Terminal **Project No:** 25365889 **Sheet** 3 of 4

Depth	Description	Sample R Type	Recovery (ft)	Blow Count (0.5 ft)	Penetrometer (tsf)	Remarks
			↑	↑		
31				5		
	grades to med. sand		24	9		
32	grades to fine sand..		24	12		
				20		
33				7		
			24	10		
34			24	9		
				10		
35				2		
			24	6		
36			24	9		
				11		
37				20		
			24	30		
38			24	52		
39	grades to very fine sand with iron staing			12		
			24	17		
40			24	20		
				16		
41				2		
	grades to fine with iron staing		24	6		
42			24	7		
				15		
43				4		
			24	6		
44			24	11		
	Becomes very moist sand w/fines			20		
45	Becomes wet sand w/fines					Groundwater Depth @ 44.5'

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jim Breeding
Drilling Equipment: 55 CMP
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 inch
Borehole Backfill:
Type of sampler: Split Spoon
Hammer weight/drop:

Log of Boring G085 **Project:** BP Terminal **Project No:** 25365889 **Sheet** 4 of 4

Depth	Description	Sample R Type	Recovery (ft)	Blow Count (0.5 ft)	Penetrometer (tsf)	Remarks
46	Not Described due to blowin		↑	↑		
47			24/24	— — —		Sample not logged due to blowin Sampling attempted again @ 48'-50' with same result. Will not sample for remainder of boring
48						
49			/24	— — —		
50						
51			/24	— — —		
52						
53			/24	— — —		
54						
55	B.O.B. @ 55'		/24	— — —		
			/24	— — —		
			/24	— — —		

URS 122 South Michigan Avenue Suite 1920 Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jim Breslin
Drilling Equipment: 95 CMP
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 inch
Borehole Backfill:
Type of sampler: Split Spoon
Hammer weight/drop:

R000228

Illinois Environmental Protection Agency — Well Completion Report

Site Number: _____ County: _____

Site Name: BP Wood River

Well #: 6085

State Plane Coordinate: X ____ Y ____ (or) Latitude: ____ ' " Longitude: ____ ' "

Borehole #: 6085

Surveyed by: CMT

IL Registration #: _____

Drilling Contractor: REDI

Driller: Jim Breeding

Consulting Firm: URS Corp.

Geologist: William Haviland

Drilling Method: Hollow Stem Auger

Drilling Fluid (Type): none

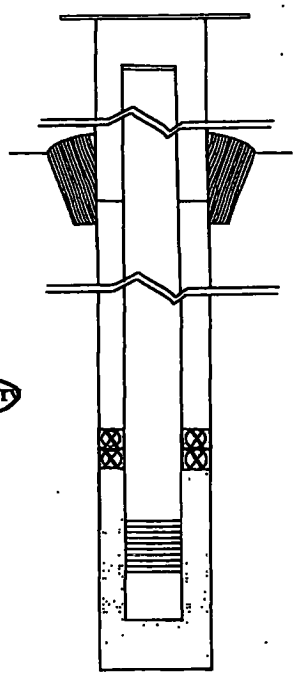
Logged By: William Haviland

Date Started: 10-30-06 Date Finished: 10-30-06

Report Form Completed By: William Haviland

Date: 10-31-06

ANNULAR SPACE DETAILS



Type of Surface Seal: Concrete

Type of Annular Sealant: Grout Slurry

Installation Method: Pour

Setting Time: _____

Type of Bentonite Seal - - Granular, Pellet, (Slurry) (Choose One)

Installation Method: Pour

Setting Time: _____

Type of Sand Pack: Qtz. filter sand

Grain Size: 1 (Sieve Size)

Installation Method: Pour

Type of Backfill Material: NA (if applicable)

Installation Method: -0-

Elevations (MSL)*	Depths(.01ft.) (BGS)	
0	0	Top of Protective Casing
442.13	0.69	Top of Riser Pipe
442.82	0	Ground Surface
441.07	1.75	Top of Annular Sealant
398.96	43.86	Static Water Level (After Completion)
441.07	1.75	Top of Seal
410.07	32.75	Top of Sand Pack
409.02	33.80	Top of Screen
389.02	53.80	Bottom of Screen
388.67	54.15	Bottom of Well
387.82	55.00	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or (Other)
Riser Pipe Above W.T.	SS304, SS316, PTFE, (PVC), or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, (PVC), or Other
Screen	SS304, SS316, PTFE, (PVC) or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	4 1/4
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	0
Riser Pipe Length (feet)	0
Bottom of Screen to End Cap (feet)	0
Screen Length (1st slot to last slot) (feet)	20
Total Length of Casing (feet)	0
Screen Slot Size **	10

**Hand-Slotted Well Screens are Unacceptable

IEPA #: G111

Illinois Environmental Protection Agency — Field Boring Log — Page 1 of 2

Site File No.: 83C054-5102 County: MADISON Boring No.: B-19 Monitor Well No: MW-2

Site File Name: AMOCO WOOD RIVER Surface Elev: 431.08 Completion Depth:

Fed ID No: ILD980700967 Auger Depth: 1ft Rotary Depth: 29'

Quadrangle: Sec. T. 5N R. 9W Date: Start 3/22/95 0840 Finish 3/22/95 0950

Boring Location: SWMU 12 - MAIN PLANT

Drilling Equipment: CME-750

Personnel: G - T. HICKS; D - J. CRANK; H - N. GIPSON

Elev.	DESCRIPTION	Depth in feet	Sample No	Sample Type	Sample Recovery	Penetrometer	N Value (Blows)	OVA or IRM readings	REMARKS
	SOFT, MOIST, BROWN, LOW PLASTIC SILTY CLAY (CL) (FILL) WITH BRICK AND CONCRETE FRAGMENTS	1–2							
	LOOSE, WET, GRAY, SANDY, CLAYEY SILT	2–4	1	S	36/24			0 .9 .9	
	LOOSE, WET, GRAY, CLAYEY COARSE-FINE GRAVEL	4–6						2.8 11.3	SAMPLE 0855
	SOFT, MOIST, GRAY LOW PLASTIC SILTY CLAY (CL) WITH BLACK STAINING	6–8	2	S	48/60			36.9 16.1	
	∇ BECOMING STIFF	8–9						—	
	STIFF, WET, GRAY, HIGH PLASTIC CLAY (CH)	9–12	3	S	56/60			2.8 28 28	
	SOFT, WET, GRAY, LOW PLASTIC SANDY CLAY (CL)	12–14						.9 .9	
		14–15						0	

Illinois Environmental Protection Agency — Field Boring Log — Page 2 of 2

Site File No.: 83C054-S102 County MADISON — Boring No. B-19 — Monitor Well No MW-2

Site File Name AMOCO WOOD RIVER — Surface Elev 431.08 — Completion Depth 29ft

Fed ID No ILD980700967 — Auger Depth 1Ft — Rotary Depth 29'

Quadrangle _____ Sec. ____ T. 5N R. 9W — Date: Start 3/22/95 Finish 3/22/95

Boring Location SWMU 12 - MAIN PLANT

Drilling Equipment CME-750

Personnel: G - D - H - H -

Elev.	DESCRIPTION	Depth in feet	Sample No	Sample Type	Sample Recovery	Penetrometer	N Values (Blows)	OVA or PID (ppm)	REMARKS
16	SAME	16						0	
	DENSE, WET, GRAY CLAYEY F-C SAND (SC)								
17		17	4	S	48/60			0	
	DENSE, WET, GRAY, SILTY F-C SAND (SM)								
18		18						0	
19		19						-	
20	LOOSE, WET, GRAY, CLAYEY C-F SAND (SC)	20						0	
21	DENSE, DRY, BRN/TAN, SILTY C-F SAND (SM)	21	5	S	36/60			0	
22		22						0	
23		23						-	
24		24						-	
25		25						0	
26		26	6	S	36/60			0	
27		27						0	
28		28						-	
29		29						-	BOB 29.0 Ft
30		30							

IEPA #: G111

Illinois Environmental Protection Agency — Well Completion Report

Site #: 83C054 . S102 County: MADISON Well #: SWMU 12/MW2

Site Name: Amoco WR - MAIN PLANT Grid Coordinate: Northing -7220.2591 Easting 11324.1068

Drilling Contractor: REDI Date Drilled Start: 4/3/95

Driller: J. CRANK Geologist: T. HICKS Date Completed: 4/3/95

Drilling Method: HOLLOW STEM AUGER Drilling Fluids (type): NONE

Annular Space Details

Type of Surface Seal: _____

Type of Annular Sealant: _____

Amount of cement: # of bags 3 lbs. per bag 94

Amount of bentonite: # of bags 1/2 lbs. per bag 50

Type of Bentonite Seal (Granular, Pellet): PELLETS

Amount of bentonite: # of Bags 1 lbs. per bag 50

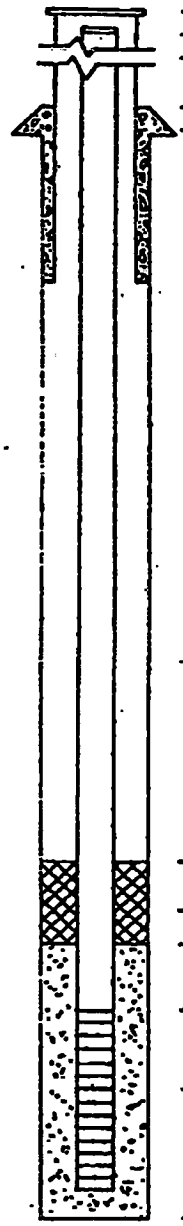
Type of Sand Pack: _____

Source of Sand: _____

Amount of Sand: # of bags 8 lbs. per bag 50

Elevations — .01 ft.

____	____	MSL Top of Protective Casing
____	____	MSL Top of Riser Pipe
____	____	ft. Casing Stickup
431.08	____	MSL Ground Surface
____	____	ft. Top of annular sealant



CASING SET AT 16.25 ft

Well Construction Materials

	Stainless Steel Specify Type	Teflon Specify Type	PVC Specify Type	Other Specify Type
Riser coupling joint	316			
Riser pipe above w.t.	↓			
Riser pipe below w.t.	↓			
Screen	↓			
Coupling joint screen to riser	↓			
Protective casing				

Measurements

to .01 ft. (where applicable)

Riser pipe length	10 x 3
Protective casing length	
Screen length	9.56 ACTUAL
Bottom of screen to end cap	.17 + .17 END CAP
Top of screen to first joint	.27
Total length of casing	
Screen slot size	0.01
# of openings in screen	
Diameter of borehole (in)	8
ID of riser pipe (in)	2

24	____	ft. Top of Seal
____	____	ft. Total Seal Interval
26	____	ft. Top of Sand
28	____	ft. Top of Screen
____	____	ft. Total Screen Interval
38	____	ft. Bottom of Screen
38.5	____	ft. Bottom of Borehole

Completed by: Tim Hicks Surveyed by: _____ Ill registration #: _____

GERAGHTY & MILLER, INC.

IEPA # G112

SAMPLE/CORE LOG

Boring/Well GH-1 Project/No. AMOCO-OK0365HR01 Page 1 of 1

Site Location Wood River, Il | Drilling Started 10/07/88 | Drilling Completed 10/07/88

Total Depth Drilled 44.0 feet | Hole Diameter 7.25 inches | Type of Sample/ Coring Device N/A

Length and Diameter of Coring Device N/A | Sampling Interval N/A feet

Land-Surface Elev. 436.35 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A | Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling | Driller Tom Hughes | Helper Mike

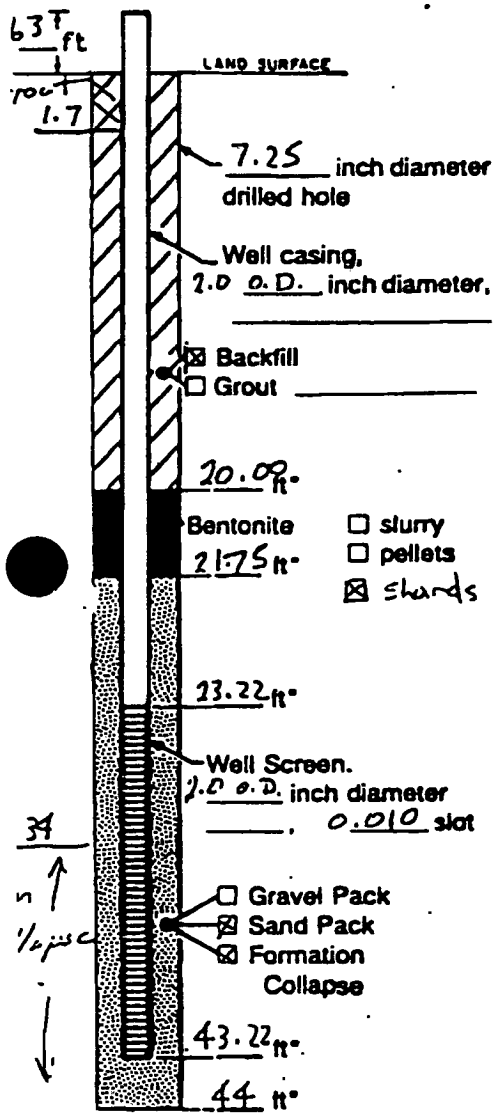
Prepared By G. Cipriano | Hammer Weight N/A | Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0.0	5.0			Thin top soil over coke and asphalt-like
				material. Moisture at 5.0 ft.
5.0	10.0			CLAY - gray, very dense, some iron nodules,
				slight dampness.
10.0	15.0			CLAYEY SAND - sand is very fine grained, gray
				yellowish-gray, strong hydrocarbon odor, slight
				dampness
15.0	20.0			SAND - fine to medium grained, brown, damp,
				chemical odor.
20.0	25.0			SAND - fine to medium grained, brown, moist,
				chemical odor.
25.0	35.0			SAND - fine to medium grained, brown, moist,
				chemical odor.
35.0	44.0			SAND - fine to medium grained, brown, chemical
				odor.

IEPA #1 6112

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface 47.85 − 4.63 = 43.22

Project Amoco OK0315HR01 Well GH-1
Town/City Wood River
County _____ State Illinois
Permit No. _____
Land-Surface Elevation and Datum _____ feet ☐ surveyed ☐ estimated
Installation Dates(s) 10/7/88
Drilling Method Hollow Stem Auger
Drilling Contractor Hughes Drilling
Drilling Fluid None
Development Techniques(s) and Date(s)
Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P.
Pumping Depth to Water _____ feet below M.P.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitoring Well - Hinge line between Amoco and neighbor.
Remarks

Prepared by MJC

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G128

SHEET 1 OF 3

Project: BP Wood River		Project No.: 25368605			
Location: Area 14		Elevation: 429.3 ft msl		Coordinates (N,E): 791869.5, 2321505.1	
Drilling Company: Roberts Environmental Drilling, Inc.		Date Started: 09/26/12		Date Finished: 09/27/12	
Drilling Equipment: Geoprobe		Refusal Depth (ft bgs):	Rock Depth (ft bgs):	Completion Depth (ft bgs): 35.0	
Drilling Method: Direct Push		Water Level (ft bgs)		Number of Samples	
Drill Bit Type/Diameter: 5 ft Dual Tube/ 3.25 inch diameter		First Encount.:	At Completion:	Well Installed? No	Dist.: 7 / Undist.: 0 / Core: 0
Sampler Type/Diameter: 5 ft Dual Tube sampler/ 2 inch diameter		Driller: Shawn Seymour		Field Logger: Mike Corbett	
Boring Location Description: Area 14		Reviewed by:			

ELEV	Graphic	DESCRIPTION	SAMPLES DEPTH	SAMPLES Rec (ft)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Fill: TOPSOIL "ML", about 10% fine to coarse angular gravel; about 90% fines; with low plasticity; slow dilatancy; and low toughness; Dark brown; moist; no reaction to HCl; soft; Topsoil.		6.5	0.3	0.7	0 - 6.5 ft Hand Auger and airknife to 6.5 feet on 9/26/12. Grass at ground surface
428		Fill: WELL GRADED GRAVEL WITH FEW SILT AND SAND "GW", about 85% fine to coarse angular gravel; about 5% fine subangular sand; about 10% fines; Dark brown; moist; limestone gravel.	2		0.4		
		Fill: POORLY GRADED CINDERS WITH FEW SILT AND SAND "CINDERS", about 85% fine to medium subangular gravel; about 5% fine subangular sand; about 10% fines; Very dark gray; moist.			0.3	54.1	
426			4		3.1		
					2.8		
424		Becomes wet at 5 ft; some 1 - 2 inch clay chunks from 5 to 6.5 ft.	6		5.8	62.9	5 ft Perched water in borehole
		LEAN CLAY (CL), about 100% fines; with medium plasticity; no dilatancy; and medium toughness; Very dark gray; moist; no reaction to HCl; soft.		3.5	0.0	0.6	6.5 - 35 ft Begin geoprobe @ 1015 on 9/27/12
422					0.0		
		Becomes dark gray, some dark yellowish brown mottling; firm at 8 ft.	8		0.1	2.0	
420					0.1		
		Becomes soft at 10 ft.	10	5.0	0.1	0.6	
418					0.0		
			12		0.1	0.6	
		Becomes sandy at 12.5 ft.					

Report: URS-CHICAGO Project File: J:\83C054\GINT\AREA 14\ASTM\AREA 14 2012 BORING_LOG_2.GPJ; Data Template:URS-CHI_GDT Printed: 10/15/12

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G128

Project:	Project No.:	
BP Wood River	25368605	
Location:	**Elevation:**	**Coordinates (N,E):**
Area 14	429.3 ft msl	791869.5, 2321505.1

ELEV	Graphic	DESCRIPTION	SAMPLES DEPTH	SAMPLES Rec (ft)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
416		POORLY GRADED SAND (SP), about 100% fine subrounded sand; Dark grayish brown; moist.			0.1		
			14			1.2	
		Some clay at 14.5 ft.			0.4		
				2.5	0.3		
414		LEAN CLAY (CL), about 100% fines; with medium plasticity; no dilatancy; and medium toughness; Dark greenish gray; moist; no reaction to HCl; firm; trace sand.				2.7	
			16				
					0.3		
						1.7	
412							
			18		NA		
						NA	
410					NA		
		Becomes very dark gray at 20 ft.	20	4.8			20 - 25 ft Sampler locked in dual tube casing due to presence of sand. 2 gallons of water added to free sampler.
					0.0		
						1.6	
408		WELL GRADED SAND (SW), about 100% fine to coarse subrounded sand; Dark grayish brown; moist; no reaction to HCl.			0.1		
			22				
		Trace subangular gravel at 22.5 ft.			0.2	3.9	
406							
					0.1		
			24				
		POORLY GRADED SAND (SP), about 100% fine subrounded sand; Dark grayish brown; wet.			0.1	10.2	
				2.5			
404		Sand becomes fine to medium.			0.7	12.1	
			26				26 ft Sampler locked in dual tube casing due to presence of sand. 3 gallons of water added to free sampler.
					0.4		
						5.2	
402		With trace coarse sand and fine angular gravel at 27 ft.			0.3		
			28				

Report: URS-CHICAGO Project File: J:\83C054\GINT\AREA 14\ASTMAREA 14 2012 BORING LOG 2.GPJ; Data Template:URS-CHI GDT Printed: 10/15/12

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G128

SHEET 3 OF 3

Project:	Project No.:	
BP Wood River	25368605	
Location:	**Elevation:**	**Coordinates (N,E):**
Area 14	429.3 ft msl	791869.5, 2321505.1

ELEV	Graphic	DESCRIPTION	SAMPLES DEPTH	SAMPLES Rec (ft)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
					NA		
400						NA	
			30	1.0			
					0.1	0.7	
398		Trace fine subrounded gravel at 31 ft.			NA	NA	
			32				
					NA	NA	
396					NA	NA	
			34				
					NA	NA	

Borehole backfilled with bentonite chips

35 ft Borehole over-drilled with 4.25-inch ID hollow stem augers (HSA) to 35 feet. Heaving sands entered augers to 15 feet. Second boring advanced five feet east with HSA and well G128 installed.

Report: URS-CHICAGO Project File: J:\83C054\GINT\AREA 14\ASTM\AREA 14 2012 BORING LOG 2.GPJ; Data Template:URS-CHI.GDT Printed: 10/15/12

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1191150001 COUNTY: Madison WELL #: G128

SITE NAME: BP Wood River BOREHOLE #: G128

STATE PLANE COORDINATE: X 2321505.060 Y 791869.500 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy, and Tilly, Inc ILL. REGISTRATION #: 35-2214

DRILLING CONTRACTOR: Roberts Environmental Drilling, Inc. DRILLER: Shawn Seymour

CONSULTING FIRM: URS Corporation GEOLOGIST: Mike Corbett

DRILLING METHOD: 4.25 - inch ID Hollow Stem Augers DRILLING FLUIDS (TYPE): Water

LOGGED BY: Michael Corbett DATE STARTED: 9/27/12 DATE FINISHED: 9/28/12

REPORT FORM COMPLETED BY: Michael Corbett DATE: 10/3/12

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: 2ft x 2ft Concrete Pad

TYPE OF ANNULAR SEALANT: Bentonite Pellets

INSTALLATION METHOD: Gravity Pour

SETTING TIME: NA

TYPE OF BENTONITE SEAL - GRANULAR (PELLET) SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Gravity Pour (hydrated every foot)

SETTING TIME: 1 hour

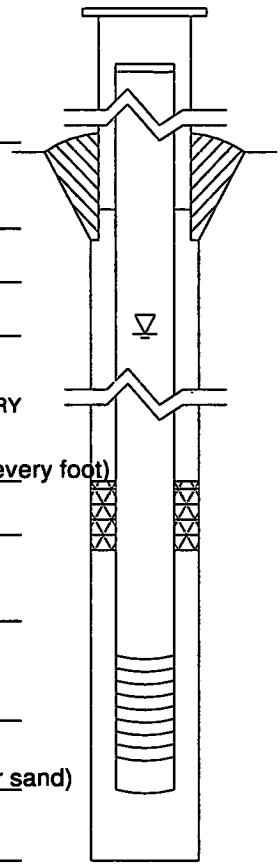
TYPE OF SAND PACK: Silica Sand

GRAIN SIZE: 10 (SIEVE SIZE)

INSTALLATION METHOD: Gravity Pour

TYPE OF BACKFILL MATERIAL: Silica Sand (GA-1 filter sand) (IF APPLICABLE)

INSTALLATION METHOD: Gravity Pour



ELEVATIONS (MSL)*	DEPTHS (BGS)	(.01 ft)
432.39	-3.09	TOP OF PROTECTIVE CASING
432.14	-2.84	TOP OF RISER PIPE
429.30	0.00	GROUND SURFACE
427.30	2.00	TOP OF ANNULAR SEALANT
402.12	27.18	STATIC WATER LEVEL (AFTER COMPLETION)
425.30	4.00	TOP OF SEAL
407.80	21.50	TOP OF SANDPACK
405.83	23.47	TOP OF SCREEN
396.05	33.25	BOTTOM OF SCREEN
395.70	33.60	BOTTOM OF WELL
394.30	35.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	PVC	OTHER: (Other)
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9.00
ID OF RISER PIPE	(in)	2.00
PROTECTIVE CASING LENGTH	(ft)	5.00
RISER PIPE LENGTH	(ft)	26.31
BOTTOM OF SCREEN TO END CAP	(ft)	0.35
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.78
TOTAL LENGTH OF CASING	(ft)	36.44
SCREEN SLOT SIZE **	(in)	0.01

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Log of Boring: G32R **Project:** BP Wood River **Project No:** 25365458
Client: BP Products North America Inc. **Reviewed By:** J. Dennison
Location: Wood River, IL **Completion Depth (ft):** 45
Prepared by: E. Fox **Surface Elevation (ft):**
Date Started: 8/16/05 **Boring Diameter (in):** 9
Date Finished: 8/17/05 **Groundwater Depth (ft):**
Easting: **Northing:** **Sheet:** 1 of 4

Depth	Graphic	Description	Sample Type	Recovery (inches)	Blow Count (0.5 ft)	Sample PID	Well Construction	Remarks
-5							TOC at	
-4								
-3								
-2								
-1								
0		Ground Surface						
1		***FILL (GP)*** loose, moist, grey, 1"-minus limestone	SS	6	2 3 6 5	*		
2		***FILL*** loose, moist, fine-grained sand with trace black cinders						
3		***SILT (ML)*** loose, moist, grey, trace clay	SS	9	5 3 2 2	*		*PID malfunction occurred. Resumed the collection of headspace measurement upon repair.
4								
5		***CLAY (CL)*** medium stiff, moist, grey, high plasticity	SS	16	2 2 3 4	*	Seal Pack Bentonite Slurry	
6								
7			SS	12	2 2 5 7	*		
8		wet						
9		with limonite staining	SS	12	3 4 6 7	*		
10								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jeff Crank
Drilling Equipment: CME 75 Truck Mount
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4"
Borehole Backfill: Well
Type of sampler: Split Spoon
Hammer weight/drop: 140/30"

Log of Boring: G32R **Project:** BP Wood River **Project No:** 25365458 **Sheet** 2 of 4

Depth	Graphic	Description	Sample Type	Recovery (Inches)	Blow Count (0.5 ft)	Sample PID (ppm)	Well Construction	Remarks
11			SS	6	2 2 3 4	*		
12		***SILTY CLAY (CL)*** soft, moist, grey, medium plasticity						
13			SS	18	1 2 2 3	*		
14								
15			SS	24	1 2 2 3	*		
16		becomes sandy						
		SAND (SP) soft, moist, grey, fine-grained, trace clay	SS	18		*		
17		***SILT (ML)*** soft, moist, grey						
18		***SILTY SAND (SP)*** very loose, moist, grey, fine-grained, with silt						
19			SS	24	W 1 2 3	*		
20		***SAND (SP)*** very loose, moist, grey, fine-grained						
21		becoming medium dense	SS	12	3 4 9 8	56.5		
22								
23			SS	12	7 10 13 9	169		
24		becoming brown						
25			SS	12	9 10 13 15	35		

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jeff Crank
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75 Truck Mount

Drill Bit Size/Type: 4 1/4"
Borehole Backfill: Well
Type of Sampler:
Hammer Weight/Drop:

Log of Boring: G32R **Project:** BP Wood River **Project No:** 25365458 **Sheet** 3 of 4

Depth	Graphic	Description	Sample Type	Recovery (inches)	Blow Count (0.5 ft)	Sample PID (ppm)	Well Construction	Remarks
26							Screen, Seal Pack Sand	
27			SS	12	9 12 13 15	79.5		
28								
29			SS	12	6 11 12 12	83		
30								
31		becoming grey	SS	12	6 8 10 13	1006		
32								
33			SS	12	8 10 11 15			
34								
35			SS	12	2 2 13 14			
36								
37			SS	24	6 7 14 16	580/937		
38		becoming black						
39		becoming fine to medium-grained sand	SS	12	5 8 16 18	132/53.2		
40								

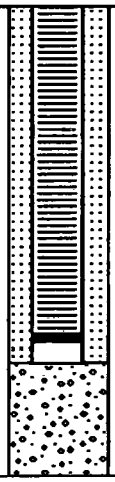
URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jeff Crank
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75 Truck Mount

Drill Bit Size/Type: 4 1/4"
Borehole Backfill: Well
Type of Sampler:
Hammer Weight/Drop:

Log of Boring: G32R **Project:** BP Wood River **Project No:** 25365458 **Sheet** 4 of 4

Depth	Graphic	Description	Sample Type	Recovery (inches)	Blow Count (0.5 ft)	Sample PID (ppm)	Well Construction	Remarks
41		becoming fine-grained sand	SS	12	7 8 12 17	575		There is approximately 1.5 feet of native fill at the bottom of the well.
42								
43			SS	12	3 4 8 11	667		
44								
45		End of Borehole						
46								
47								
48								
49								
50								
51								
52								
53								
54								
55								

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: Jeff Crank
Drilling Method: Hollow Stem Auger
Drilling Equipment: CME 75 Truck Mount

Drill Bit Size/Type: 4 1/4"
Borehole Backfill: Well
Type of Sampler:
Hammer Weight/Drop:

Illinois Environmental Protection Agency — **Well Completion Report**

Site Number: 1191150001 County: Madison

Site Name: BP Products North America Inc. Well #: G32R

[redacted] Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: ____

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: R.E.D.I Driller: Jeff Crank

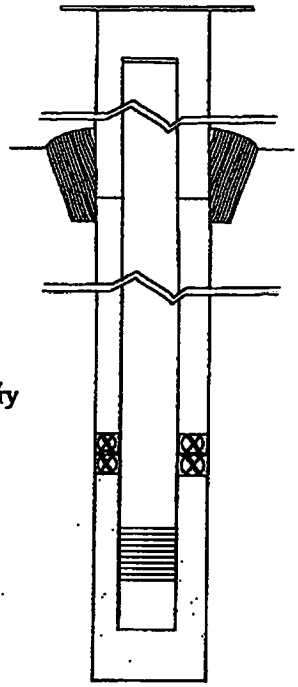
Consulting Firm: URS Corporation Geologist: Emily Fox

Drilling Method: Hollow Stem Auger Drilling Fluid (Type): NA

Logged By: Emily Fox Date Started: 8/16/05 Date Finished: 8/17/05

Report Form Completed By: Emily Fox Date: 9/16/05

ANNULAR SPACE DETAILS



Elevations (MSL)*	Depths (BGS) (.01ft.)	
____	+4.35	Top of Protective Casing
____	+4.15	Top of Riser Pipe
____	0	Ground Surface
____	0	Top of Annular Sealant
____	NM	Static Water Level (After Completion)
____	0	Top of Seal
____	20.8	Top of Sand Pack
____	23.8	Top of Screen
____	43.8	Bottom of Screen
____	43.5	Bottom of Well
____	45	Bottom of Borehole

* Referenced to a National Geodetic Datum

Type of Surface Seal: Concrete

[redacted] of Annular Sealant: Bentonite

Installation Method: Place/Poured

Setting Time: ____

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Placed/Poured

Setting Time: ____

Type of Sand Pack: Filter Sil

Grain Size: ____ (Sieve Size)

Installation Method: Placed/Poured

Type of Backfill Material: NA (if applicable)

Installation Method: NA

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

[redacted]tective Casing	SS304, SS316, PTFE, PVC, or Other
[redacted]r Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
[redacted] Below W.T.	SS304, SS316, PTFE, PVC, or Other
Scre[redacted]	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9.5
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	
Riser Pipe Length (feet)	26.55
Bottom of Screen to End Cap (feet)	.24
Screen Length (1st slot to last slot) (feet)	20
Total Length of Casing (feet)	48.65
Screen Slot Size **	.01"

**Hand-Slotted Well Screens are Unacceptable

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35A Monitor Well No. G35A

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980700967 Auger Depth 6.5 Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/23/19 Finish 8/23/19

UTM (or State Plane) Coord E(X) 2318642.4250 N(Y) 795642.2740

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East side of Main Plant, adjacent to G35

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
430.26	(SC) sand, fine grain, clayey, trace brick and concrete, dark brown 5yr 3/3, loose, unconsolidated		1	1		0	--	--	0.0	All depths are field approximations; the hole is hand cleared to 6.5 foot bgs; sonic rig was 5 in. dia. core, 60 in. long
				2		0	--	--	0.0	
			2	3		90	--	--	0.2	
			3	4		90	--	--	14.6	
	(CL) clay, silty, dark gray 5yr 4/1, black staining, stiff to medium stiff, mod lean, LNAPL in soil, stong odor, saturated (product)		4	5		90	--	--	101.3	Shake test, no sheen on water or LNAPL
			5	6		80	--	--	112.4	
			6	7		80	--	--	79.4	
	(SM) sand, fine grain, silty, gray 10yr 5/2, unconsolidated, slight odor		7	8		80	--	--	23.2	
			8	9		80	--	--	18.6	
			9	10		0	--	--	--	
	(SM) sand, silty, fine grain, trace silt, medium brown 5yr 6/3, unconsolidated		10	11		80	--	--	16.3	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35A Monitor Well No. G35A

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980700967 Auger Depth 6.5 Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/23/19 Finish 8/23/19

UTM (or State Plane) Coord E(X) 2318642.4250 N(Y) 795642.2740

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East side of Main Plant, adjacent to G35

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(SM) sand, silty, fine grain, trace silt, medium brown 5yr 6/3, unconsolidated *(continued)*		12	12		80	–	–	17.1	
				13		80	–	–	9.6	
	(ML) silt, trace sand, medium gray 5yr 6/1, soft to medium stiff		13	14		80	–	–	14.3	
			14	15		80	–	–	21.2	
			15	16		93	–	–	26.4	
	rock flower		16	17		93	–	–	28.9	
			17	18		93	–	–	32.0	
	(SM) sand, fine grain, silty, trace clay, medium gray 5yr 6/1, unconsolidated		18	19		93	–	–	17.3	
			19	20		93	–	–	12.1	
	(SM) sand, fine grain, silty, dark gray 5yr 3/2, moist		20	21		85	–	–	9.6	
			21	22		85	–	–	7.3	

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35A Monitor Well No. G35A

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 32.0

Fed. ID. No. ILD980700967 Auger Depth 6.5 Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/23/19 Finish 8/23/19

UTM (or State Plane) Coord E(X) 2318642.4250 N(Y) 795642.2740

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East side of Main Plant, adjacent to G35

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL

G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(CH) clay, trace silt, gray 5yr 3/1, fat, stiff, moist, 6/10' thick lense			23		85	–	–	4.1	
	(SM) sand, fine grain, silty, medium gray 10yr 5/2, saturated		23	24		52	–	–	0.2	saturated at approx 23' bgs
			24	25		52	–	–	5.9	
			25	26		52	–	–	3.2	
			26	27		52	–	–	4.6	
			27	28		52	–	–	7.1	
			28	29		52	–	–	–	
			29	30		52	–	–	–	
			30	31		92	–	–	0.6	
			31	32		92	–	–	1.1	
	Terminated borehole at 32 foot		32							terminate soil boring at 32' bgs, set well to 32' with 10' screen

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1191150001 COUNTY: Madison WELL #: G35A

SITE NAME: BP Former Wood River Refinery, Wood River, IL BOREHOLE #: G35A

STATE PLANE COORDINATE: X 2318642.4250 Y 795642.2740 (or) LATITUDE ____ ° ____ ' ____ " LONGITUDE ____ ° ____ ' ____ "

SURVEYED BY: Crawford, Murphy, Tilly CMT (Jim Stotts; Heath Ridder) ILL. REGISTRATION #: CMT 000631

DRILLING CONTRACTOR: Cascade Drilling DRILLER: Randy Radke

CONSULTING FIRM: Wood E&I GEOLOGIST: James Aiken

DRILLING METHOD: Sonic Core DRILLING FLUIDS (TYPE): NA

LOGGED BY: James Aiken DATE STARTED: 8/23/19 DATE FINISHED: 8/23/19

REPORT FORM COMPLETED BY: James Aiken DATE: 9/5/19

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Grout with Concrete Pad

TYPE OF ANNULAR SEALANT: Grout

INSTALLATION METHOD: Tremie

SETTING TIME: 24 hours

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME: 24 hours

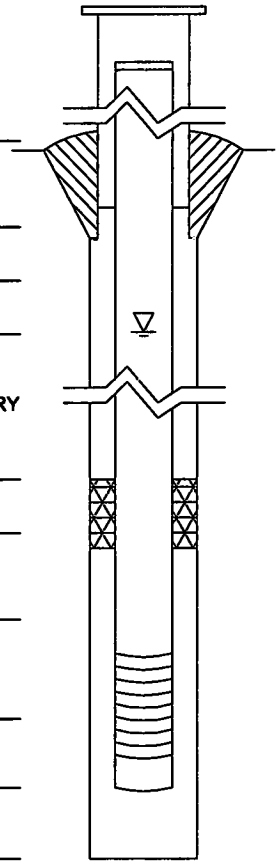
TYPE OF SAND PACK: PrePack No. 1 Clean Silica

GRAIN SIZE: ASTM 16-26 (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
____	____	TOP OF PROTECTIVE CASING
432.90	____	TOP OF RISER PIPE
430.26	0.00	GROUND SURFACE
____	0.5	TOP OF ANNULAR SEALANT
____	____	STATIC WATER LEVEL (AFTER COMPLETION)
____	18.0	TOP OF SEAL
____	20.0	TOP OF SANDPACK
____	22.0	TOP OF SCREEN
____	32.0	BOTTOM OF SCREEN
____	32.2	BOTTOM OF WELL
____	32.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER:
SCREEN	SS304	SS316	PTFE	PVC	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	–
RISER PIPE LENGTH	(ft)	–
BOTTOM OF SCREEN TO END CAP	(ft)	.2
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	10
TOTAL LENGTH OF CASING	(ft)	–
SCREEN SLOT SIZE **	(in)	0.01

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35B Monitor Well No. G35B

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/22/19 Finish 8/22/19

UTM (or State Plane) Coord E(X) 2318640.9800 N(Y) 795648.3450

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East Property Boundary, adjacent to Marathon

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL

G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
430.55	(SC) sand, fine grain, unconsolidated, clayey, trace brick and wood, dark brown 5yr 3/3, loose		1	1		100			0.0	All depths are field approximations; the hole is hand cleared to 6.5 foot bgs; sonic rig was 5 in. dia. core, 60 in. long
			1	2		100			0.4	
	slight odor		2	3		100			8.6	
	(CL) clay, silty with sand, dark gray 5yr 4/2-4/1, staining, medium stiff, lean product, odor		3	4		100			83.1	Shake test, no visual LNAPL
			4	5		100			104.0	
	slightly more fat		5	6		60			53.4	
			6	7		60			16.1	
	(SM) sand, fine grain, unconsolidated, silty, mixed brown and gray 5yr 5/2, slight odor		7	8		60			14.1	
			8	9		60			–	
			9	10		60			–	
			10	11		93			10.4	
	(SM) sand, fine grain, unconsolidated, silty, mixed gray and brown, more brown 5yr 6/3									

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35B Monitor Well No. G35B

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/22/19 Finish 8/22/19

UTM (or State Plane) Coord E(X) 2318640.9800 N(Y) 795648.3450

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East Property Boundary, adjacent to Marathon

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(SM) sand, fine grain, unconsolidated, silty, mixed gray and brown, more brown 5yr 6/3 *(continued)*			12		93			17.1	
	color change to gray 5yr 6/1, gradational change to very fine		12	13		93			24.6	
			13	14		93			31.3	
			14	15		93			16.2	
			15	16		85			21.4	
			16	17		85			27.9	
			17	18		85			23.8	
			18	19		85			11.2	
			19	20		85			6.2	
	dark gray 5yr 3/2, moist		20	21		93			6.1	
			21	22		93			3.3	
	(CH) clay, trace silt, dark gray 5yr 3/1, fat, stiff, moist, lense is 4/10 thick									

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35B Monitor Well No. G35B

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/22/19 Finish 8/22/19

UTM (or State Plane) Coord E(X) 2318640.9800 N(Y) 795648.3450

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location East Property Boundary, adjacent to Marathon

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(SP) sand, fine grain, medium brown 5yr 5/4, saturated at approx 23 foot		23	23		93			2.6	
			23	24		93			2.3	Water at 23 foot bgs
	change to gray 5yr 4/1		24	25		93			2.9	
	(SM) sand, fine grain, silty, medium gray 5yr 5/1, saturated		25	26		48			0.4	Drillers switch to 4 in. dia. rods with 5 in. outer casing
			26	27		48			9.6	
			27	28		48			–	
			28	29		48			–	
			29	30		48			–	
			30	31		88			10.4	
			31	32		88			13.2	
			32	33		88			6.1	

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. G35B Monitor Well No. G35B

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/22/19 Finish 8/22/19

UTM (or State Plane) Coord E(X) 2318640.9800 N(Y) 795648.3450

Latitude ° ' " Longitude ° ' "

Boring Location East Property Boundary, adjacent to Marathon

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(SM) sand, fine grain, silty, medium gray 5yr 5/1, saturated *(continued)*		34	34		88			4.9	
			35	35		88			0.3	
			36	36		90			0.2	
			37	37		90			0.0	
			38	38		90			0.0	
			39	39		90			0.0	
			40	40		90			0.0	
	Terminated borehole at 40 foot									Set well to 40 foot with 10 foot screen

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1191150001 COUNTY: Madison WELL #: G35B

SITE NAME: BP Former Wood River Refinery, Wood River, IL BOREHOLE #: G35B

STATE PLANE COORDINATE: X 2318640.9800 Y 795648.3450 (or) LATITUDE ____ ° ____ ' ____ " LONGITUDE ____ ° ____ ' ____ "

SURVEYED BY: Crawford, Murphy, Tilly CMT (Jim Stotts; Heath Ridder) ILL. REGISTRATION #: CMT 000631

DRILLING CONTRACTOR: Cascade Drilling DRILLER: Randy Radke

CONSULTING FIRM: Wood E&I GEOLOGIST: James Aiken

DRILLING METHOD: Sonic Core DRILLING FLUIDS (TYPE): NA

LOGGED BY: James Aiken DATE STARTED: 8/22/19 DATE FINISHED: 8/22/13

REPORT FORM COMPLETED BY: James Aiken DATE: 9/5/19

ANNUAL SPACE DETAILS

TYPE OF SURFACE SEAL: Grout with Concrete Pad

TYPE OF ANNULAR SEALANT: Grout

INSTALLATION METHOD: Tremie

SETTING TIME: 24 hours

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME: 24 hours

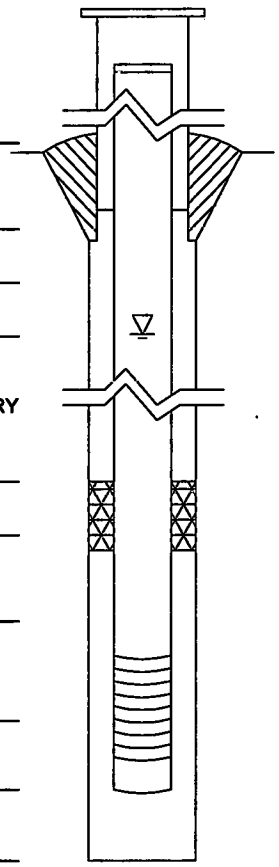
TYPE OF SAND PACK: PrePack No. 1 Clean Silica

GRAIN SIZE: ASTM 16-26 (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
		TOP OF PROTECTIVE CASING
433.05		TOP OF RISER PIPE
430.55	0.00	GROUND SURFACE
	0.5	TOP OF ANNULAR SEALANT
		STATIC WATER LEVEL (AFTER COMPLETION)
	26.0	TOP OF SEAL
	28.0	TOP OF SANDPACK
	30.0	TOP OF SCREEN
	40.0	BOTTOM OF SCREEN
	40.2	BOTTOM OF WELL
	40.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER:
SCREEN	SS304	SS316	PTFE	PVC	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	–
RISER PIPE LENGTH	(ft)	
BOTTOM OF SCREEN TO END CAP	(ft)	.2
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	10
TOTAL LENGTH OF CASING	(ft)	–
SCREEN SLOT SIZE **	(in)	0.01

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

Boring/Well G37 Project/No. OK00703 05901 Page 1 of 1

Site Location Wood River Drilling Started 11/4/89 Drilling Completed 11/4/89

Total Depth Drilled 55 feet Hole Diameter 7 3/4OD inches (3 3/4 ID) Type of Sample/ Coring Device none

Length and Diameter of Coring Device none Sampling Interval none feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used none Drilling Method Hollow-stem

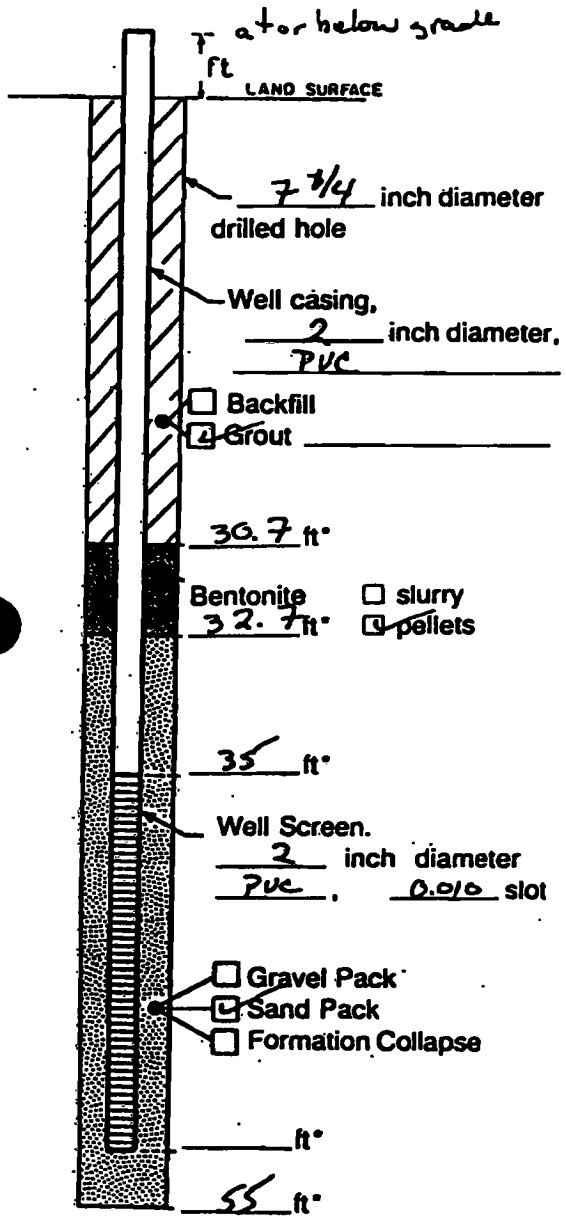
Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

Prepared By R. Dotson Hammer Weight — Hammer Drop — inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
surface				sparse vegetation, sandy
0	20			silty sand, brn, sl. moist, poorly sorted.
20	30			silty to clean sand, brn, sl. moist; clay seam-thin gray clay, mod. stiff
30	40			silty sand, well to poorly sorted, F-grn., sl. moist;
40	50			lt. gray sand, well sorted, F.-grn, moist
50	55			sand, lt. gray, well to poorly sorted, moist after rotary auger run at 55'; dk gray sand, str. hydro-carbon odor.
				sand - 4 bags (75 lb) Top of sand 32.7
				clay - 1 bag Top of clay 30.7

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK000703 05901 Well G37
Town/City Wood River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 11/4/89
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

Fluid Loss During Drilling _____ gallon
Water Removed During Development 5 gallon
Static Depth to Water _____ feet below M.P
Pumping Depth to Water — feet below M.P
Pumping Duration — hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose
Monitor

Remarks strong hydrocarbon odor from boring cuttings

Prepared by Rick Dotson

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. A01BHG500 Monitor Well No. G500

Site File Name BP Former Wood River Refinery, IL Surface Elevation 430.40 Completion Depth 29.0

Fed. ID. No. ILD980700967 Auger Depth NA Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 11/20/17 Finish 11/20/17

UTM (or State Plane) Coord. N.(X) 798521.011 E.(Y) 2315493.777

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location Area 01

Drilling Equipment GeoProbe 8040 DT

PERSONNEL

G - Alex McCormick
D - Eric Wetzel
H - Steve Bilzing
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
430.0	(CL) silty, trace sinders and gravel, gray to black, medium stiff, moist		1	1		100			0.5
				2		100			1.0
429.0			2						
				3		100			3.2
428.0			3						
				4		100			15.7
427.0	grades becomes clayey		4						
				5		100			18.0
426.0			5						
	(CL) clay, silty, gray, stiff, moist			6		100			20.9
425.0			6						
				7		100			25.0
424.0				8		67			6.0
			7	9		67			
423.0	grades become sandy clay, brown								
	(SC) sand, clayey, gray with brown streaking, stiff		8	10		45			
422.0									
			9	11		45			
421.0									
			10	12		45			25.0
420.0									

REMARKS

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. A01BHG500 Monitor Well No. G500

Site File Name BP Former Wood River Refinery, IL Surface Elevation 430.40 Completion Depth 29.0

Fed. ID. No. ILD980700967 Auger Depth NA Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 11/20/17 Finish 11/20/17

UTM (or State Plane) Coord. N.(X) 798521.011 E.(Y) 2315493.777

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location Area 01

Drilling Equipment GeoProbe 8040 DT

PERSONNEL
G - Alex McCormick
D - Eric Wetzel
H - Steve Bilzing
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
419.0	(SC) sand, clayey, gray with brown streaking, stiff *(continued)*		12	13		45			55.0	
				14		45			59.0	
418.0			13	15		80				
417.0	(SP) sand, brown, medium density, moist									
			14	16		80			55.0	
416.0										
			15	17		80			74.0	
415.0										
			16	18		80			61.0	
414.0										
			17	19		80			130.0	
413.0	grading becomes saturated									
			18	20		80				
412.0										
			19	21		80			75	
411.0										
			20	22		80			31.0	
410.0										
			21	23		80			24.0	
409.0										

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. A01BHG500 Monitor Well No. G500

Site File Name BP Former Wood River Refinery, IL Surface Elevation 430.40 Completion Depth 29.0

Fed. ID. No. ILD980700967 Auger Depth NA Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 11/20/17 Finish 11/20/17

UTM (or State Plane) Coord. N.(X) 798521.011 E.(Y) 2315493.777

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location Area 01

Drilling Equipment GeoProbe 8040 DT

PERSONNEL
G - Alex McCormick
D - Eric Wetzel
H - Steve Bilzing
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
408.0	(SP) sand, brown, medium density, moist *(continued)*		23	24		80			36.0	
				25		80				
407.0			24							
	grading becomes saturated			26		80			18.0	
406.0			25							
				27		80			31.0	
405.0			26							
				28		80			47.0	
404.0			27							
				29		0			45.0	
403.0			28							
402.0										
	some gray staining									
	Terminated borehole at 29 foot		29							

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1191150001 COUNTY: Madison WELL #: G500

SITE NAME: BP Former Wood River Refinery, Illinois BOREHOLE #: A01BHG500

STATE PLANE COORDINATE: X 798521.011 Y 2315493.777 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy & Tilley ILL. REGISTRATION #: CMT035-003077

DRILLING CONTRACTOR: Roberts Environmental Drilling DRILLER: Eric Wetzel

CONSULTING FIRM: Wood GEOLOGIST: Alex McCormick

DRILLING METHOD: HSA DRILLING FLUIDS (TYPE): NA

LOGGED BY: Alex McCormick DATE STARTED: 11/20/17 DATE FINISHED: 11/20/17

REPORT FORM COMPLETED BY: Alex McCormick DATE: 11/21/17

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: concrete

TYPE OF ANNULAR SEALANT: bentonite cement

INSTALLATION METHOD: slurry tremied

SETTING TIME: 24 hours

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: gravity

SETTING TIME: 15 minutes

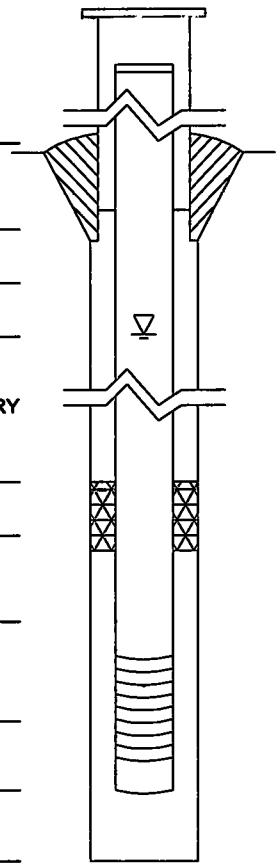
TYPE OF SAND PACK: filter silt quartz

GRAIN SIZE: 20 (SIEVE SIZE)

INSTALLATION METHOD: gravity

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NM



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
0.00	NM	TOP OF PROTECTIVE CASING
433.24	-2.84	TOP OF RISER PIPE
430.40	0.00	GROUND SURFACE
427.40	3.0	TOP OF ANNULAR SEALANT
405.95	24.45	STATIC WATER LEVEL (AFTER COMPLETION)
415.01	15.39	TOP OF SEAL
413.01	17.39	TOP OF SANDPACK
411.01	19.39	TOP OF SCREEN
401.01	29.39	BOTTOM OF SCREEN
401.01	29.39	BOTTOM OF WELL
401.01	29.39	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	22.23
BOTTOM OF SCREEN TO END CAP	(ft)	0.54
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.46
TOTAL LENGTH OF CASING	(ft)	22.77
SCREEN SLOT SIZE **	(in)	0.020

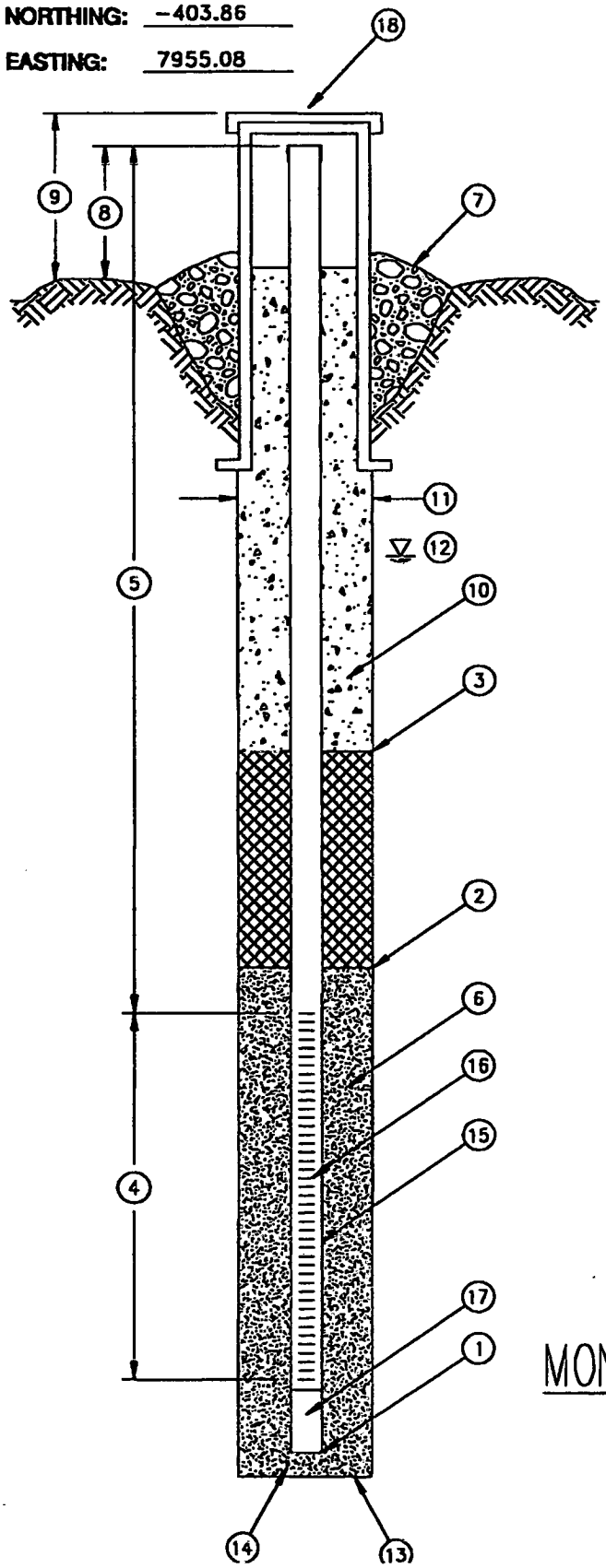
**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

IEPA # G69R

GROUND SURFACE ELEVATION: 445.87
TOP OF WELL CASING ELEVATION: 445.48
PROTECTIVE CASING ELEVATION: 445.68
NORTHING: -403.86
EASTING: 7955.08

JOB NUMBER: 220083C054.17-OMP53
LOCATION: BP AMOCO-WOOD RIVER
BORING NUMBER: G-29 (IEPA# G069)
DATE: 3/13/00



(1) DEPTH TO BOTTOM OF WELL SUMP OR SLOTTED PIPE 50.0 FEET. *

(2) DEPTH TO BOTTOM OF SEAL (IF INSTALLED) 37.0 FEET. *

(3) DEPTH TO TOP OF SEAL (IF INSTALLED) 2.0 FEET. *

(4) LENGTH OF WELL SCREEN 20 FEET.
SLOT SIZE 0.010".

(5) TOTAL LENGTH OF PIPE 39.61 FEET AT 2 INCH DIAMETER.

(6) TYPE OF PACK AROUND WELL POINT OR SLOTTED PIPE FILTER SILT 0.

(7) CONCRETE CAP ? YES (NO) (CIRCLE ONE)

(8) HEIGHT OF WELL CASING ABOVE GROUND -0.39 FEET.

(9) PROTECTIVE CASING ? YES NO (CIRCLE ONE)
HEIGHT ABOVE GROUND 0 FEET.
DIAMETER 4 INCHES.
LOCKING CAP ? (YES) NO (CIRCLE ONE)

(10) TYPE OF UPPER BACKFILL BENTONITE GROUT.

(11) BOREHOLE DIAMETER 8.25 INCHES.

(12) DEPTH TO GROUND WATER _____ FEET. *

(13) TOTAL DEPTH OF BOREHOLE 50.0 FEET. *

(14) TYPE OF LOWER BACKFILL FILTER SIL Ø.

(15) PIPE MATERIAL SCH. 40 PVC.

(16) SCREEN MATERIAL STAINLESS STEEL.

(17) WELL SUMP ? YES (NO) (CIRCLE ONE)
LENGTH _____ INCHES.

(18) STAINLESS STEEL SURFACE COVER 4 INCHES.

* = DEPTH FROM GROUND SURFACE

MONITORING WELL INSTALLATION DETAILS

(SINGLE CASING STRING)

URS
Dames & Moore

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA # G74L

SAMPLE/CORE LOG

Boring/Well G34 Project/No. ~~OK00703~~ 05901 Page 1 of 1

Site Location Wood River Drilling Started 11/3/89 Drilling Completed 11/3/89

Total Depth Drilled 60 feet Hole Diameter 7¼ OD / 3¼ ID inches Type of Sample/ Coring Device none

Length and Diameter of Coring Device _____ Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used none Drilling Method Hollow-stem

Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

Prepared By R. Dotson Hammer Weight _____ Hammer Drop _____ inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5			silty sand, f.-grn., yellow-brn
5	15			silty sand, very fine to f.-m grn, poorly sorted, sl. moist, brn
15	45			sand, f-grn, well to poorly sorted, med. moist, brn
45	60			same
				sand - 2 bags (100 lbs)
				Top of sand - 37'
				Plug - 1 bag chunks
				Top of plug - 34.2'
				No hydrocarbon odor.

IEPA # G74L

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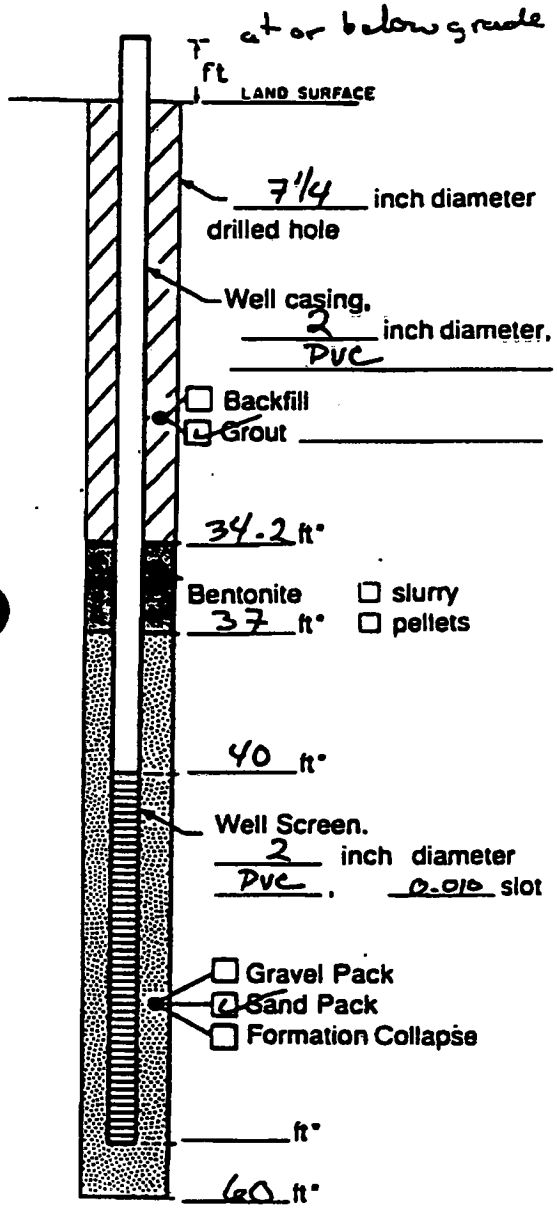
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK007030 5401 Well G34
Town/City Wood River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed ☐ Estimated
Installation Date(s) 11/3/89
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

Fluid Loss During Drilling _____ gallo
Water Removed During Development 5 gallo
Static Depth to Water 50.05 feet below M.
Pumping Depth to Water _____ feet below M.
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitor

Remarks No hydrocarbon odor from cuttings.

Prepared by Rick Dotson

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA #: G75L

SAMPLE/CORE LOG

Boring/Well G 35 Project/No. OK00303 05901 Page 1 of 1

Site Location Wood River Refinery Drilling Started 11/3/89 Drilling Completed 11/3/89

Total Depth Drilled 60 feet Hole Diameter 7 1/4 OD 3 1/4 ID inches Type of Sample/ Coring Device —

Length and Diameter of Coring Device — Sampling Interval — feet

Land-Surface Elev. ____ feet ☐ Surveyed ☐ Estimated Datum ____

Drilling Fluid Used — Drilling Method Hollow-stem

Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

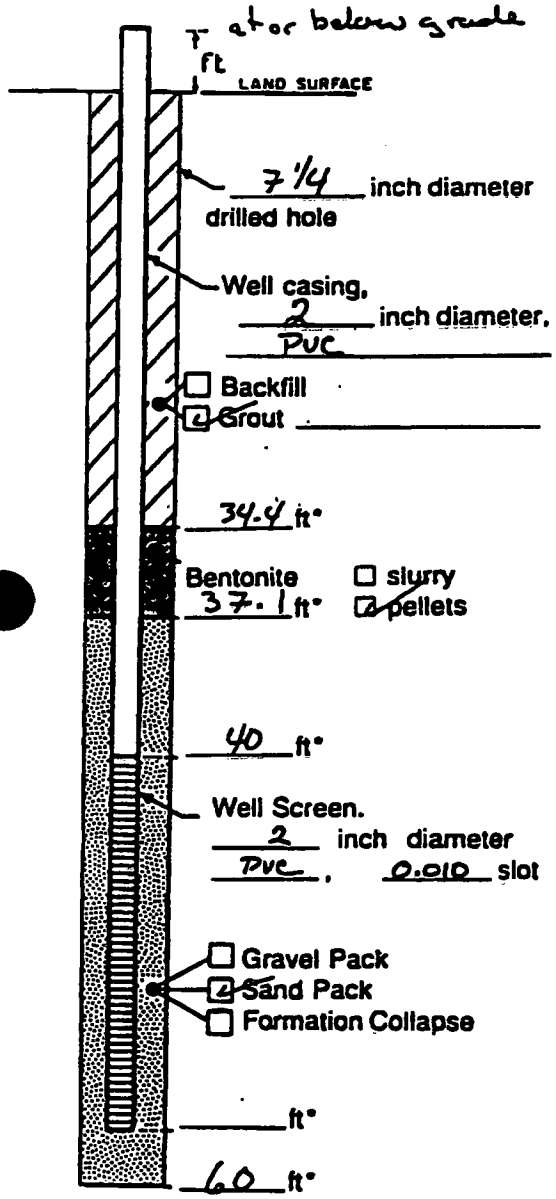
Prepared By R. Dotson Hammer Weight — Hammer Drop — inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
Surface				silty-sand; brn, sl. moist
1	10			silty sand, F. gr., poorly sorted, sl. moist
				darker brn surface, lt. brn.
10	25			* silty to clean sand, F. gr., moist, brn; same
				as in other holes
25	35			same
35	45			same
45	55			same
55	60			
—	—			— — —
42	60			* gray sand, f-gr., sl. hydrocarbon odor.
				same lithology; gray, odor
				sl to str. hydrocarbon odor.
				Sand - 3 bags
				Top of sand - 37.1
				Plug - 1 bag
				top of plug - 34.4
				* observations on auger flights removed from

IEPA # G75L

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project OK007030.5901 Well G35

Town/City Wood River

County _____ State IL

Permit No. _____

Land-Surface Elevation and Datum _____ feet ☐ Surveyed ☐ Estimated

Installation Date(s) 11/3/89

Drilling Method Hollow stem

Drilling Contractor Hughes Drilling

Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

Fluid Loss During Drilling _____ gallons

Water Removed During Development 5 gallons

Static Depth to Water 48.89 feet below M.P.

Pumping Depth to Water _____ feet below M.P.

Pumping Duration _____ hours

Yield _____ gpm Date _____

Specific Capacity _____ gpm/ft

Well Purpose Monitor

Remarks Slight to strong hydrocarbon odor

Prepared by Rick Dotson

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA #: G76L

SAMPLE/CORE LOG

Boring/Well G36 Project/No. OK[illegible]3 05901 Page 1 of 1

Site Location Wood River Drilling Started 11/3/82 Drilling Completed 11/3/82

Total Depth Drilled 60 feet Hole Diameter 7 1/4 OD 3 3/4 ID inches Type of Sample/ Coring Device

Length and Diameter of Coring Device Sampling Interval — feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used none Drilling Method Hollow-stem

Drilling Contractor Hughes Driller Tom Helper Bill, Gordon

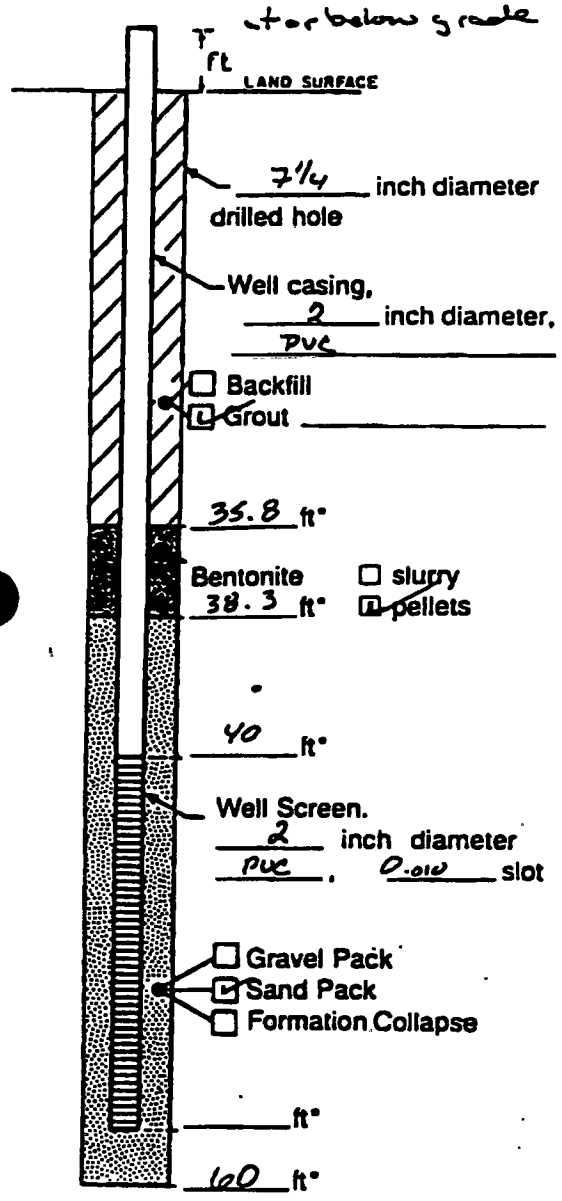
Prepared By R. Dotson Hammer Weight Hammer Drop inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	3			silty sand
3	15 20			sandy clay, thin clay seams, brn, mod. dense
15	40			sand, f.-grained, well to poorly sorted, brn, mod. moist;
40	50			same, slightly more silt, ~~[illegible]~~, tan,
50	60			sand, f.-gr., tan, well to poorly sorted.
				* on 10 to 20' auger, green sand.
				@ 40-50 - hydrocarbon odor, gray sand.
				sl. coarser sand; med to coarse gr, some gravel.
				sand 4 bags [75 lb.]
				top of sand 38.3
				plug - 1 bag
				top of plug 35.8
				* observations on auger flights removed from hole

IEPA #: G76L

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project OK00703 05901 Well G36
Town/City Wood River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed ☐ Estimated
Installation Date(s) 11/3-11/4/99
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none
Development Technique(s) and Date(s)
Bailer, 11/4/89
Fluid Loss During Drilling _____ gallor
Water Removed During Development 5 gallor
Static Depth to Water 48.48 feet below M.I
Pumping Depth to Water _____ feet below M.I
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitor
Remarks slight to strong hydrocarbon odor from lower cuttings.

Prepared by Rick Dotson

Log of Boring: RG36
Client: bp
Location: Wood River, IL
Logged By: Mark Wallace
Date Started: 1-11-07
Date Finished: 1-12-07

Project: BP Terminal

Project No:
Reviewed by:
Completion Depth (ft):
Surface Elevation (ft):
Boring Diameter (in): 8 1/2
Groundwater Depth (ft): See Remarks

Subsurface Profile		Sample		Strength		Remarks
Depth	Description	Sample Type	Recovery (ft)	Blow Count (0.5 ft)	PID (ppm) Via field screen	
	VEGITATION OVER					
0	Ground Surface					
1	LOOSE, DRY, BROWN, FINE GRAINED SAND (SP)				0.0	EXCAVATED VIA POST HOLE DIGGER
2	DENSE, DRY, BLACK, MIXTURE OF SAND AND ASPHALT (GP) (FILL)				0.0	
3	LOOSE, DRY, BROWN, FINE GRAINED SAND (SP)				0.0	
4					0.0	
5					0.0	
6		SS	20/24	1/2 4/4	0.0	
7	BECOMES MOIST				0.0	
8		SS	20/24	2/3 3/3	0.0	
9	TRACE IRON STAINS				0.0	
10		SS	20/24	2/3 4/4	0.0	
11					0.0	
12		SS	22/24	2/3 4/4	0.0	
13					0.0	
14		SS	20/24	2/3	0.0	
15						

URS
122 South Michigan Avenue, Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: C. HUBEL
Drilling Equipment: CME 750
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 inch
Borehole Backfill: WELL
Type of sampler: Split Spoon
Hammer weight/drop: AUTOHAMMER

Log of Boring: RG36 **Project:** BP Terminal **Project No:** **Sheet 2 of 4**

Depth	Description	Sample Type	Recovery (ft)	Blow Count (0.5 ft)	PID (ppm) Via field screen	Remarks
16	LOOSE, MOIST, BROWN, FINE GRAINED SAND, TRACE IRON STAINS (SP)	SS	↑	↑	0.2	
17		SS	22/24	2/4 / 4/6	0.0 / 0.0	← SEVERAL 1/8" THICK BEDDING LENSES, SEVERAL MEDIUM GRAINED PIECES OF SAND.
18	BECOMES LIGHT GRAY MULTI-COLOR					
19		SS	18/24	2/4 / 6/4	0.4 / 0.3	
20						
21	BECOMES MEDIUM DENSE	SS	18/24	3/6 / 5/7	0.8 / 0.4	
22						
23		SS	20/24	3/5 / 6/8	1.1 / 0.8	
24						
25		SS	18/24	2/4 / 7/9	1.3 / 0.4	
26						
27	BECOMES LOOSE	SS	18/24	4/4 / 5/6	0.4 / 0.0	
28						
29	BECOMES MEDIUM DENSE	SS	18/24	4/5 / 7/8	0.0 / 0.2	
30						

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: C. HUBEL
Drilling Equipment: CME 750
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 Inch
Borehole Backfill: WELL
Type of sampler: Split Spoon
Hammer weight/drop: AUTOHAMMER

Log of Boring: R636 **Project:** BP Terminal **Project No:** **Sheet** 3 of 4

Subsurface Profile		Sample		Strength		Remarks
Depth	Description	Sample :: Type	Recovery (ft)	Blow Count (0.5 ft)	PID (ppm) Via field screen	
31	M. DENSE, MOIST, LIGHT GRAY, FINE GRAINED SAND (SP)	SS	20/24	3/6/9/11	1.5	← 1/16" DARK GRAY BEDDING LENSE
					0.7	← S.A.A.
32						
33		SS	18/24	2/4/7/10	1.5	
					1.5	← S.A.A.
34						← S.A.B.
35		SS	20/24	3/6/8/8	0.3	
					0.9	
36						
37		SS	22/24	4/6/7/9	0.0	← 1/8" DARK GRAY BEDDING LENSE
					0.0	SEVERAL FLAT BEDDING LENSES
38						
39		SS	18/24	3/6/11/10	0.0	SEVERAL TAN LENSES
					0.0	
40						
41	BECOMES LT. BROWN	SS	22/24	5/6/7/8	0.0	
					0.0	
42						
43		SS	20/24	4/9/10/11	0.0	
					0.0	
44						
45		SS	20/24	1/4/7/9	0.0	

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: C. HUBEL
Drilling Equipment: CME 750
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 Inch
Borehole Backfill: WELL
Type of sampler: Split Spoon
Hammer weight/drop: AUTO HAMMER

Log of Boring: RG36 **Project:** BP Terminal **Project No:** **Sheet** 4 of 4

Depth	Description	Sample # Type	Recovery (ft)	Blow Count (0.5 ft)	PID (ppm) Via field screen	Remarks
46	M. DENSE, MOIST, LIGHT BROWN, FINE GRAINED SAND (SP)	↑	↑	↑	0.0	
47		SS	20/24	4/7 / 15/25	0.0 / 0.0	
48	BECOMES LIGHT GRAY BECOMES DENSE BECOMES GRAY	SS	22/24	6/16 / 26/33	0.0 / 0.0	▼
50	BECOMES WET	SS	22/24	6/19 / 19/31	0.0 / 0.0	← 6" BLOW IN.
52	BECOMES MEDIUM DENSE	SS	12/24	W/11 / 11/17	0.0 / 0.0	
54						30" BLOW IN, SPOON NOT TAKEN.
56						
57						
58	B.O.B.					
59						
60						

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: C. HUBEL
Drilling Equipment:
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 4 1/4 inch
Borehole Backfill: WELL
Type of sampler: Split Spoon
Hammer weight/drop:

R000269

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191155009 County: Madison

Site Name: BP Wood River Well #: RG36

State Plane Coordinate: X 2318907.6 Y 796819.16 (or) Latitude: ° ' " Longitude: ° ' " Borehole #:

Surveyed by: IL Registration #:

Drilling Contractor: Roberts Environmental Drilling, Inc. Driller: C. Hubel

Consulting Firm: URS Corporation Geologist: Mark Wallace

Drilling Method: Hollow Stem Auger Drilling Fluid (Type):

Logged By: Mark Wallace Date Started: 1/11/07 Date Finished: 1/12/07

Report Form Completed By: Leslie Blake Date: 1/16/07

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite

Installation Method: Gravity

Setting Time: N/A

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Gravity

Setting Time: N/A

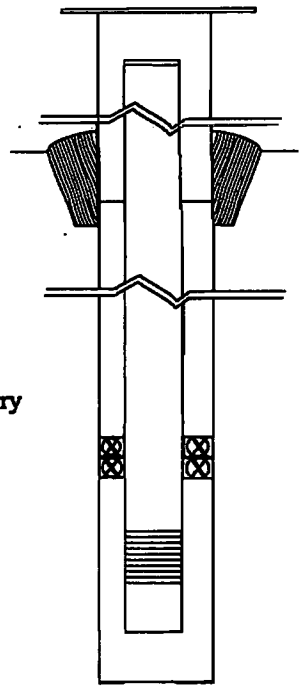
Type of Sand Pack: Silica

Grain Size: N/A (Sieve Size)

Installation Method: Gravity

Type of Backfill Material: N/A (if applicable)

Installation Method: N/A



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
Top of Protective Casing	448.31	3.7	
Top of Riser Pipe	448.5	3.2	
Ground Surface	445.3	0	
Top of Annular Scalant		0	
Static Water Level (After Completion)	396.61	48.69	
Top of Seal	444.3	35.5	
Top of Sand Pack	407.5	37.8	
Top of Screen	404.2	41.1	
Bottom of Screen	389.5	55.8	
Bottom of Well	387.2	58.1	
Bottom of Borehole	387.3	58	

* Refereneed to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	8.5
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	5
Riser Pipe Length (feet)	43.91
Bottom of Screen to End Cap (feet)	2.33
Screen Length (1st slot to last slot) (feet)	14.7
Total Length of Casing (feet)	61.92
Screen Slot Size **	0.01"

**Hand-Slotted Well Screens are Unacceptable

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R302 Monitor Well No. R302

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 34.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/21/19 Finish 8/26/19

UTM (or State Plane) Coord.E(X) 2318146.3180 N(Y) 792164.0010

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location Area 4, adjacent to G302

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL

G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
432.94	(SC) sand, fine grain, unconsolidated, clayey, trace gravel and fill brick, concrete, clayey, dark brown 5yr 3/2, moist		1	1		100			0.0	All depths are field approximations; the hole is hand cleared to 6.5 foot bgs; sonic rig was 5 in. dia. core, hand auger to 3.5, air knife to 6.5 ft bgs
				2		100			0.0	
	slight odor, 5yr 3/1		2	3		100			0.0	
			3	4		100			0.3	
	(CL) clay, silty to clay, sandy, fine sand, brick and concrete, dark brown to black 57 3/1, medium stiff, slight odor		4	5		100			0.5	
			5	6					0.6	Perched water in hole
			6	7					1.1	
				8		93			0.4	
			7							
	(CH) clay, trace silt, dark gray 5yr 2.5/1, stiff, moist, odor		8	9		93			0.5	
			9	10		93			0.6	
			10	11		68			2.1	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R302 Monitor Well No. R302

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 34.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/21/19 Finish 8/26/19

UTM (or State Plane) Coord E(X) 2318146.3180 N(Y) 792164.0010

Latitude ____° ____' ____" Longitude ____° ____' ____."

Boring Location Area 4, adjacent to G302

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(CL) clay, silty, medium brown and gray mottled 5yr 5/2 and 5yr 6/4, stiff, slight odor			12		68			3.4	
			12	13		68			2.2	
			13	14		68			3.1	
			14	15		68			--	
			15	16		80			2.1	
			16	17		80			0.6	
	soft, moist		17	18		80			0.8	
			18	19		80			0.0	
			19	20		80			--	
	(CL) clay, silty, medium brown and gray mottled 5yr 5/2 and 5yr 6/4, soft, moist		20	21		60			0.0	
			21	22		60			0.2	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R302 Monitor Well No. R302

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 34.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/21/19 Finish 8/26/19

UTM (or State Plane) Coord E(X) 2318146.3180 N(Y) 792164.0010

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location Area 4, adjacent to G302

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(CL) clay, silty, medium brown and gray mottled 5yr 5/2 and 5yr 6/4, soft, moist *(continued)*			23		60			0.0	
			23	24		60			–	
			24	25		60			–	
	saturated		25	26		90			0.0	Saturated at 25 foot
			26	27		90			0.0	
			27	28		90			0.0	
			28	29		90			0.1	
	(ML) silt, clayey, trace sand, dark gray 5yr 4/1, medium stiff, saturated		29	30		90			0.2	
	(ML) silt, clayey, trace sand, dark gray to olive gray 10yr 4/2, medium stiff, moist		30	31		100			0.0	
			31	32		100			0.0	
			32	33		100			0.0	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R302 Monitor Well No. R302

Site File Name BP Former Wood River Refinery, Wood River, IL Surface Elevation _____ Completion Depth 34.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle _____ Sec. _____ T. _____ R. _____ Date: Start 8/21/19 Finish 8/26/19

UTM (or State Plane) Coord E(X) 2318146.3180 N(Y) 792164.0010

Latitude ____° ____' ____" Longitude ____° ____' ____."

Boring Location Area 4, adjacent to G302

Drilling Equipment Longyear B200 Sonic Rig

PERSONNEL
G - James Aiken
D - Randy Radke
H - Mike Muellen
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(ML) silt, clayey, trace sand, dark gray to olive gray 10yr 4/2, medium stiff, moist *(continued)*			34		100			0.0	
			34							

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 1191150001 COUNTY: Madison WELL #: R302

SITE NAME: BP Former Wood River Refinery, Wood River, IL BOREHOLE #: R302

STATE PLANE COORDINATE: X 2318146.3180 Y 792164.0010 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy, Tilly CMT (Jim Stotts; Heath Ridder) ILL. REGISTRATION #: CMT 000631

DRILLING CONTRACTOR: Cascade Drilling DRILLER: Randy Radke

CONSULTING FIRM: Wood E&I GEOLOGIST: James Aiken

DRILLING METHOD: Sonic Core DRILLING FLUIDS (TYPE): NA

LOGGED BY: James Aiken DATE STARTED: 8/21/19 DATE FINISHED: 8/21/19

REPORT FORM COMPLETED BY: James Aiken DATE: 9/5/19

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Grout with Concrete Pad

TYPE OF ANNULAR SEALANT: Grout

INSTALLATION METHOD: Tremie

SETTING TIME: 24 hours

TYPE OF BENTONITE SEAL - (GRANULAR) PELLET SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Pour

SETTING TIME: 24 hours

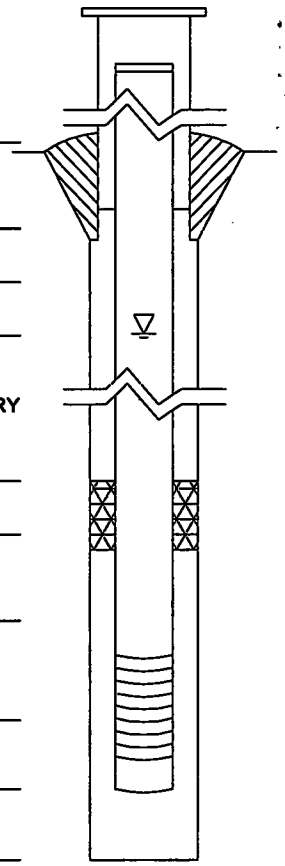
TYPE OF SAND PACK: PrePack No. 1 Clean Silica

GRAIN SIZE: ASTM 16-26 (SIEVE SIZE)

INSTALLATION METHOD: Pour

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
		TOP OF PROTECTIVE CASING
436.00	3.1	TOP OF RISER PIPE
432.94	0.00	GROUND SURFACE
	0.5	TOP OF ANNULAR SEALANT
		STATIC WATER LEVEL (AFTER COMPLETION)
	19.0	TOP OF SEAL
	21.0	TOP OF SANDPACK
	23.0	TOP OF SCREEN
	33.0	BOTTOM OF SCREEN
	33.2	BOTTOM OF WELL
	34.00	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	PVC	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	PVC	OTHER:
SCREEN	SS304	SS316	PTFE	PVC	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	6
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	–
RISER PIPE LENGTH	(ft)	
BOTTOM OF SCREEN TO END CAP	(ft)	.2
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	10
TOTAL LENGTH OF CASING	(ft)	
SCREEN SLOT SIZE **	(in)	0.01

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

IEPA #s: G302 & G303

IEPA #: G303

Well RP-3. Located about 600 feet south of flare stack, 10 feet east of road on west side of spray pond 3.

Depth interval	Material encountered
0 - 4 feet	Fill, silty, black
4 - 27	Clay, gray-green to brown
27 - 34	Silt, yellow-brown, wet
34 - 44	Sand, very fine to coarse, wet
44	Total depth

10-slot screen set 34 to 44, gravel-packed, bentonite seal 18 to 21 feet

Well RP-3S. Located 5 feet south of well #7.

Depth interval	Material encountered
0 - 5 feet	Fill
5 - 14	Clay, gray to yellow-brown
14	Total depth

20-slot screen set 4 to 14, sealed to surface

IEPA #: G302

Well RP-2. Located 10 feet north of road on south side of spray ponds, 50 feet west of road on west side of tank farm.

Depth interval	Material encountered
0 - 6 feet	Fill, silt and cement
6 - 16	Silt, black to gray-green
16 - 39	same, yellow-brown, sandy, wet
39 - 44	Clay, gray, wet
44 - 49	Sand, silty, very wet
49	Total depth

10-slot screen set 39 to 49, gravel-packed, bentonite seal 14 to 17

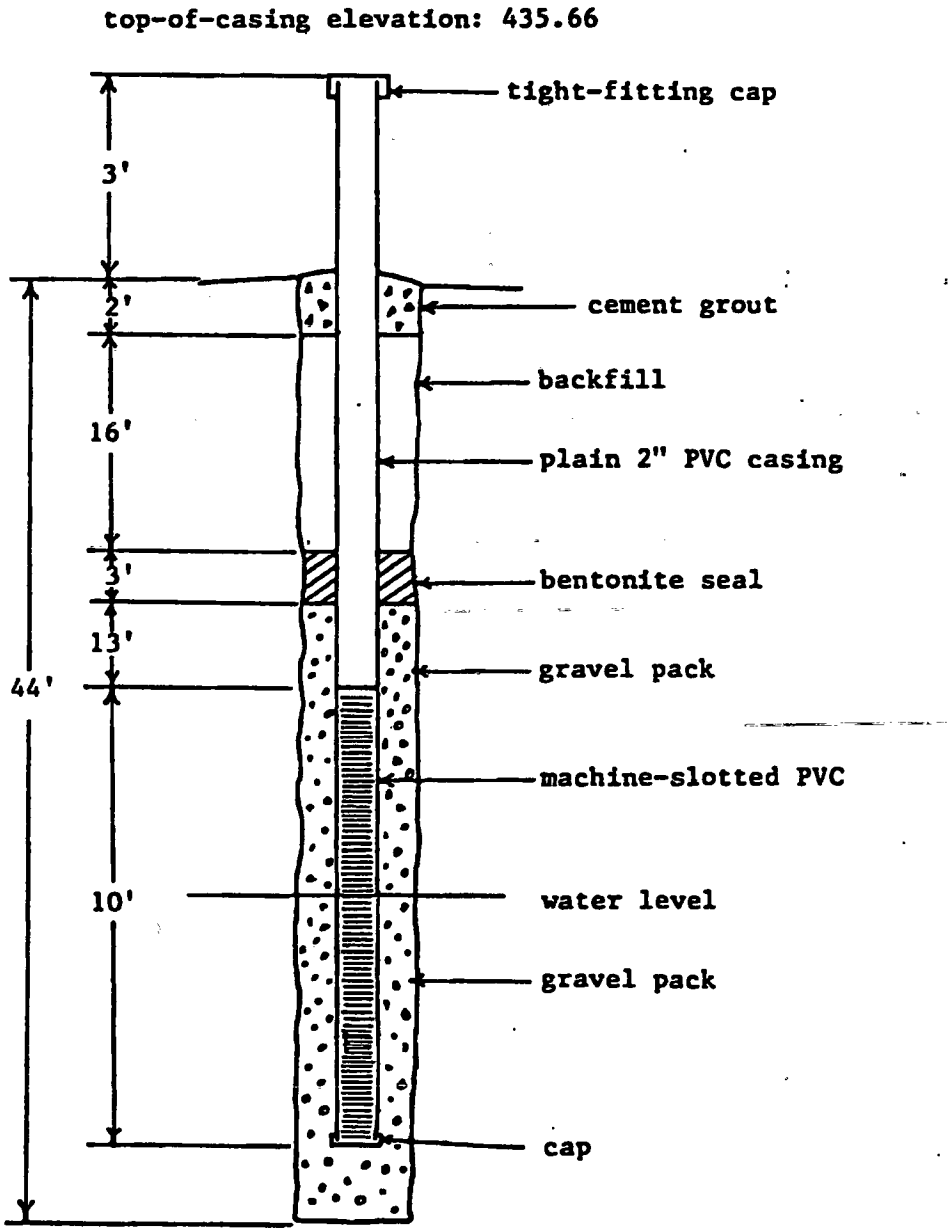
Well RP-2SO. Located west of well #9.

Depth interval	Material encountered
0 - 6 feet	Fill
6 - 14	Silt, black to gray-green
14	Total depth

20-slot screen set 4 to 14, sealed to surface

IEPA#: G303

Observation well RP-3



IEPA # G002

bp

Project No: 22-0083C054.24
Project: Northwest Corner Land Reuse Area
Location: BP - Main Plant Wood River, IL
Amoco Local Coordinates:
Northing: -843.34 **Easting:** 6080.74

Log of Boring G01R

Date Started: 3/12/01
Date Finished: 3/12/01
Completion Depth: 40 ft
Geologist: Rebecca Norman

SUBSURFACE PROFILE				SAMPLE		PID (ppm)			Remarks
Elevation	Symbol	Description	Depth	N Value	Recovery (%)	Boring	Background	Sample	
428.6		Ground Surface	0						
		FILL Sand and gravel	1	1 7 6 3	80	6.0	0	0	Black staining
427		Fine grained sand, well sorted	2						Black staining
426		Clay, moist, plastic, brick fragments	3	4 3 5 8	70			0	
425			4						
424			5	3 5 8 8	80			0	Black staining
423		Graded to sandy clay, moist, brick fragments	6						
422			7	3 5 7 5	90			0	
421			8						
420		***SAND*** Medium grained, moist (SW)	9	2 6 7 9	30			0	Slight black staining
419			10						
418		***SAND*** Fine grained, well sorted (SW)	11	2 3 6 12	90			0	
417			12						
416		***SAND*** Medium grained, moist, well-sorted (SW)	13	5 9 14 18	80			0	
415			14						

Drilling Agency: Roberts Environmental Drilling, Inc.
Drilling Equipment: CME 55-Truckmount
Drilling Date: 3/12/01

URS
URS Corporation
122 South Michigan Ave., Suite 1920
Chicago, IL 60603

Sampler Type: Split Spoon
Drilling Method: 8" hollow stem augers
Hammer Weight: 140 lbs.
Sheet: 1 of 3

G002

bp

Project No: 22-0083C054.24
Project: Northwest Corner Land Reuse Area
Location: BP - Main Plant
Wood River, IL
Amoco Local Coordinates:
Northing: -843.34 Easting: 6080.74

Log of Boring G01R

Date Started: 3/12/01
Date Finished: 3/12/01
Completion Depth: 40 ft
Geologist: Rebecca Norman

SUBSURFACE PROFILE				SAMPLE		PID (ppm)			Remarks
Elevation	Symbol	Description	Depth	N Value	Recovery (%)	Boring	Background	Sample	
414		***SAND*** Medium grained, moist, well-sorted (SW)	15	NA	NA			NA	
413			16						At 16', sampled every other interval
412			17	NA	NA			NA	
411			18						
410		Medium to coarse grained, trace fines	19	5 6 10 16	70			0	
409			20						
408			21	NA	NA			NA	
407			22						
406			23	2 5 3 4	80			0	
405		***SAND*** Light greyish-brown, medium grained, moist, well-sorted (SW)	24						
404		At 24', 0.2' seam of very coarse, very well-sorted sand, 98% quartz, rounded grains	25	NA	NA			NA	
403		***SAND*** Reddish-brown, medium to coarse grained, moist, with fines (SW)	26						
402			27	7 9 13 12	90			0	
401			28						

Drilling Agency: Roberts Environmental Drilling, Inc.
Drilling Equipment: CME 55-Truckmount
Drilling Date: 3/12/01

URS
URS Corporation
122 South Michigan Ave., Suite 1920
Chicago, IL 60603

Sampler Type: Split Spoon
Drilling Method: 8" hollow stem augers
Hammer Weight: 140 lbs.
Sheet: 2 of 3

G002

bp

Project No: 22-0083C054.24
Project: Northwest Corner Land Reuse Area
Location: BP - Main Plant
Wood River, IL
Amoco Local Coordinates:
Northing: -843.34 **Easting:** 6080.74

Log of Boring G01R

Date Started: 3/12/01
Date Finished: 3/12/01
Completion Depth: 40 ft
Geologist: Rebecca Norman

SUBSURFACE PROFILE				SAMPLE		PID (ppm)			Remarks
Elevation	Symbol	Description	Depth	N Value	Recovery (%)	Boring	Background	Sample	
400		***SAND*** Very fine grained, well sorted (SW)							
		SAND Coarse grained, 30% fines (SP)	29	NA	NA			NA	
399			30						
398			31	NA	NA			NA	
397			32						Depth to water during drilling ▽
396			33	NA	NA			NA	Saturated at 32 ft
		SAND Brownish-grey, very fine grained, wet (SW)	34						
395			35	8 10 14 1	100			0	
394		***SAND*** Coarse grained, poorly-sorted, wet (SP)	36						
393			37	NA	NA			NA	
392			38						
391		***SAND*** Grey, very fine grained, well-sorted grading to medium grained, poorly-sorted, wet (SW-SP)	39	4 12 18 2	80			0	
390			40						
389			41						
388		End of Borehole Monitoring well G01R installed in this borehole	42						
387									

Drilling Agency: Roberts Environmental Drilling, Inc.
Drilling Equipment: CME 55-Truckmount
Drilling Date: 3/12/01

URS
URS Corporation
122 South Michigan Ave., Suite 1920
Chicago, IL 60603

Sampler Type: Split Spoon
Drilling Method: 8" hollow stem augers
Hammer Weight: 140 lbs.
Sheet: 3 of 3

IEPA # G002

MONITORING WELL INSTALLATION REPORT

Project BP AMOCO — Well No. G01R

Location NW LAND REUSE AREA

Project No 22-00830054.24 1MP43 — Installed By JOE COX (REDI) — Date 3-13-01 — Time 10:00 AM

Method of Installation CME 55 DRILL RIG

LOG OF BORING AND WELL

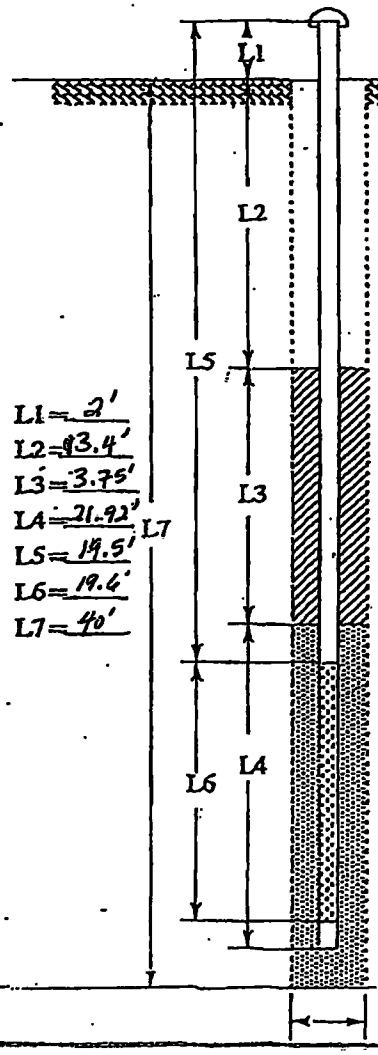
BORING

Depth In Ft.	Description	Symbol

WELL

Type of Well GROUND WATER MONITORING

Ground Elev. 428.6 FEET — Top of Riser Elev. 430.6 FEET



L1 = 2'
L2 = 13.4'
L3 = 3.75'
L4 = 21.92'
L5 = 19.5'
L6 = 19.6'
L7 = 40'

Riser Pipe I.D., in. 2"

Type of Pipe PVC

Backfill Type Around Riser GROUT

Top of Seal Elevation 13'5" BGS

Type of Seal Material PURE GOLD BENTONITE CHIPS

Top of Filter Elevation 20'2½" BGS

Type of Filter Material STAINLESS

Size of Opening, in. #10

Diameter of Well Tip, in. 2"

Bottom of Screen Elevation 39'9½" BGS

Bottom of Riser Elevation 20'2½" BGS

Bttm of Boring Elev. 40' BGS

Diameter of Boring, in. 8"

Remarks

Inspected By

WOODWARD-CLYDE CONSULTANTS

R000281

Illinois Environmental Protection Agency — Field Boring Log — Page 1 of 2

Site File No.: 830054-S102 County MADISON Boring No. B-9 Monitor Well No —

Site File Name AMOCO WOOD RIVER Surface Elev 434.1 Completion Depth 20 Ft

Fed ID No ILD980700967 Auger Depth 1 Ft Rotary Depth 20'

Quadrangle _____ Sec. ____ T. 5N R. 9W Date: Start 3/22/95 Finish 3/22/95

Boring Location SWMU 12 - MAIN PLANT

Drilling Equipment CME - 750

Personnel: G - T. HICKS; D - J. CRANK; H - ; H - N. GIPSON

Elev.	DESCRIPTION	Depth in feet	Sample No	Sample Type	Sample Recovery	Penetrometer	N Values (Blows)	OVA or HNU readings	REMARKS
	SOFT, MOIST, BROWN LOW PLASTIC SILTY CLAY (CL) (FILL)	1							
	LOOSE, WET, BLACK C-F SAND WITH C-F GRAVEL ASPHALT LOOKING MATERIAL	2	1	S	36/48			16.1	
		3						46.4	SAMPLE 1355
		4						25.5	
		5						1	
		6						27.4	
	STIFF, MOIST, GRAY, MED PLASTIC SILTY CLAY (CL) WITH BLACK STAINING	7	2	S	48/60			8.6	
		8						10.4	
		9						16.1	
		10						1	
		11						19.3	
		12	3	S	55/60			36.2	
		13						8.6	
		14						4.7	
	STIFF, MOIST. GRAY, MED PLASTIC SAND, SILTY CLAY (CL)	15						2.8	

Illinois Environmental Protection Agency — Field Boring Log — Page 2 of 2

Site File No.: 830054-5102 County MADISON Boring No. B-9 Monitor Well No -

Site File Name AMOCO WOOD RIVER Surface Elev 434.1 Completion Depth 20ft

Fed ID No ILD980700967 Auger Depth 1ft Rotary Depth 20'

Quadrangle _____ Sec. ____ T. 5N R. 9W Date: Start 3/22/95 Finish 3/22/95

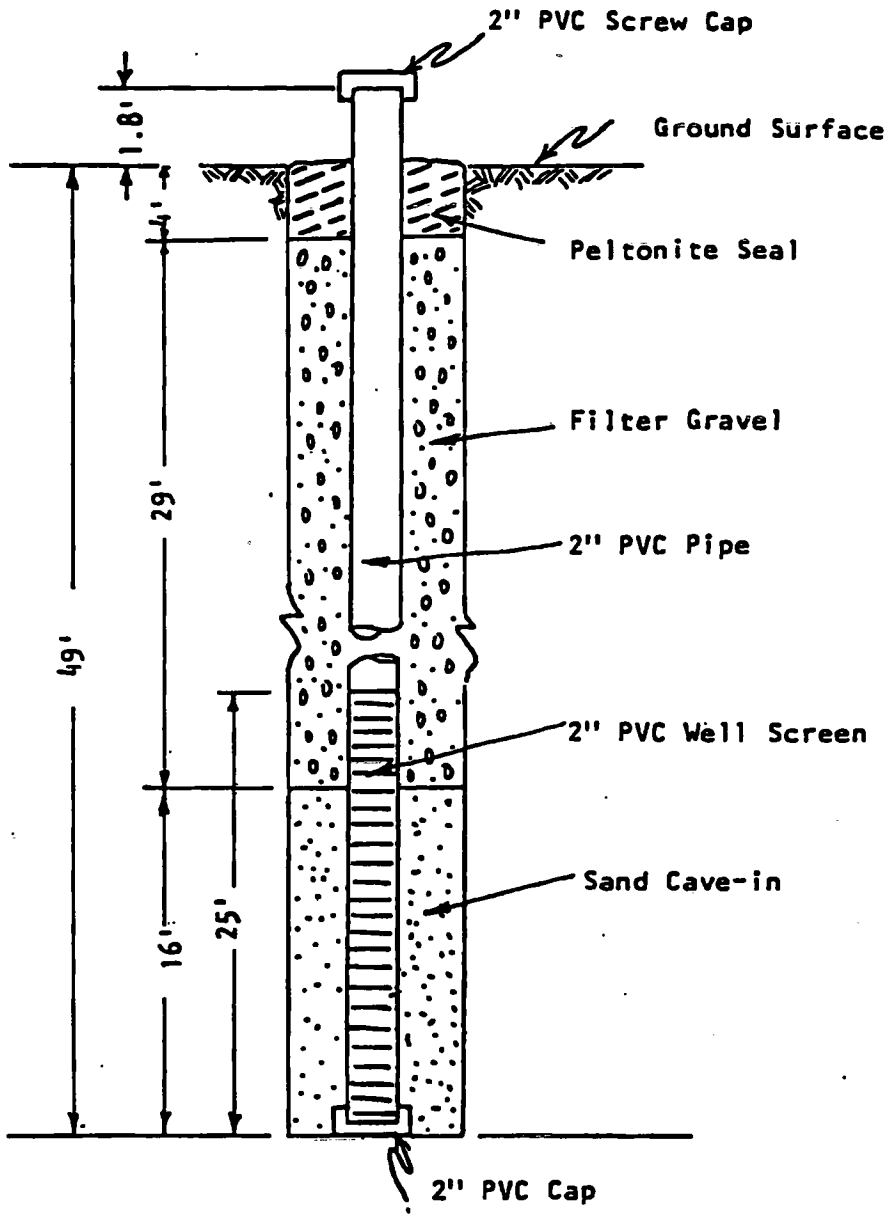
Boring Location SWMU 12 - MAIN PLANT

Drilling Equipment CME-750

Personnel: G. D. H. K. Q

Elev.	DESCRIPTION	Depth in feet	Sample No	Sample Type	Sample Recovery	Penetrometer	N Values (Blows)	OVA or (BH) readings	REMARKS
	SAME								
16		16						9.7	
17		17	4	S	60/60			4.7	
	LOOSE, MOIST, GRAY, CLAYEY C-F SAND (SC)								
18		18						4.7	
19		19						2.8	
	DENSE, MOIST, BRN, SILTY C-F SAND (SM)								
20		20						2.8	BOB 20ft
21		21							
22		22							
23		23							
24		24							
25		25							

IEPA # 0009



MONITORING WELL INSTALLATION SKETCH

Monitoring Wells-9

AMOCO Oil Company
Wood River, Illinois

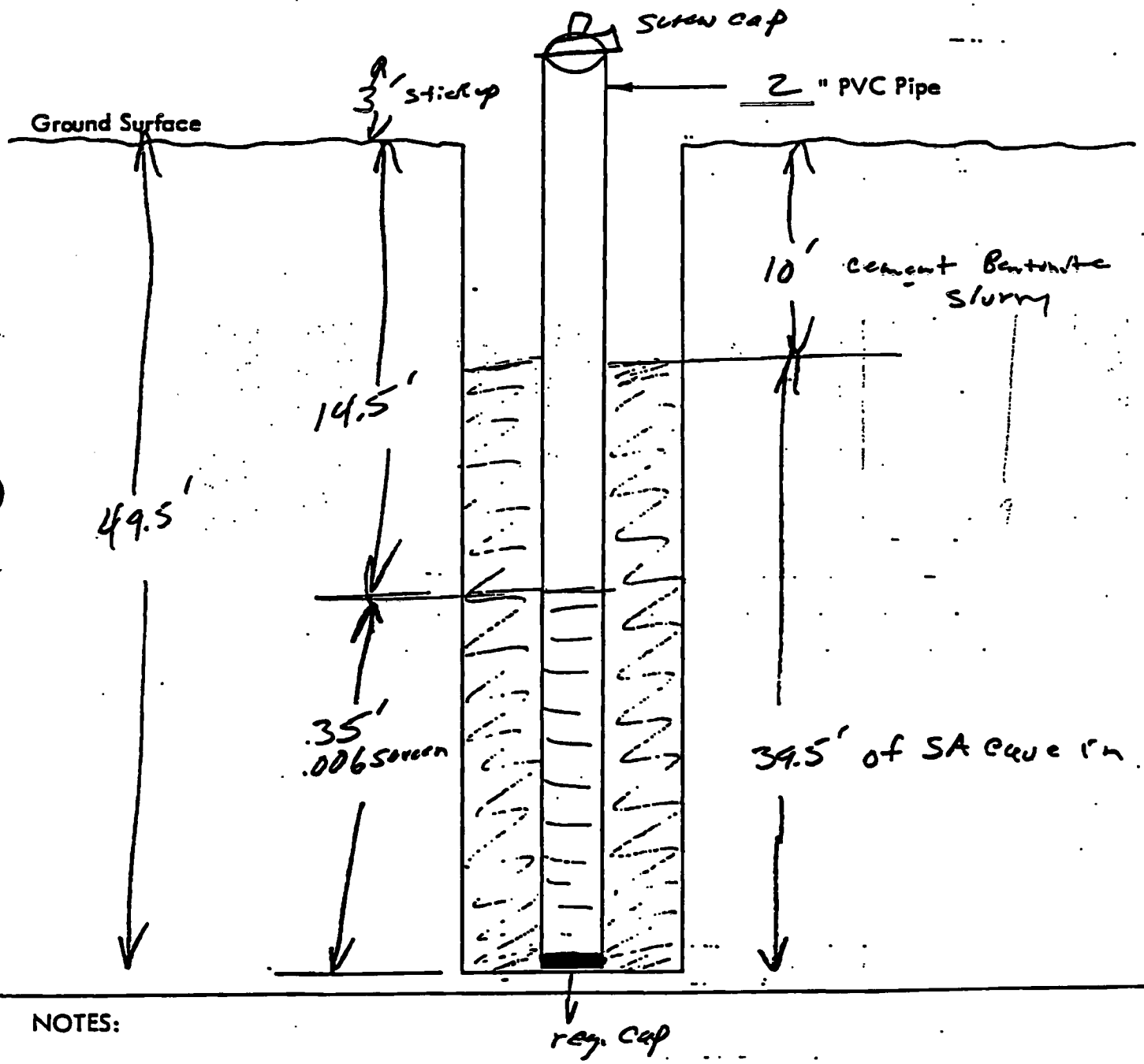
JOHN MATHES & ASSOCIATES, INC.

IEPA #6020

RECORD OF PIEZOMETER INSTALLATION

JOHN MATHES & ASSOCIATES

Boring No. C-10 Contract No. 1439 Date Installed 5-24-83



NOTES:

Information Checklist: Type of Backfill Soil Strata

Type of Screen Length of Screen Length of Pipe Height of Pipe Above Ground

Cap on Bottom Cap on Top How Sealed at Surface

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R042 Monitor Well No. R042

Site File Name BP Former Wood river Refinery, Illinois Surface Elevation 431.07 Completion Depth 36.0

Fed. ID. No. ILD980700967 Auger Depth 36.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/11/18 Finish 9/11/18

UTM (or State Plane) Coord. N.(X) 793607.03 E.(Y) 2319932.27

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
431.0	(ML) silt, clayey, sandy, grass, dark brown, soft, moist			1		100			0.0	
430.0			1	2		100			0.3	
429.0			2	3		100			0.1	
428.0			3	4		100			0.1	
427.0			4	5		0			0.0	
426.0			5	6		0				
425.0			6	7		0				
424.0			7	8		50			1.5	
423.0	(SP) sand, poorly graded, black, loose, saturated		8	9		100			0.7	
422.0	(CL) clay, trace sand, fine grained, gray, firm, moist		9	10		100			0.4	
421.0	grades to brown		10	11		100			0.8	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R042 Monitor Well No. R042

Site File Name BP Former Wood river Refinery, Illinois Surface Elevation 431.07 Completion Depth 36.0

Fed. ID. No. ILD980700967 Auger Depth 36.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/11/18 Finish 9/11/18

UTM (or State Plane) Coord. N.(X) 793607.03 E.(Y) 2319932.27

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
420.0	(CL) clay, trace sand, fine grained, gray, firm, moist *(continued)*		12	12		100			0.9	
419.0			13	13		0				
418.0	grades with increasing sand, soft		14	14		100			3.1	
417.0	(SP) sand, medium grained, brown, loose, moist		15	15		100			2.5	
416.0			16	16		100			2.3	
415.0			17	17		0				
414.0			18	18		0				
413.0			19	19		100			0.1	
412.0			20	20		100			0.0	
411.0			21	21		0				
410.0			22	22		0				

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R042 Monitor Well No. R042

Site File Name BP Former Wood river Refinery, Illinois Surface Elevation 431.07 Completion Depth 36.0

Fed. ID. No. ILD980700967 Auger Depth 36.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/11/18 Finish 9/11/18

UTM (or State Plane) Coord. N.(X) 793607.03 E.(Y) 2319932.27

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL
G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
409.0	(SP) sand, medium grained, brown, loose, moist *(continued)*		23	23		100			0.0	
408.0			24	24		100			0.0	
407.0			25	25		0				
406.0	(SP) sand, poorly graded, fine grained, loose, moist		26	26		100			0.0	
405.0			27	27		100			0.0	
404.0			28	28		100			0.0	
403.0			29	29		0				
402.0	(SP) sand, poorly graded, medium grained, loose, saturated		30	30		100			0.0	
401.0			31	31		100			0.0	
400.0			32	32		100			0.0	
399.0			33	33		100			0.0	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R042 Monitor Well No. R042

Site File Name BP Former Wood river Refinery, Illinois Surface Elevation 431.07 Completion Depth 36.0

Fed. ID. No. ILD980700967 Auger Depth 36.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/11/18 Finish 9/11/18

UTM (or State Plane) Coord. N.(X) 793607.03 E.(Y) 2319932.27

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
398.0	(SP) sand, poorly graded, medium grained, loose, saturated *(continued)*			34		100			0.0
			34						
397.0				35		100			0.0
			35						
396.0				36		100			0.0
			36						
	Terminated borehole at 36 foot								

REMARKS

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 11911500001 COUNTY: Madison WELL #: R042

SITE NAME: BP Former Wood river Refinery, Illinois BOREHOLE #: R042

STATE PLANE COORDINATE: X 793607.03 Y 2319932.27 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy & Tilley ILL. REGISTRATION #: CMT 035-003077

DRILLING CONTRACTOR: Roberts Environmental Drilling, Inc. DRILLER: Eric Wetzel

CONSULTING FIRM: Wood GEOLOGIST: Michael O'Malley

DRILLING METHOD: Hollow-Stem Auger DRILLING FLUIDS (TYPE): NA

LOGGED BY: Michael O'Malley DATE STARTED: 9/11/18 DATE FINISHED: 9/17/18

REPORT FORM COMPLETED BY: Kenneth Olson DATE: 9/28/18

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite Grout

INSTALLATION METHOD: Tremie

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL - GRANULAR (PELLET) SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Gravity

SETTING TIME: 15 minutes

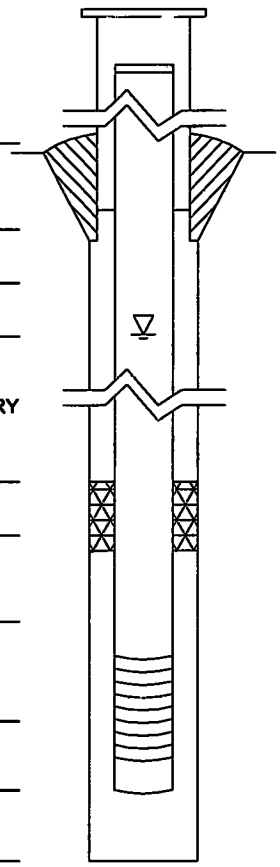
TYPE OF SAND PACK: FilterSil "indust. quartz

GRAIN SIZE: No. 2 (SIEVE SIZE)

INSTALLATION METHOD: Gravity

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
433.52	-2.45	TOP OF PROTECTIVE CASING
433.27	-2.20	TOP OF RISER PIPE
431.07	0.00	GROUND SURFACE
428.07	3.0	TOP OF ANNULAR SEALANT
401.52	29.55	STATIC WATER LEVEL (AFTER COMPLETION)
409.87	21.20	TOP OF SEAL
406.87	24.20	TOP OF SANDPACK
403.87	27.20	TOP OF SCREEN
394.41	36.66	BOTTOM OF SCREEN
393.87	37.20	BOTTOM OF WELL
393.87	-37.20	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	29.40
BOTTOM OF SCREEN TO END CAP	(ft)	0.54
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.46
TOTAL LENGTH OF CASING	(ft)	29.94
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G048

SHEET 1 OF 4

Project: Area 5 historic boring logs	Project No.: OKO81.10, AMOCO-OKO365HR01
Location: Wood River, IL	Elevation: NM; Coordinates (N,E):
Drilling Company: Hughes Drilling	Date Started: 10/12/88; Date Finished: 10/12/88
Drilling Equipment:	Refusal Depth (ft bgs): ; Rock Depth (ft bgs): ; Completion Depth (ft bgs): 48.0
Drilling Method: Hollow-Stem Auger	Water Level (ft bgs): First Encount.: ; At Completion: ; Well Installed? Yes; Number of Samples: Dist.: 0, Undist.: 0, Core: 0
Drill Bit Type/Diameter:	
Sampler Type/Diameter:	Driller: Tom Hughes; Field Logger: J. Shonfelt
Boring Location Description: Wood River, IL	Reviewed by:

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Black, **SANDY CLAY**, (CL), slightly moist.	2					
		Very dense to pliable, light gray, **CLAY**, (CL).	4, 6, 8, 10					
		SAND, (SP), very fine to fine grained, slightly silty.	12					

Report: URS-CHICAGO Project File: Z:\183C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G048

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			16					
			18					
			20					
			22					
			24					
			26					
			28					
		Light brown, fine to medium grained, moderately well sorted, hydrocarbon odor, wet	30					

Report: URS-CHICAGO Project File: Z:\183C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G048

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		@ 34' with product.	32 34					
		Light brown, coarse, moderately sorted, wet, strong hydrocarbon odor.	36 38 40 42 44 46					

Report: URS-CHICAGO Project File: Z:\183C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO_DT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G048

SHEET 4 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			48					48 ft End of boring

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

GERAGHTY &
MILLER, INC.

IEPA #6048

SAMPLE/CORE LOG

Boring/Well G-8 Project/No. AMOCO-OK0365HR01 Page 1 of 1

Site Location Wood River, IL | Drilling Started 7:55 | Drilling Completed 9:15

Total Depth Drilled 48.0 feet | Hole Diameter 7.25 inches | Type of Sample/ Coring Device N/A

Length and Diameter of Coring Device N/A | Sampling Interval 35 & 45 feet

Land-Surface Elev. 429.5 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A | Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling | Driller Tom Hughes | Helper Mike

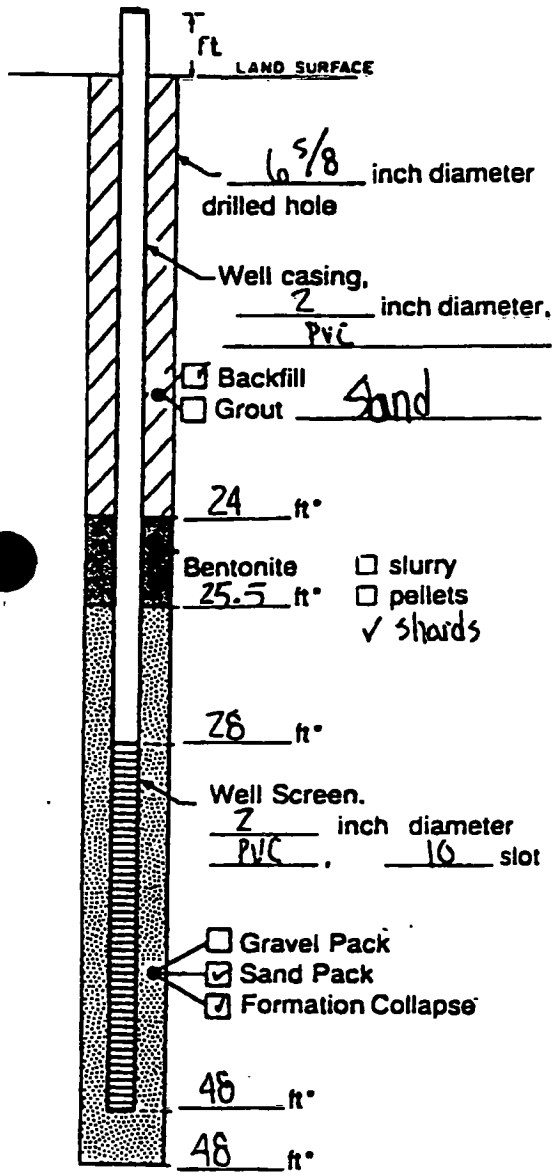
Prepared By J. Shonfelt | Hammer Weight N/A | Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	4.0			CLAY- sandy, black(may be stained), sl moist
				no odor.
4.0	12.0			CLAY- v. dense, pliable, lt. gray, no odor.
12.0	30.0			SAND- v. fine-fine grained, sl. silty, rnded.
30.0	35.0			SAND- fine-med. grained, wl. rnded, mod. wl.
				sorted, lt. brn. hydrocarbon odor, wet at 34 ft
				w/ product.
35.0	48.0			SAND- coarse grained, subang-subrnd, mod. sorted
				lt. brn. strong hydrocarbon odor, wet.

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA # 6048 10/12/88

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project CK&S HE01 Well G-8
Town/City WOOD RIVER, IL
County Madison State IL
Permit No. _____
Land-Surface Elevation and Datum _____ feet ☐ Surveyed ☐ Estimated
Installation Date(s) 10/12/88
Drilling Method Hollow Stem Auger
Drilling Contractor Hughes Drilling
Drilling Fluid _____
Development Technique(s) and Date(s)
Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water = 45.09 ; 40.03 = DTProduct feet below M.P.
Pumping Depth to Water - feet below M.P.
Pumping Duration - hours
Yield - gpm Date -
Specific Capacity - gpm/ft
Well Purpose Groundwater Monitoring / Pump test observation well
Remarks

Prepared by J. SCHNEELT

GERAGHTY &
MILLER, INC.

IEPA #: G057

SAMPLE/CORE LOG

Boring/Well G-17 Project/No. Amoco/OK0365HR03 Page 1 of 1

Location Wood River, IL Drilling Started 7:35 Drilling Completed 8:20

Total Depth Drilled 35.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J & R Drilling Driller Ray Coons Helper Greg

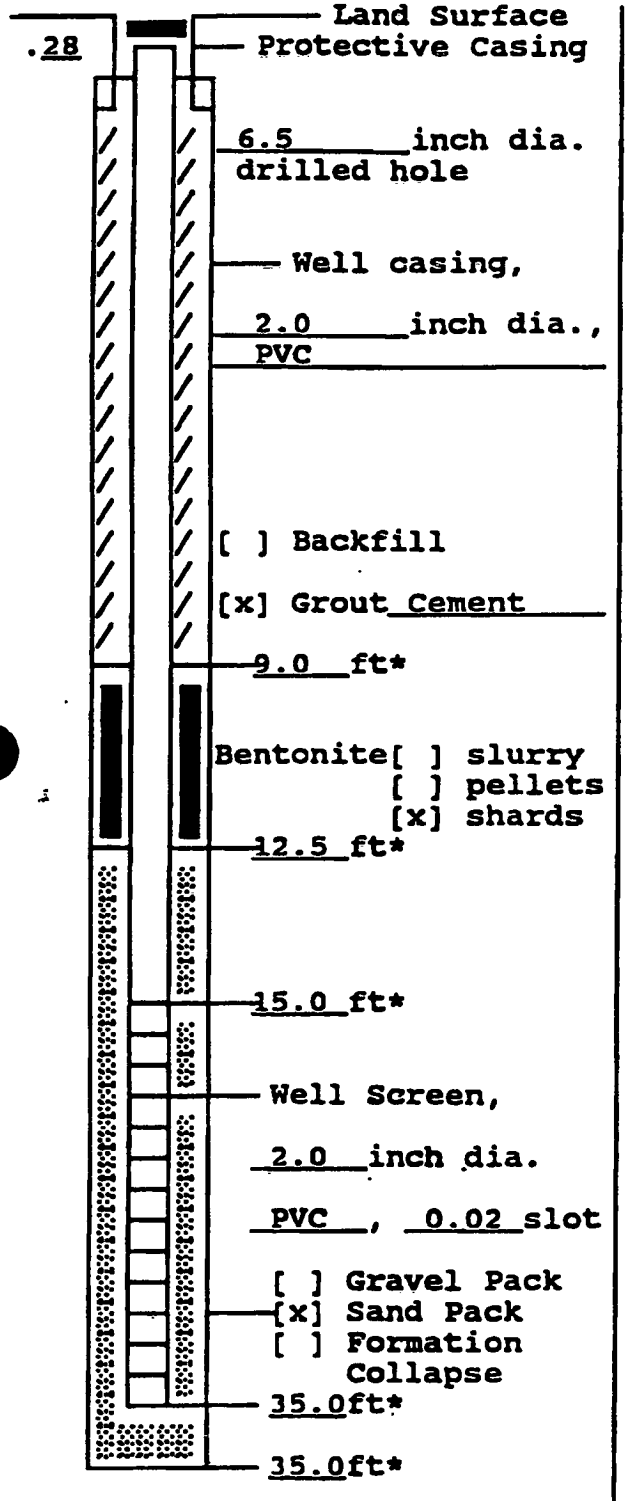
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	1.0			TOPSOIL, silt, brown, no odor, dry
1.0	4.0			CLAY, silty, brown, plastic, no odor, moist
4.0	18.0			CLAY, lt. brown, plastic, no odor, moist
18.0	25.0			CLAY, red-brown, plastic, slightly silty, no
				odor, moist.
25.0				SILT, clayey, gray-brown, coarsening-downward,
	35.0			less clay toward base (wet from 25 feet depth)

IEPA #: 6057

GERAGHTY &
MILLER, INC.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-17

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
426.62 ft
[x] surveyed
[ ] estimated
* Measuring Point is top of casing

Installation Dates(s) 6-7-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

GERAGHTY &
MILLER, INC.

IEPA #: 6058

SAMPLE/CORE LOG

ing/Well G-18 Project/No. Amoco/OK0365HR03 Page 1 of 1

Location Wood River, IL Drilling Started 10:50 Drilling Completed 11:30

Total Depth Drilled 35.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J & R Drilling Driller Ray Coons Helper Greg

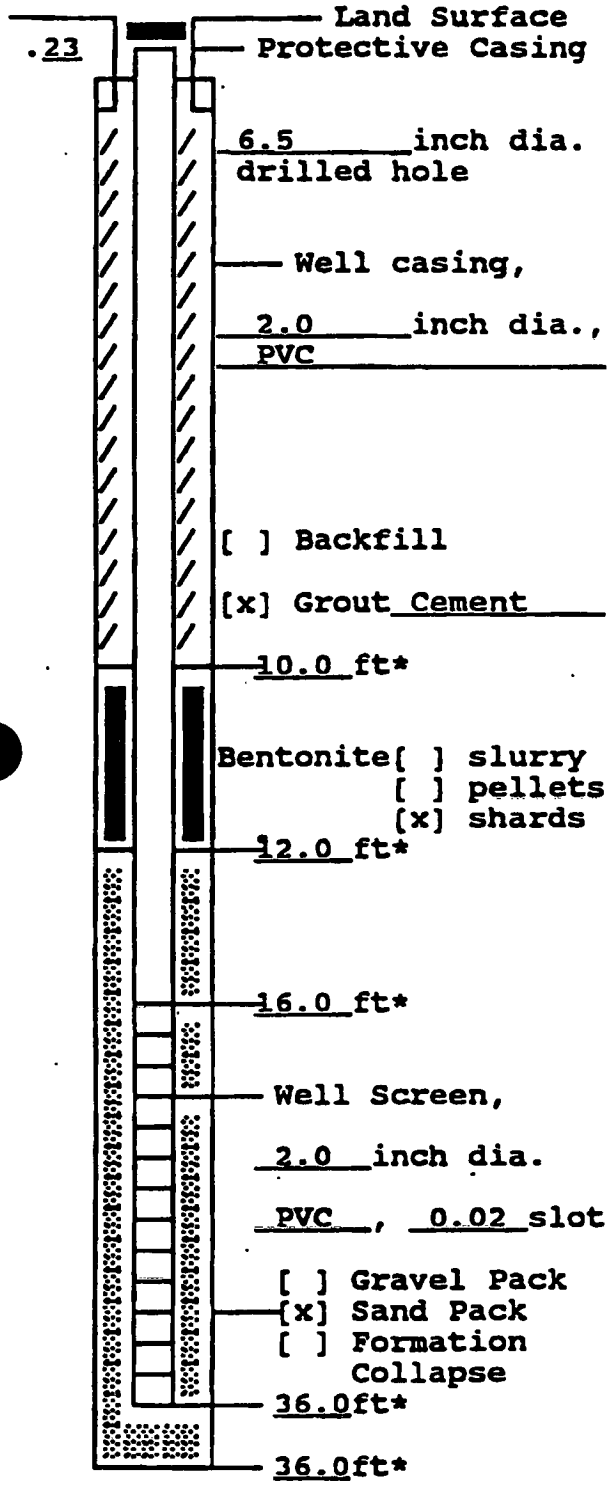
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0.0				TOPSOIL, silty and clayey, red-brown to brown,
	2.0			moist, no odor
2.0	2.1			GRAVEL, large pieces of fill material
2.1	4.0			SILT, dk. brown, clayey, no odor
4.0				CLAY, dense, dk. gray, wet at top, moist below,
				more plastic with depth, grading to tan-brown,
				coarsening with depth (silt % increasing),
	26.0			no odor
26.0				SAND, vf-medium grained, silty, light gray, wet,
	35.0			no odor.

IEPA # G058

GERAGHTY & MILLER, INC.

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-18

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
426.97 ft
[x] surveyed
[ ] estimated
* Measuring Point is top of casing

Installation Dates(s) 6-7-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)

Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

Prepared by: _____

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R083 Monitor Well No. R083

Site File Name BP Former Wood river Refinery, IL Surface Elevation 432.23 Completion Depth 37.0

Fed. ID. No. ILD980700967 Auger Depth 37.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/12/18 Finish 9/12/18

UTM (or State Plane) Coord. N.(X) 792916.90 E.(Y) 2320117.56

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Matt Kwiatkowski
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
432.0	(ML) silt, trace sand, dark brown, moist			1		50			0.0	
431.0			1	2		100			0.0	
430.0			2	3		100			0.0	
429.0			3	4		100			0.0	
428.0			4	5		0				
427.0			5	6		0				
426.0			6	7		50			7.2	
425.0	(SP) sand, poorly graded, fine grained, reddish brown, loose		7	8		100			6.7	
424.0	(CL) clay, silty, trace sand and gravel, dark gray, medium firm, saturated		8	9		100			0.1	
423.0	(CL) clay, silty, gray, firm, moist		9	10		100			0.0	
422.0	grades to brown mottling		10	11		100			0.0	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R083 Monitor Well No. R083

Site File Name BP Former Wood River Refinery, IL Surface Elevation 432.23 Completion Depth 37.0

Fed. ID. No. ILD980700967 Auger Depth 37.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/12/18 Finish 9/12/18

UTM (or State Plane) Coord. N.(X) 792916.90 E.(Y) 2320117.56

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
421.0	(CL) clay, silty, gray, firm, moist *(continued)*			12		100			0.0
			12	13		0			
420.0									
			13	14		100			0.0
419.0									
	(SP) sand, poorly graded, medum grain, brown, loose, moist								
			14	15		100			0.0
418.0									
			15	16		100			0.0
417.0									
			16	17		0			
416.0									
			17	18		0			
415.0									
			18	19		100			0.0
414.0									
			19	20		100			0.0
413.0									
			20	21		100			0.0
412.0									
			21	22		100			0.0
411.0									

PERSONNEL

G - Michael O'Malley
D - Matt Kwiatkowski
H - James Allen
H - Chris Kline

REMARKS

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191150001 County Madison Boring No. R083 Monitor Well No. R083

Site File Name BP Former Wood River Refinery, IL Surface Elevation 432.23 Completion Depth 37.0

Fed. ID. No. ILD980700967 Auger Depth 37.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/12/18 Finish 9/12/18

UTM (or State Plane) Coord. N.(X) 792916.90 E.(Y) 2320117.56

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Matt Kwiatkowski
H - James Allen
H - Chris Klinc

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
410.0	(SP) sand, poorly graded, medum grain, brown, loose, moist *(continued)*		23	23		100			0.0	
409.0				24		100			0.0	
408.0			24	25		100			0.0	
407.0			25	26		100			0.0	
406.0			26	27		100			0.0	
405.0			27	28		100			0.0	
404.0			28	29		0				
403.0			29	30		0				
402.0			30	31		100			0.0	
401.0			31	32		100			0.0	
400.0	grades become saturated		32	33		100			0.0	

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. R083 Monitor Well No. R083

Site File Name BP Former Wood River Refinery, IL Surface Elevation 432.23 Completion Depth 37.0

Fed. ID. No. ILD980700967 Auger Depth 37.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/12/18 Finish 9/12/18

UTM (or State Plane) Coord. N.(X) 792916.90 E.(Y) 2320117.56

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
399.0	(SP) sand, poorly graded, medum grain, brown, loose, moist *(continued)*			34		100			0.0
			34						
398.0				35		100			0.0
			35						
397.0				36		100			0.0
			36						
396.0				37		100			0.0
			37						
	Terminated borehole at 37 foot								

PERSONNEL

G - Michael O'Malley
D - Matt Kwiatkowski
H - James Allen
H - Chris Kline

REMARKS

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 11911500001 COUNTY: Madison WELL #: R083

SITE NAME: BP Former Wood river Refinery, Illinois BOREHOLE #: R083

STATE PLANE COORDINATE: X 792916.90 Y 2320117.56 (or) LATITUDE ____ ° ____ ' ____ " LONGITUDE ____ ° ____ ' ____ "

SURVEYED BY: Crawford, Murphy & Tilley ILL. REGISTRATION #: CMT 035-003077

DRILLING CONTRACTOR: Roberts Environmental Drilling, Inc. DRILLER: Matt Kwiatkowski

CONSULTING FIRM: Wood GEOLOGIST: Michael O'Malley

DRILLING METHOD: Hollow-Stem Auger DRILLING FLUIDS (TYPE): NA

LOGGED BY: Michael O'Malley DATE STARTED: 9/12/18 DATE FINISHED: 9/17/18

REPORT FORM COMPLETED BY: Kenneth Olson DATE: 9/28/18

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite Grout

INSTALLATION METHOD: Tremie

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL - GRANULAR (PELLET) SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Gravity

SETTING TIME: 15 minutes

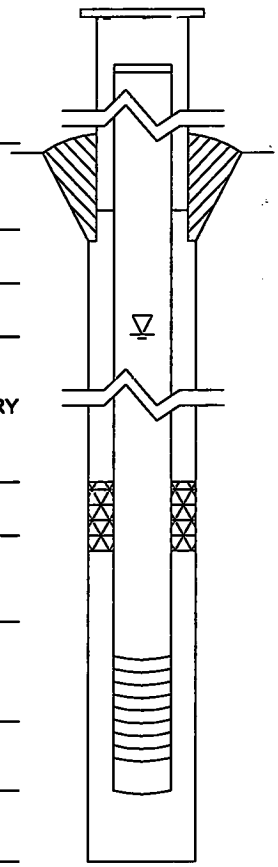
TYPE OF SAND PACK: FilterSil "indust. quartz

GRAIN SIZE: No. 2 (SIEVE SIZE)

INSTALLATION METHOD: Gravity

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
434.93	-2.70	TOP OF PROTECTIVE CASING
434.60	-2.37	TOP OF RISER PIPE
432.23	0.00	GROUND SURFACE
429.23	3.00	TOP OF ANNULAR SEALANT
403.53	28.70	STATIC WATER LEVEL (AFTER COMPLETION)
409.98	22.25	TOP OF SEAL
406.98	25.25	TOP OF SANDPACK
403.98	28.25	TOP OF SCREEN
394.52	37.71	BOTTOM OF SCREEN
393.98	38.25	BOTTOM OF WELL
393.98	38.25	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

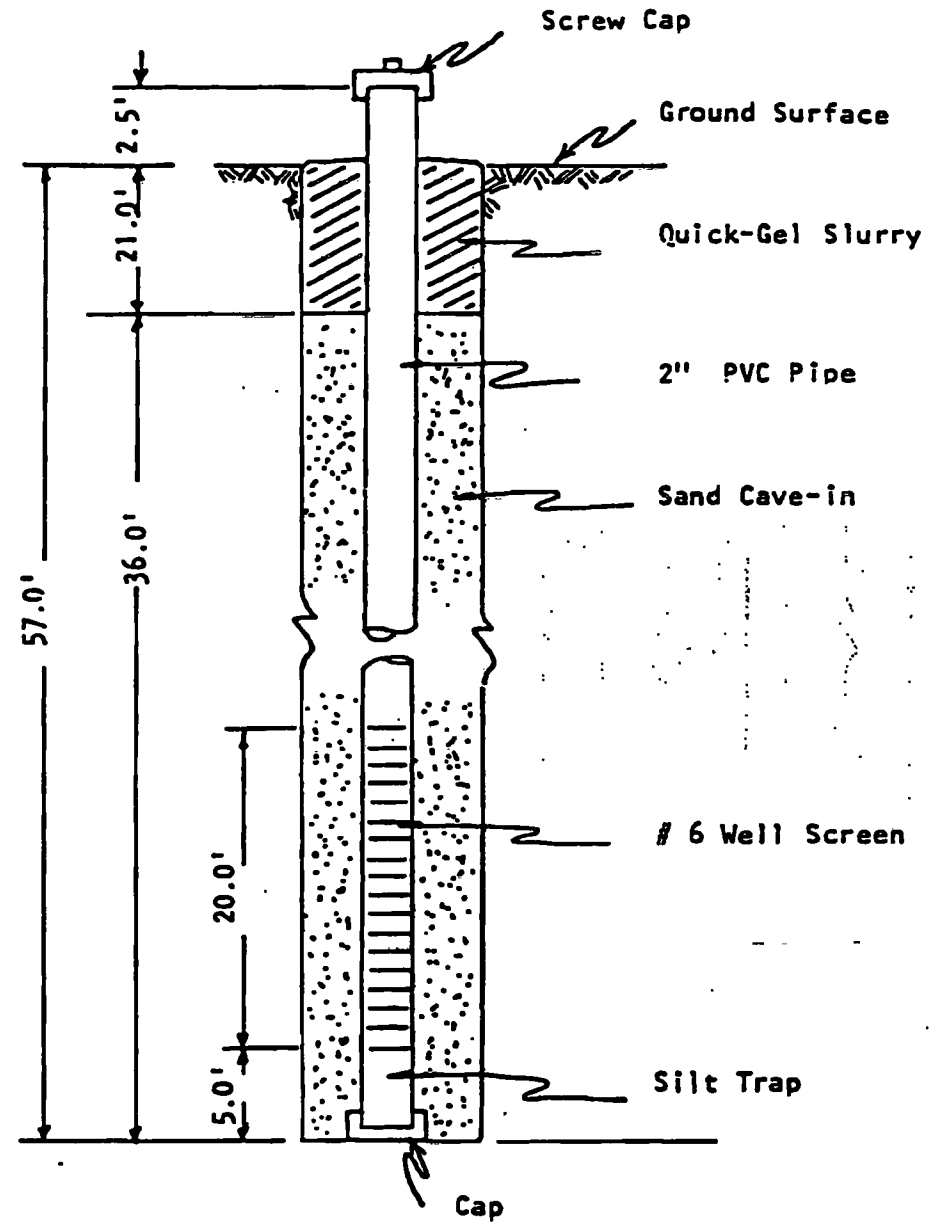
CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	30.62
BOTTOM OF SCREEN TO END CAP	(ft)	0.54
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.46
TOTAL LENGTH OF CASING	(ft)	31.16
SCREEN SLOT SIZE **	(in)	0.010

(941014)

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

IEPA #: G14L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-24
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G16L

SHEET 1 OF 4

Project: Area 5 historic boring logs			Project No.: OKO81.10, AMOCO-OKO365HR01		
Location: Wood River, IL			Elevation: NM	Coordinates (N,E):	
Drilling Company: Hughes Drilling			Date Started: 07/10/91	Date Finished: 07/10/91	
Drilling Equipment:			Refusal Depth (ft bgs):	Rock Depth (ft bgs):	Completion Depth (ft bgs): 56.0
Drilling Method: Hollow-Stem Auger			Water Level (ft bgs)		Number of Samples
Drill Bit Type/Diameter:			First Encount.:	At Completion:	Well Installed? Yes
Sampler Type/Diameter:			Driller:		Field Logger: Randy Prior
Boring Location Description: Wood River, IL			Reviewed by:		

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Gray to brown, **GRAVELLY SAND**, (SP) [Fill], fine to medium, with some silt, moist.	2					
		Gray to tan, **SAND**, (SP), very fine to fine, with some silt, moist.	4					
		Brown to tan, **SANDY CLAY**, (CL), very fine to fine, slight hydrocarbon odor.	6					
			8					
			10					
			12					

Report: URS-CHICAGO Project File: Z:\83C054\GINTAREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G16L

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			16					
		Gray to tan, **SAND**, (SW), very fine to fine, with some silt, moist.	18					
			20					
		Brown to tan, **SAND**, (SW), fine to medium, with little silt, moist, slight hydrocarbon odor to stronger hydrocarbon odor with depth.	22					
			24					
			26					
			28					
			30					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G16L

SHEET 3 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			32					
			34					
			36					
			38					
			40					
			42					
			44					
			46					

Report: URS-CHICAGO Project File: Z:\183C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G16L

SHEET 4 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Becomes wet.	48 50 52 54 56					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

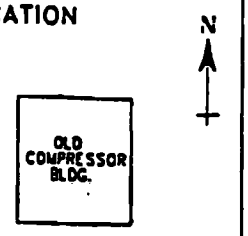
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

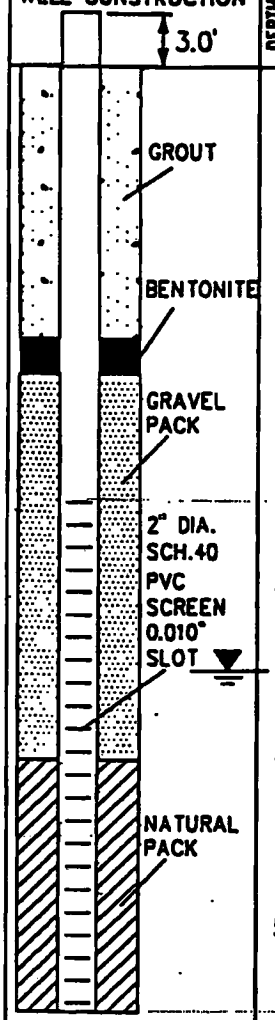
IEPA #: G16L

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K081.10	AMOCO OIL CO.	WOOD RIVER	H-26A	1 OF 1

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CUTTINGS
DRILLING START 7-10-91 FINISH 7-10-91	DEVEL. START - FINISH -
STATIC DTW 41.34 DTO 41.20 TIME - DATE 7-11-91	DRILLED BY: HUGHES DRILLING
ELEVATION TOC 436.15 GL 433.31	LOGGED BY: RANDY PRYOR

WELL LOCATION





DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		FILL	BRGY	SAND, FINE-MEDIUM, GRAVELLY, SOME SILT.	M						
	SP	SAND	TNGY	VERY FINE-FINE, SOME SILT.	M						
	CL	CLAY	TNBR	SANDY, VERY FINE-FINE, SLIGHT HC ODOR.	M						
10											
	SW	SAND	TNGY	VERY FINE-FINE, SOME SILT.	M						
20	SW	SAND	TNBR	FINE-MEDIUM, LITTLE SILT, SLIGHT HC ODOR TO STRONGER HC ODOR WITH DEPTH.	M						
30											
40											
50											
	SW	SAND	TNBR	FINE-MEDIUM, LITTLE SILT, SLIGHT HC ODOR.	W						
60											
70											

Log of Boring: G30R **Project:** MP Compliance **Project No:** 25365025
Client: BP Products North America Inc. **Reviewed By:** J. Dennison
Location: Former Wood River Refinery Wood River, IL **Completion Depth (ft):** 44
Logged by: Mark Wallace **Surface Elevation (ft):** 431.05
Date Started: 2/27/04 **Boring Diameter (in):** 9.5
Date Finished: 3/1/04 **Groundwater Depth (ft):** 32
Easting: 2316949.748 **Northing:** 798661.220 **Sheet:** 1 of 4

Subsurface Profile				Sample Information					
Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID	Well Construction	Remarks
431.05	0		Ground Surface					TOC at 434.05	
	0		***SAND (SP)*** Moist, black, fine-grained				0		
	1				Geo-P	40/48	0		
	2						0		
427.55	3								
426.85	4		***Sandy SILT (ML)*** Soft, wet, black, low-plasticity				0		
	5		***SAND (SP)*** Moist, tan, fine to very fine				0	Seal Pack Bentonite Chips	
	6						0		
424.25	7		Becomes brown Some medium sand		Geo-P	44/48	0		
	8						0		
	9						0		
	10						0		

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G30R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 2 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	11				Geo-P	46/48	0		
							0		
	12						0		
	13						0		
	14				Geo-P	46/48	0		
416	15		Moist, brown, medium to very fine				0		
	16						0		
414	17		Becomes gray				1.4		
	18				Geo-P	46/48	1.2		
	19						14.0		
	20						4.9		
411	21		Becomes brown				23.1		
	22				Geo-P	44/48	47.1		
	23						57.4	Screen	
408	24		Becomes grayish brown				58.3		
	25								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G30R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 3 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	26						66.4		
					Geo-P	48/48	52.4		
404	27		Becomes fine to very fine				75.1	Seal Pack Sand	
	28								
							192		
	29						120		
401	30		moist, grayish brown		Geo-P	48/48	13.8		
	31						17.4		
399	32		Becomes wet				6.8		Sampler is full with approximately 24 inches of sluff. Hole is beginning to collapse. Begin using discrete sampler.
	33						2.0		
	34				Geo-P	24/48	-		
	35						-		
	36						6.2		
	37						2.8		
	38				Geo-P	48/48	4.7		
	39						0.8		
	40								

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G30R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 4 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	41						0		
389	42		Becomes brown		Geo-P	40/48	0		
	43						0		
387	44		End of Borehole						
	45								
	46								
	47								
	48								
	49								
	50								
	51								
	52								
	53								
	54								
	55								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

This form may be completed within Acrobat before printing

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: Former Wood River Refinery Wood River, IL-Main Plant Well #: G30R

State Plane Coordinate: X 2316949.798 Y 798661.220 (or) Latitude: ° ' " Longitude: ° ' " Borehole #:

Surveyed by: Larry Stahlhut (Crawford, Murphy, and Tilly, Inc.) IL Registration #: 35-2214

Drilling Contractor: Roberts Environmental Drilling, Inc Driller: P. Gotto

Consulting Firm: URS Corporation Geologist: Mark Wallace

Drilling Method: Hollow Stem Auger Drilling Fluid (Type):

Logged By: Mark Wallace Date Started: 3/2/04 Date Finished: 3/2/04

Report Form Completed By: Emily Fox Date: 3/19/04

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Medium Bentonite Chips

Installation Method: Placed (Poured)

Setting Time:

Type of Bentonite Seal - (Granular) Pellet, Slurry (Choose One)

Installation Method: Placed (Poured)

Setting Time:

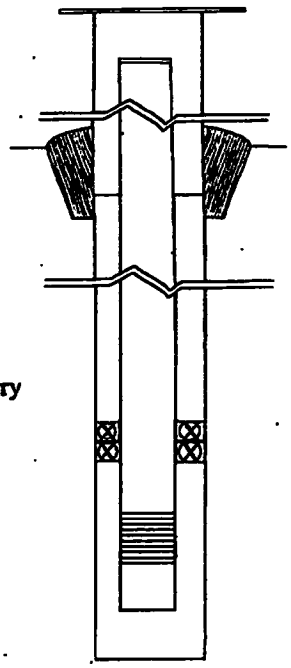
Type of Sand Pack: Morie Sand

Grain Size: 16/30 (Sieve Size)

Installation Method:

Type of Backfill Material: N/A (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
434.05	-3.5	Top of Protective Casing
434.03	-3.3	Top of Riser Pipe
431.05	0	Ground Surface
431.05	0	Top of Annular Sealant
399.05	32	Static Water Level (After Completion)
431.05	0	Top of Seal
410.38	20.35	Top of Sand Pack
408.66	22.39	Top of Screen
388.66	42.39	Bottom of Screen
388.21	42.84	Bottom of Well
387.05	44	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, (PVC) or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, (PVC) or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9.5
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	
Riser Pipe Length (feet)	25.6
Bottom of Screen to End Cap (feet)	0.2
Screen Length (1st slot to last slot) (feet)	20
Total Length of Casing (feet)	47.3
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

Amoco Corporation

IEPA ID: 6310

R000316

AMOCO

Groundwater Management Section
Environmental Affairs and Safety Department

Well No. C-21C Date Drilled 7/24/86 Location Wood River, IL

Ssn refinery Drilling Method Aug Well Type observation

Hole Diameter 10" Total Depth 70'

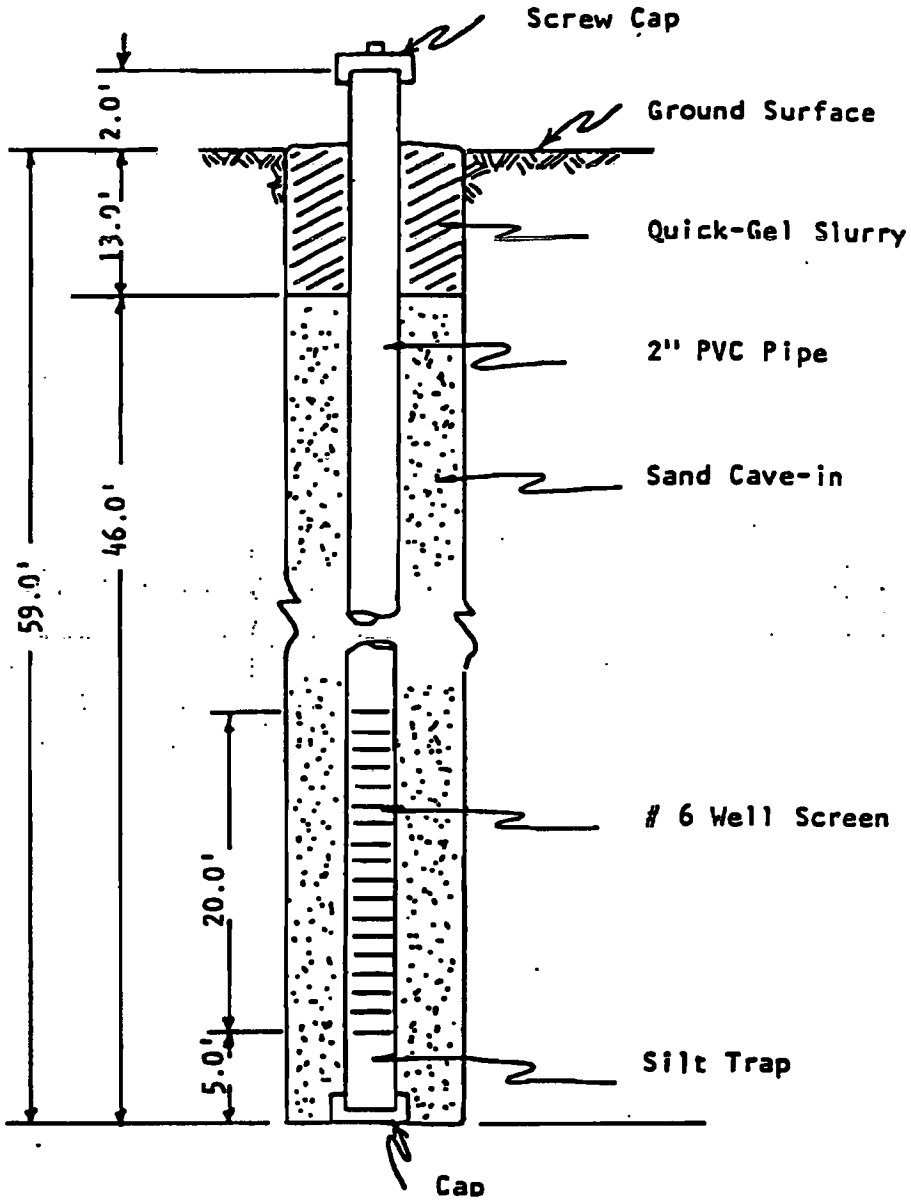
Casing Type plain steel f s/s 316 Diameter 2" Length 65'

Screen Slot Size 10 Diameter 2" Length 5'

Gravel Pack 60-70' Seal above screen bent at surface concr./bent.

Depth (ft)	Well Construction	Soil Type/Remarks
	M.P. elev. 431.73	
	screw cap	
0	land surface	0 - 4 Sand, clyy, oily, blk
	concrete seal	
10		4 - 22 Clay, grn, slty
	backfill	
	2" diameter steel pipe	22-32 Clay, grn, wet
30	2" diameter stainless steel pipe	32-35 Clay, red, sdy, wet
40		35-50 Sand, v.f-v.c, slty, wet
50		50-66 Sd, v.f-v.c, and Grvl, fn, we
60	bentonite seal	
	gravel pack	
	10-slot s/s screen	66-70 Clay, red, slty, wet
70	screw cap	

IEPA # G84L



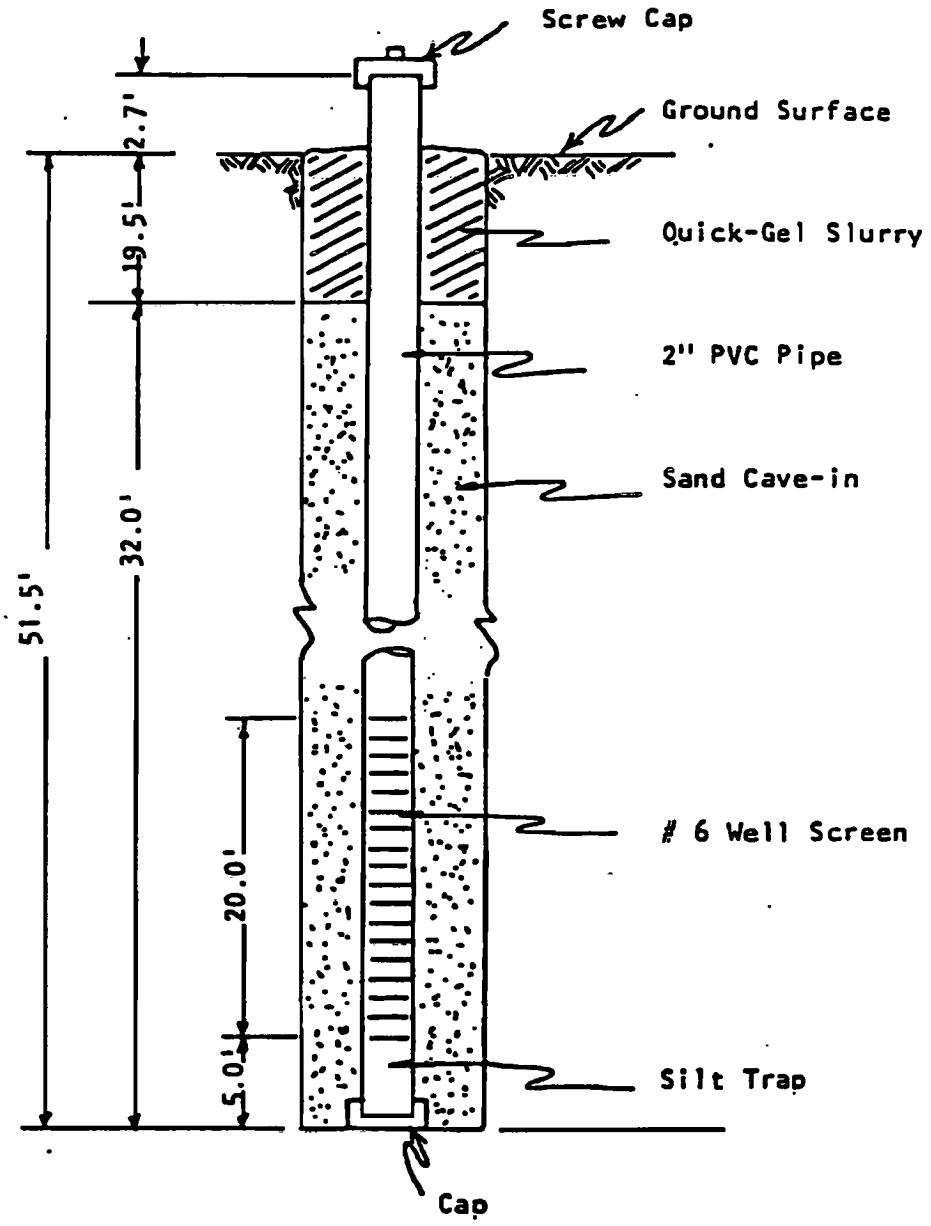
Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-4
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA #: G87L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-7
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

DRILLERS LOGS

JOHN MATHES & ASSOCIATES, INC.

BORING NO. H11 CONTRACT NO. 1048 ELEVATION 114.56

DATE DRILLED 7-21-[illegible] PROJECT [illegible]

DRILLING METHOD Air

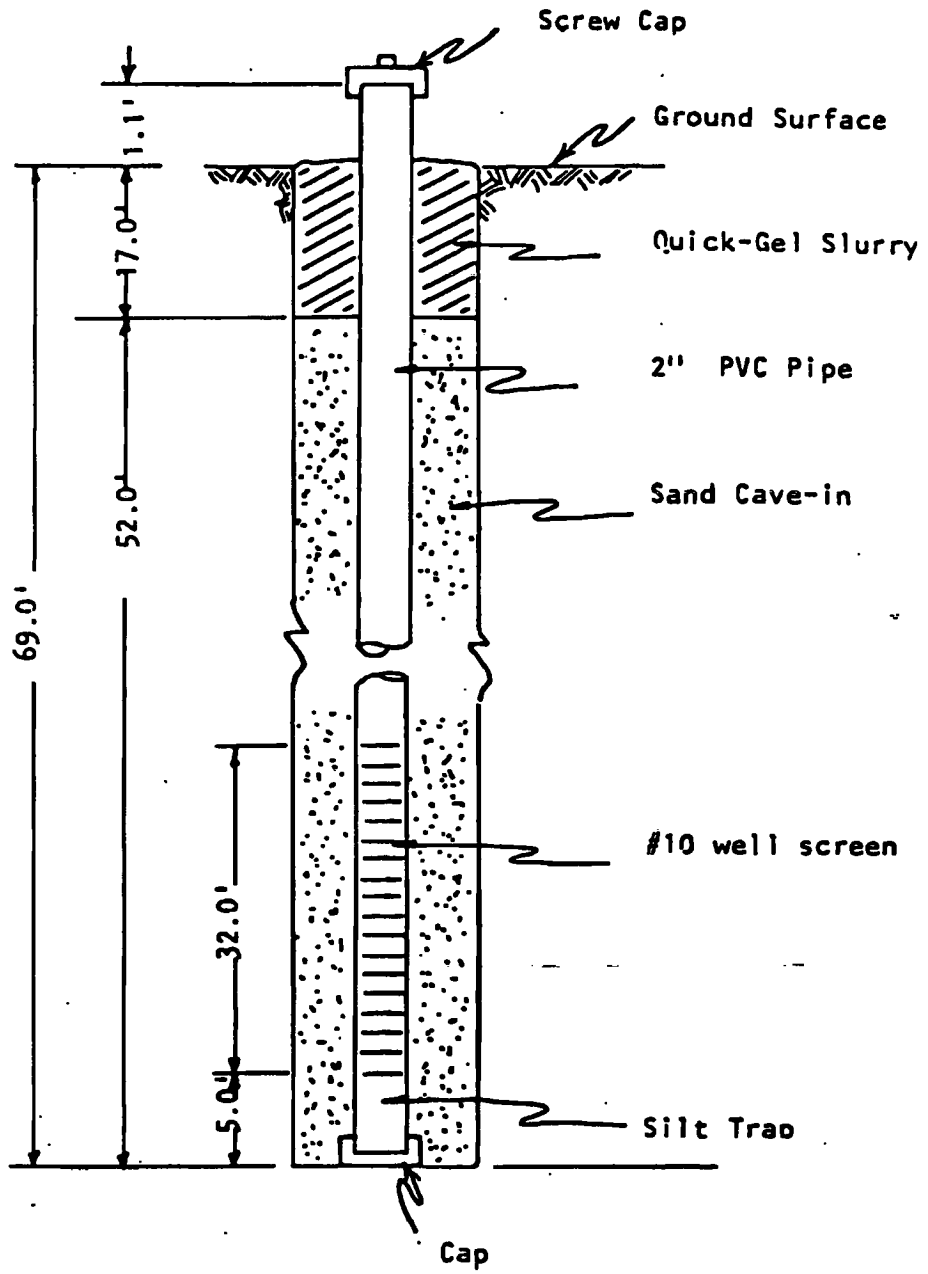
HELPER C.[illegible]

DRILLER J.S

Depth	Sample No.	Sample Depth	Sample Type	Recovery	SAMPLE DESCRIPTION	Qp	N/6"	REMARKS
					0'-1' DK GR SA w/cinders			
					Change to BR Fi SA @ 1'			
					Change to GR Fi SA @ 3' Strong Smell of Hydrocar			
					0'-29' Auger. No SAMPLES Change to BR Fi SA @ 1[illegible]			
30	1	[illegible]	SS	16"	GR Fi SA (moist) (Strong smell)	—	4 7 8	Change to GR Fi SA [illegible]
	2	31½/33	SS	18"	GR Fi to Med SA (moist) Slight smell	—	4 7 9	
35	3	[illegible]	SS	16"	GR & BR Fi to Med SA (Moist) Strong smell of Hydrocarbons	—	7 9 9	
	4	36½/37	SS	15"	BR & GR Fi to Med SA (Moist) Slight Smell	—	7 11 12	
40	5	39/40½	SS	18"	GR & BR Fi to Med SA (Moist) slight smell		9 9 12	
	6	41½/43	SS	16"	GR & BR Fi to Med SA (Moist) Slight smell		7 9 12	
45	7	44/45½	SS	18"	BR & GR Fi to Med SA (Damp) Strong odor	—	9 15 18	
	8	46½/48	SS	14"	GR Fi to Med SA (Very wet) Strong smell	—	8 10 10	Hit Fluid @ 48'
50	9	49/50½	SS	18"	GR Fi to Med SA (Strong smell) (wet)		6 8 10	

COMMENTS:

PIEZOMETER: Yes 1 / No ____



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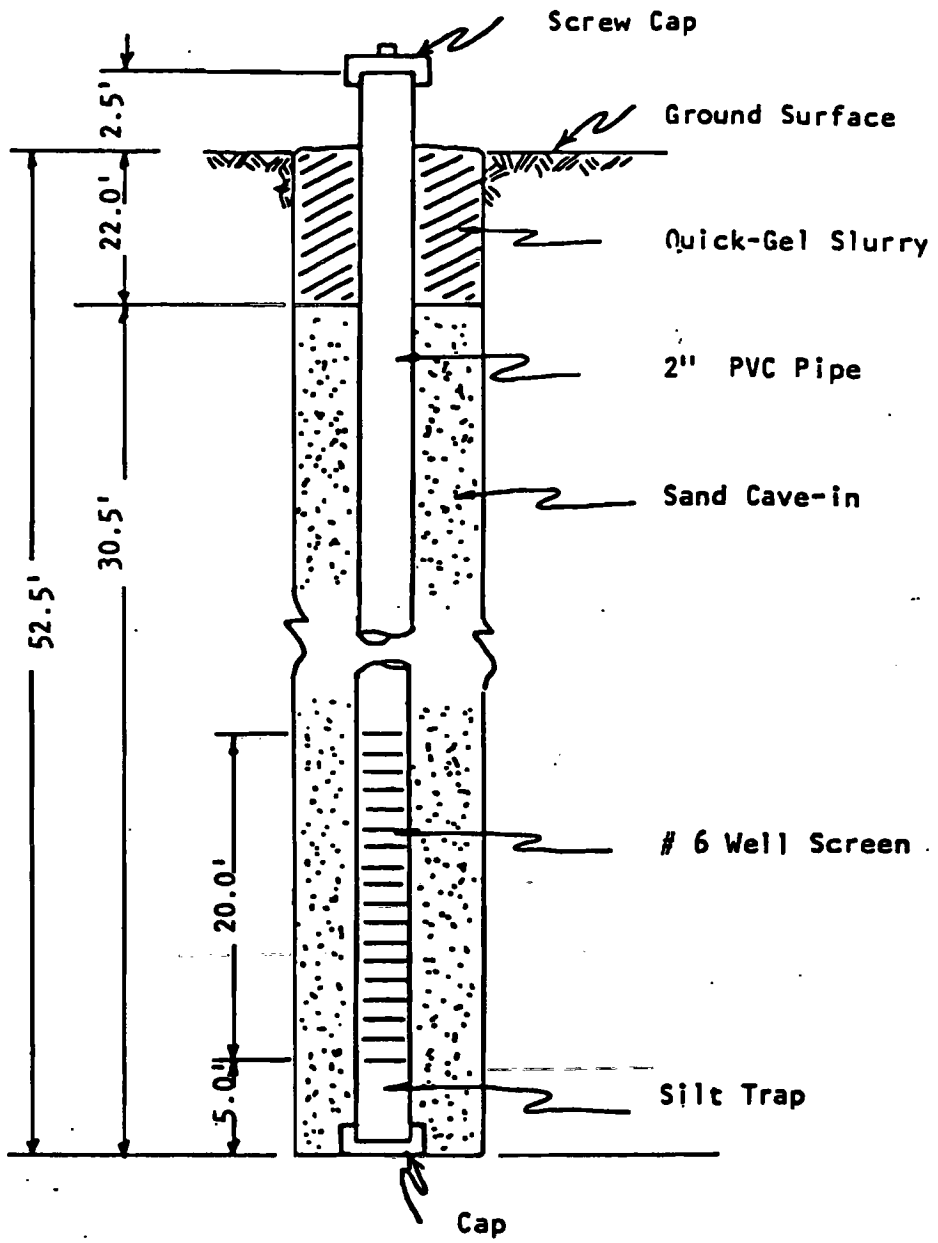
PIEZOMETER INSTALLATION SKETCH

Boring H-12
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.



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PIEZOMETER INSTALLATION SKETCH

Boring H-18
AMOCO Oil, Recovery Well
Wood River, IL

IEPA # G301

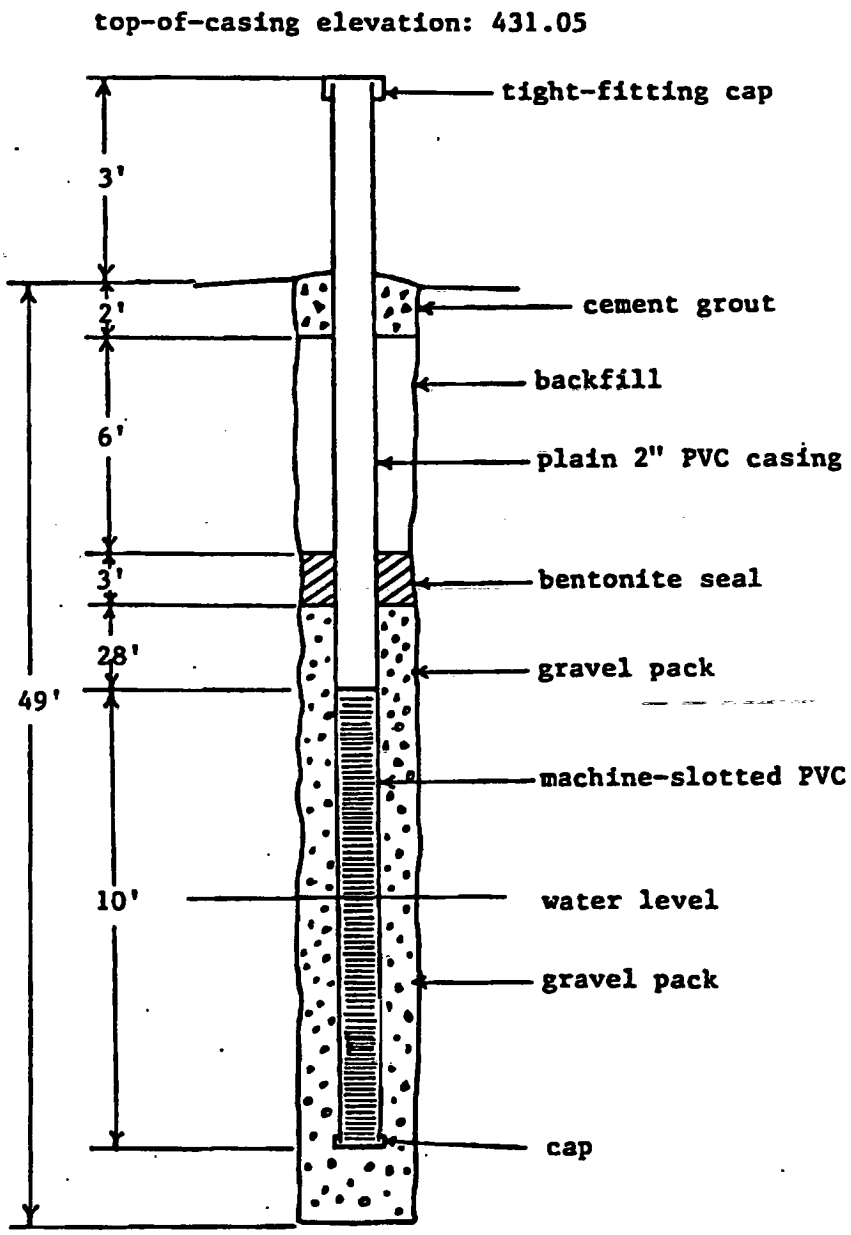
Well RP-1. Located northeast of tank 240 in tank bottom, 20 feet south and 40 feet west of roads.

Depth interval	Material encountered
0 - 2 feet	Fill
2 - 9	Clay, dark gray to yellow-brown
9 - 12	Silt, sandy
12 - 39	Sand, very fine to medium
39 - 49	same, wet
49	Total depth

10-slot screen set 39 to 49, gravel packed, bentonite seal 8 to 11 feet

IEPA # G301

Observation well RP-1



URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G305

SHEET 1 OF 4

Project: Area 5 historic boring logs			Project No.: OKO81.10, AMOCO-OKO365HR01			
Location: Wood River, IL			Elevation: NM		Coordinates (N,E):	
Drilling Company:			Date Started:		Date Finished:	
Drilling Equipment:			Refusal Depth (ft bgs):	Rock Depth (ft bgs):	Completion Depth (ft bgs): 49.0	
Drilling Method:			Water Level (ft bgs)		Number of Samples	
Drill Bit Type/Diameter:			First Encount.:	At Completion:	Well Installed? Yes	Dist.: 0 / Undist.: 0 / Core: 0
Sampler Type/Diameter:			Driller:		Field Logger:	
Boring Location Description: Wood River, IL			Reviewed by:			

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Black, (FILL), silty.						
		Hydrocarbon odor.	2					
		Brown to gray, **CLAY**, (CL).	4					
			6					
			8					
			10					
			12					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO_GINT Printed: 4/5/11

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LOG OF BORING G305

SHEET 2 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			16					
		SILTY SAND, (SM).	18					
			20					
			22					
		SAND, (SP).	24					
			26					
			28					
			30					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICA...T Printed: 4/5/11

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LOG OF BORING
G305
SHEET 3 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location: Wood River, IL	**Elevation:** NM	**Coordinates (N,E):**

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			32					
			34					
			36					
			38					
		Becomes wet.						39 - 49 ft 10-slot screen set, gravel packed, bentonite seal 13 to 16 feet
			40					
			42					
			44					
			46					

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LOG OF BORING G305

SHEET 4 OF 4

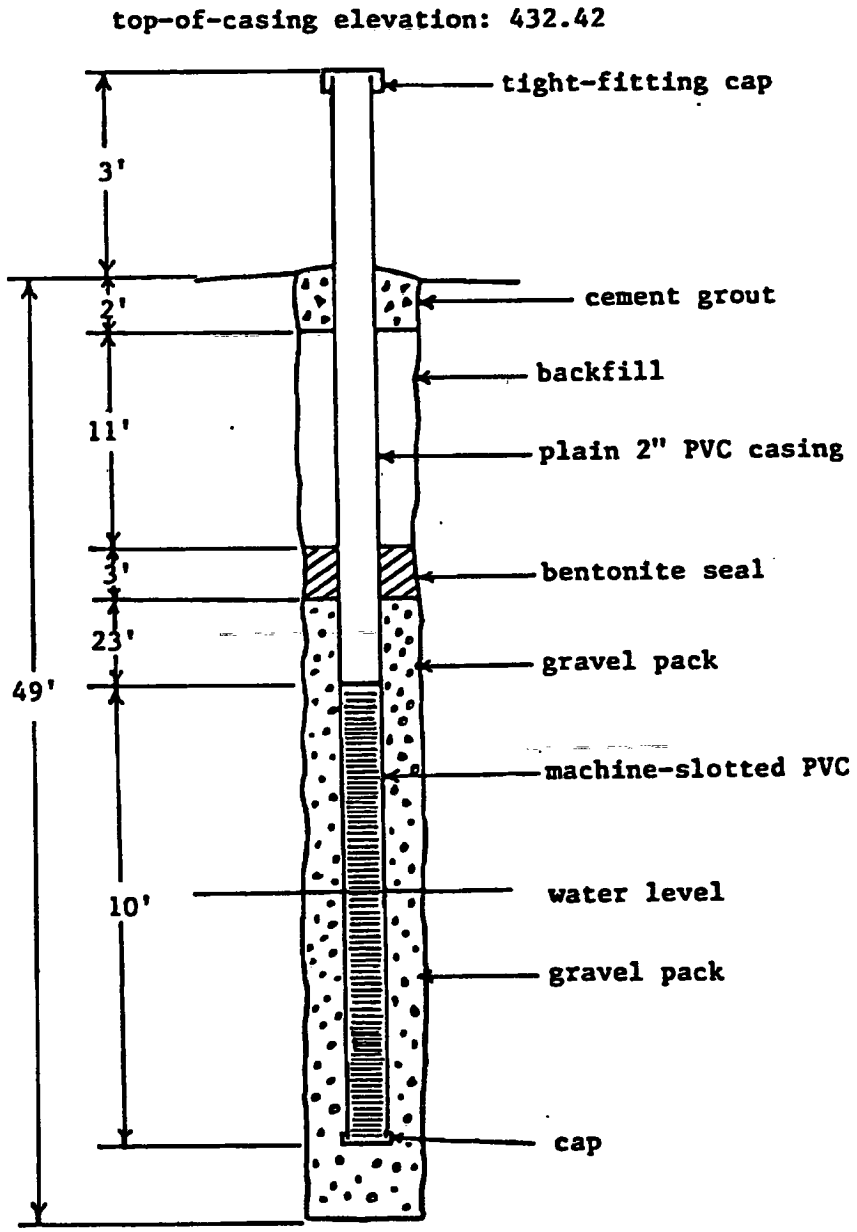
Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			48					

Report: URS-CHICAGO Project File: Z:\83C054\GINTAREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

IEPA#: G305

Observation well RP-5



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CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G307

Project: Area 5 historic boring logs		Project No.: OKO81.10, AMOCO-OKO365HR01				
Location: Wood River, IL		Elevation: NM		Coordinates (N,E):		
Drilling Company:		Date Started:		Date Finished:		
Drilling Equipment:		Refusal Depth (ft bgs):	Rock Depth (ft bgs):	Completion Depth (ft bgs): 49.0		
Drilling Method:		Water Level (ft bgs)		Number of Samples		
Drill Bit Type/Diameter:		First Encount.:	At Completion:	Well Installed? Yes	Dist.: 0	Undist.: 0	Core: 0
Sampler Type/Diameter:		Driller:		Field Logger:		
Boring Location Description: Wood River, IL		Reviewed by:				

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		(FILL).						
			2					
			4					
			6					
		Hydrocarbon odor.						
			8					
		Brown to dark green, **SILTY CLAY**, (CL).						
			10					
			12					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

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LOG OF BORING
G307
SHEET 2 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			16					16 - 19 ft bentonite seal
			18					
		SILTY SAND, (SM), very fine to medium.	20					
			22					
			24					
			26					
			28					
			30					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

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LOG OF BORING G307

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Becomes fine to coarse, becomes moist.	32 34 36 38 40 42 44 46					39 - 49 ft 10 slot screen set, gravel packed

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICA T Printed: 4/5/11

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LOG OF BORING G307

SHEET 4 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

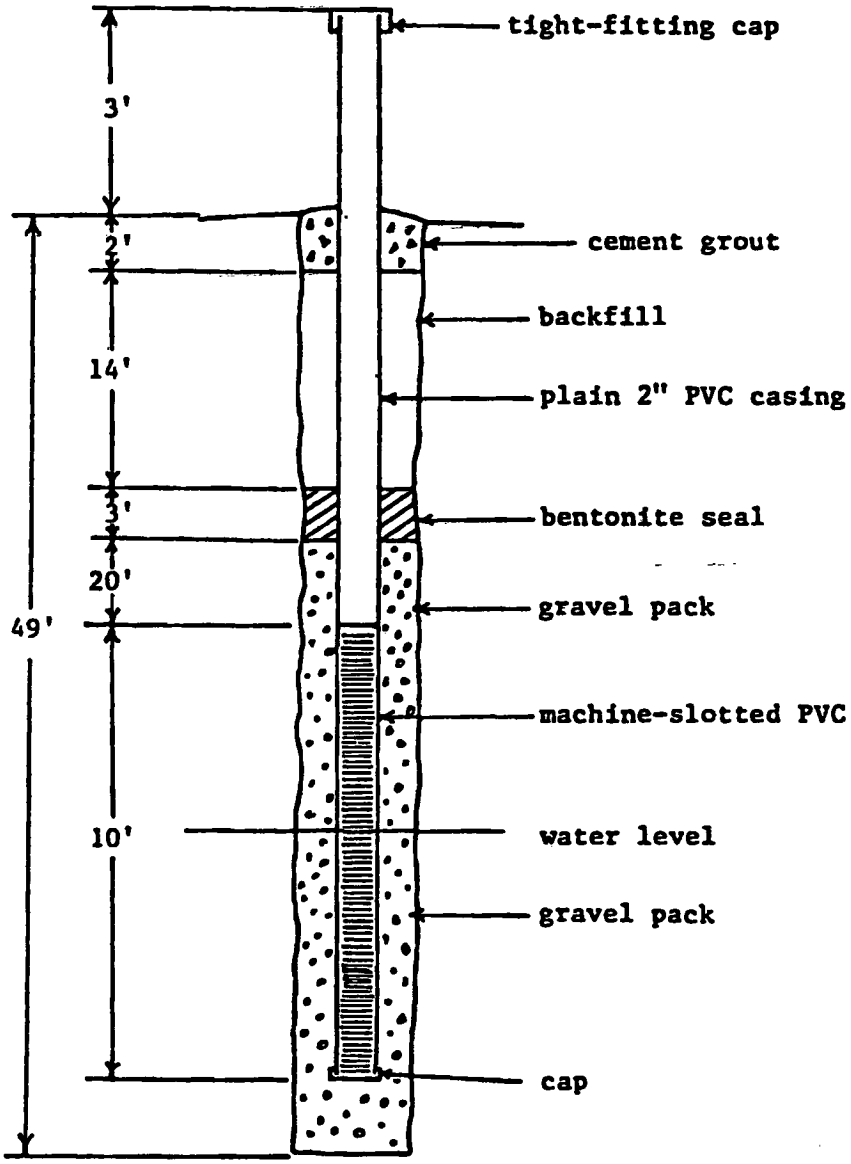
ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			48					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGOT Printed: 4/5/11

IEPA #: G307

Observation well RP-7

top - of - casing elevation: 435.42



Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G501 Monitor Well No. G501

Site File Name BP Former Wood River Refinery, IL Surface Elevation 434.31 Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River, IL-MO Sec. _____ T. _____ R. _____ Date: Start 9/13/18 Finish 9/13/18

UTM (or State Plane) Coord. N.(X) 792455.87 E.(Y) 2319820.83

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
434.0	(ML) silt, sandy, gravelly, brown, loose, moist			1		0				
			1	2		0				
433.0										
			2	3		0				
432.0										
			3	4		100			0.0	
431.0										
			4	5		0				
430.0										
			5	6		0				
429.0										
			6	7		50			27.4	
428.0										
	(SM) sand, silty, trace gravel, dark brown, loose, saturated									
			7	8		100			26.3	
427.0										
			8	9		100			6.5	
426.0										
	grades to dark gray									
			9	10		100			6.2	
425.0										
			10	11		100			4.8	
424.0										

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G501 Monitor Well No. G501

Site File Name BP Former Wood River Refinery, IL Surface Elevation 434.31 Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River, IL-MO Sec. _____ T. _____ R. _____ Date: Start 9/13/18 Finish 9/13/18

UTM (or State Plane) Coord. N.(X) 792455.87 E.(Y) 2319820.83

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
423.0				12		100			4.5	
	(CL) clay, sandy, dark gray, firm, saturated		12	13		100			0.0	
422.0										
			13	14		100			0.0	
421.0										
			14	15		100			0.0	
420.0										
			15	16		100			0.0	
419.0										
			16	17		100			2.6	
418.0										
	grades to gray with brown mottling		17	18		100			2.9	
417.0										
			18	19		100			1.8	
416.0										
			19	20		100			1.4	
415.0										
			20	21		0				
414.0										
			21	22		50			6.2	
413.0										
	(SP) sand, fine grained, brown, loose, moist									

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G501 Monitor Well No. G501

Site File Name BP Former Wood River Refinery, IL Surface Elevation 434.31 Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River, IL-MO Sec. _____ T. _____ R. _____ Date: Start 9/13/18 Finish 9/13/18

UTM (or State Plane) Coord. N.(X) 792455.87 E.(Y) 2319820.83

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS
412.0	(SP) sand, fine grained, brown, loose, moist *(continued)*		23	23		100			5.7
411.0			24	24		100			4.8
410.0			25	25		100			0.0
409.0	(CL) clay, silty,trace sand, fine grained, gray with brown mottling, soft, moist		26	26		100			0.0
408.0			27	27		100			0.0
407.0			28	28		100			0.0
406.0			29	29		0			
405.0			30	30		0			
404.0	(SP) sand, medium grained, brown, loose, saturated		31	31		100			0.0
403.0			32	32		100			0.0
402.0			33	33		100			0.0

REMARKS

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G501 Monitor Well No. G501

Site File Name BP Former Wood River Refinery, IL Surface Elevation 434.31 Completion Depth 40.0

Fed. ID. No. ILD980700967 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River, IL-MO Sec. _____ T. _____ R. _____ Date: Start 9/13/18 Finish 9/13/18

UTM (or State Plane) Coord. N.(X) 792455.87 E.(Y) 2319820.83

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
401.0	(SP) sand, medium grained, brown, loose, saturated *(continued)*			34		100			0.0	
			34	35		100			0.0	
400.0										
			35	36		100			0.0	
399.0										
			36	37		100			0.0	
398.0										
			37	38		100			0.0	
397.0										
			38	39		100			0.0	
396.0										
			39	40		100			0.0	
395.0										
			40							
	Terminated borehole at 40 foot									

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 11911500001 COUNTY: Madison WELL #: G501

SITE NAME: BP Former Wood river Refinery, Illinois BOREHOLE #: G501

STATE PLANE COORDINATE: X 792455.83 Y 2319820.87 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy & Tilley ILL. REGISTRATION #: CMT 035-003077

DRILLING CONTRACTOR: Roberts Environmental Drilling, Inc. DRILLER: Eric Wetzel

CONSULTING FIRM: Wood GEOLOGIST: Michael O'Malley

DRILLING METHOD: Hollow-Stem Auger DRILLING FLUIDS (TYPE): NA

LOGGED BY: Michael O'Malley DATE STARTED: 9/13/18 DATE FINISHED: 9/17/18

REPORT FORM COMPLETED BY: Kenneth Olson DATE: 9/28/18

ANNUAL SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite Grout

INSTALLATION METHOD: Tremie

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL - GRANULAR (PELLET) SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Gravity

SETTING TIME: 15 minutes

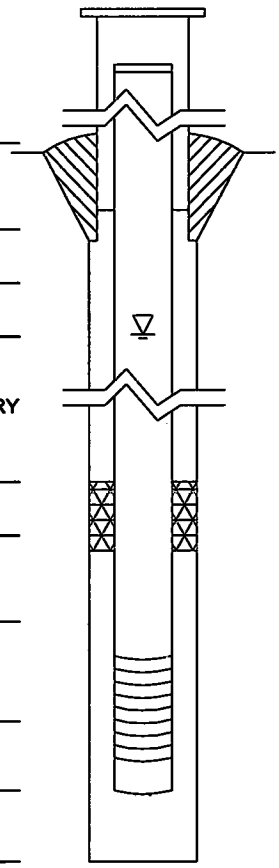
TYPE OF SAND PACK: FilterSil "indust. quartz

GRAIN SIZE: No. 2 (SIEVE SIZE)

INSTALLATION METHOD: Gravity

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS)	(.01 ft)
436.49	-2.08	TOP OF PROTECTIVE CASING
436.20	-1.79	TOP OF RISER PIPE
434.41	0.00	GROUND SURFACE
431.41	3.0	TOP OF ANNULAR SEALANT
403.54	30.87	STATIC WATER LEVEL (AFTER COMPLETION)
410.60	24.35	TOP OF SEAL
407.60	27.35	TOP OF SANDPACK
404.06	30.35	TOP OF SCREEN
394.60	39.81	BOTTOM OF SCREEN
394.06	40.35	BOTTOM OF WELL
394.06	40.35	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	31.60
BOTTOM OF SCREEN TO END CAP	(ft)	0.54
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.46
TOTAL LENGTH OF CASING	(ft)	32.14
SCREEN SLOT SIZE **	(in)	0.010

**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

(941014)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G502 Monitor Well No. G502

Site File Name BP Former Wood River Refinery, IL Surface Elevation 429.39 Completion Depth 35.0

Fed. ID. No. ILD980700967 Auger Depth 35.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/14/18 Finish 9/14/18

UTM (or State Plane) Coord. N.(X) 2319650.80 E.(Y) 794083.25

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
429.0	(ML) silt, trace clay, gravelly, tan			1		100			5.3	
			1	2		100			17.2	
428.0	grades to black, moist									
			2	3		100			50.6	
427.0										
			3	4		100			74.0	
426.0										
			4	5		50			98.8	
425.0	(CL) clay, trace sand, fine grained, black, firm, moist									
			5	6		100			54.7	
424.0										
			6	7		100			45.3	
423.0										
			7	8		100			39.3	
422.0										
			8	9		0				
421.0										
			9	10		0				
420.0										
			10	11		100			34.1	
419.0	(SP) sand, fine grained, brown, loose, moist									

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G502 Monitor Well No. G502

Site File Name BP Former Wood River Refinery, IL Surface Elevation 429.39 Completion Depth 35.0

Fed. ID. No. ILD980700967 Auger Depth 35.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/14/18 Finish 9/14/18

UTM (or State Plane) Coord. N.(X) 2319650.80 E.(Y) 794083.25

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL
G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
418.0	(SP) sand, fine grained, brown, loose, moist *(continued)*		12	12		100			67.8	
417.0			13							
416.0			14	14		0				
415.0			15	15		100			6.0	
	sand to medium grained		16	16		100			5.8	
414.0			17	17		0				
413.0			18	18		0				
412.0			19	19		100			5.3	
411.0			20	20		100			2.5	
410.0			21	21		0				
409.0			22	22		0				
408.0										

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G502 Monitor Well No. G502

Site File Name BP Former Wood River Refinery, IL Surface Elevation 429.39 Completion Depth 35.0

Fed. ID. No. ILD980700967 Auger Depth 35.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/14/18 Finish 9/14/18

UTM (or State Plane) Coord. N.(X) 2319650.80 E.(Y) 794083.25

Latitude ____° ____' ____" Longitude ____° ____' ____"

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL
G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
407.0	(SP) sand, fine grained, brown, loose, moist *(continued)*			23		100			2.8	
			23	24		100			1.9	
406.0										
			24	25		0				
405.0										
			25	26		0				
404.0										
	grades with 2 inches reddish brown		26	27		100			0.9	
403.0										
			27	28		100			0.6	
402.0	grades to moist									
			28	29		0				
401.0										
			29	30		100			1.2	
400.0										
	grades to saturated		30	31		100			0.0	
399.0										
			31	32		100			0.0	
398.0										
			32	33		100			0.0	
397.0										

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 11911500001 County Madison Boring No. G502 Monitor Well No. G502

Site File Name BP Former Wood River Refinery, IL Surface Elevation 429.39 Completion Depth 35.0

Fed. ID. No. ILD980700967 Auger Depth 35.0 Rotary Depth NA

Quadrangle Wood River, IL-MO Sec. ____ T. ____ R. ____ Date: Start 9/14/18 Finish 9/14/18

UTM (or State Plane) Coord. N.(X) 2319650.80 E.(Y) 794083.25

Latitude ____ ° ____ ' ____ " Longitude ____ ° ____ ' ____ "

Boring Location KMPH

Drilling Equipment GeoProbe 6620

PERSONNEL

G - Michael O'Malley
D - Eric Wetzel
H - James Allen
H - Chris Kline

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (%)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
396.0	(SP) sand, fine grained, brown, loose, moist *(continued)*			34		100			0.0	
			34	35		100			0.0	
395.0										
			35							
	Terminated borehole at 35 foot									

(950226)

Illinois Environmental Protection Agency — Well Completion Report

SITE #: 11911500001 COUNTY: Madison WELL #: G502

SITE NAME: BP Former Wood river Refinery, Illinois BOREHOLE #: G502

STATE PLANE COORDINATE: X 2319650.80 Y 794083.25 (or) LATITUDE ____° ____' ____" LONGITUDE ____° ____' ____"

SURVEYED BY: Crawford, Murphy & Tilley ILL. REGISTRATION #: CMT 035-003077

DRILLING CONTRACTOR: Roberts Environmental Drilling, Inc. DRILLER: Eric Wetzel

CONSULTING FIRM: Wood GEOLOGIST: Michael O'Malley

DRILLING METHOD: Hollow-Stem Auger DRILLING FLUIDS (TYPE): NA

LOGGED BY: Michael O'Malley DATE STARTED: 9/14/18 DATE FINISHED: 9/17/18

REPORT FORM COMPLETED BY: Kenneth Olson DATE: 9/28/18

ANNULAR SPACE DETAILS

TYPE OF SURFACE SEAL: Concrete

TYPE OF ANNULAR SEALANT: Bentonite Grout

INSTALLATION METHOD: Tremie

SETTING TIME: + 24 hours

TYPE OF BENTONITE SEAL - GRANULAR (PELLET) SLURRY (CIRCLE ONE)

INSTALLATION METHOD: Gravity

SETTING TIME: 15 minutes

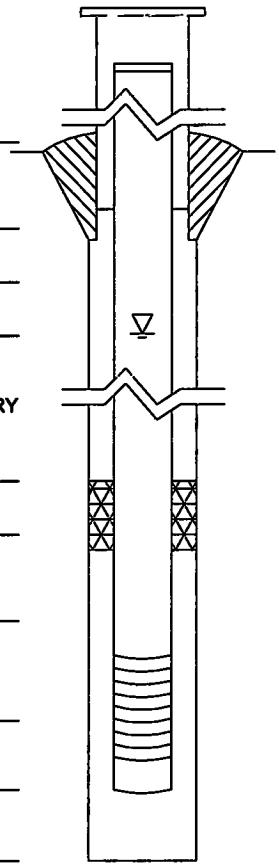
TYPE OF SAND PACK: FilterSil "indust. quartz

GRAIN SIZE: No. 2 (SIEVE SIZE)

INSTALLATION METHOD: Gravity

TYPE OF BACKFILL MATERIAL: NA (IF APPLICABLE)

INSTALLATION METHOD: NA



ELEVATIONS (MSL)*	DEPTHS (BGS) (.01 ft)	
431.92	-2.53	TOP OF PROTECTIVE CASING
431.67	-2.28	TOP OF RISER PIPE
429.39	0.00	GROUND SURFACE
426.39	3.0	TOP OF ANNULAR SEALANT
402.58	26.8	STATIC WATER LEVEL (AFTER COMPLETION)
410.38	19.01	TOP OF SEAL
407.38	22.01	TOP OF SANDPACK
404.38	25.01	TOP OF SCREEN
394.92	34.47	BOTTOM OF SCREEN
394.38	35.01	BOTTOM OF WELL
394.38	35.01	BOTTOM OF BOREHOLE

* REFERENCED TO A NATIONAL GEODETIC VERTICAL DATUM

WELL CONSTRUCTION MATERIALS (CIRCLE ONE)

PROTECTIVE CASING	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE ABOVE W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
RISER PIPE BELOW W.T.	SS304	SS316	PTFE	(PVC)	OTHER:
SCREEN	SS304	SS316	PTFE	(PVC)	OTHER:

CASING MEASUREMENTS

DIAMETER OF BOREHOLE	(in)	9
ID OF RISER PIPE	(in)	2
PROTECTIVE CASING LENGTH	(ft)	5
RISER PIPE LENGTH	(ft)	27.29
BOTTOM OF SCREEN TO END CAP	(ft)	0.54
SCREEN LENGTH (1st SLOT TO LAST SLOT)	(ft)	9.46
TOTAL LENGTH OF CASING	(ft)	27.83
SCREEN SLOT SIZE **	(in)	0.010

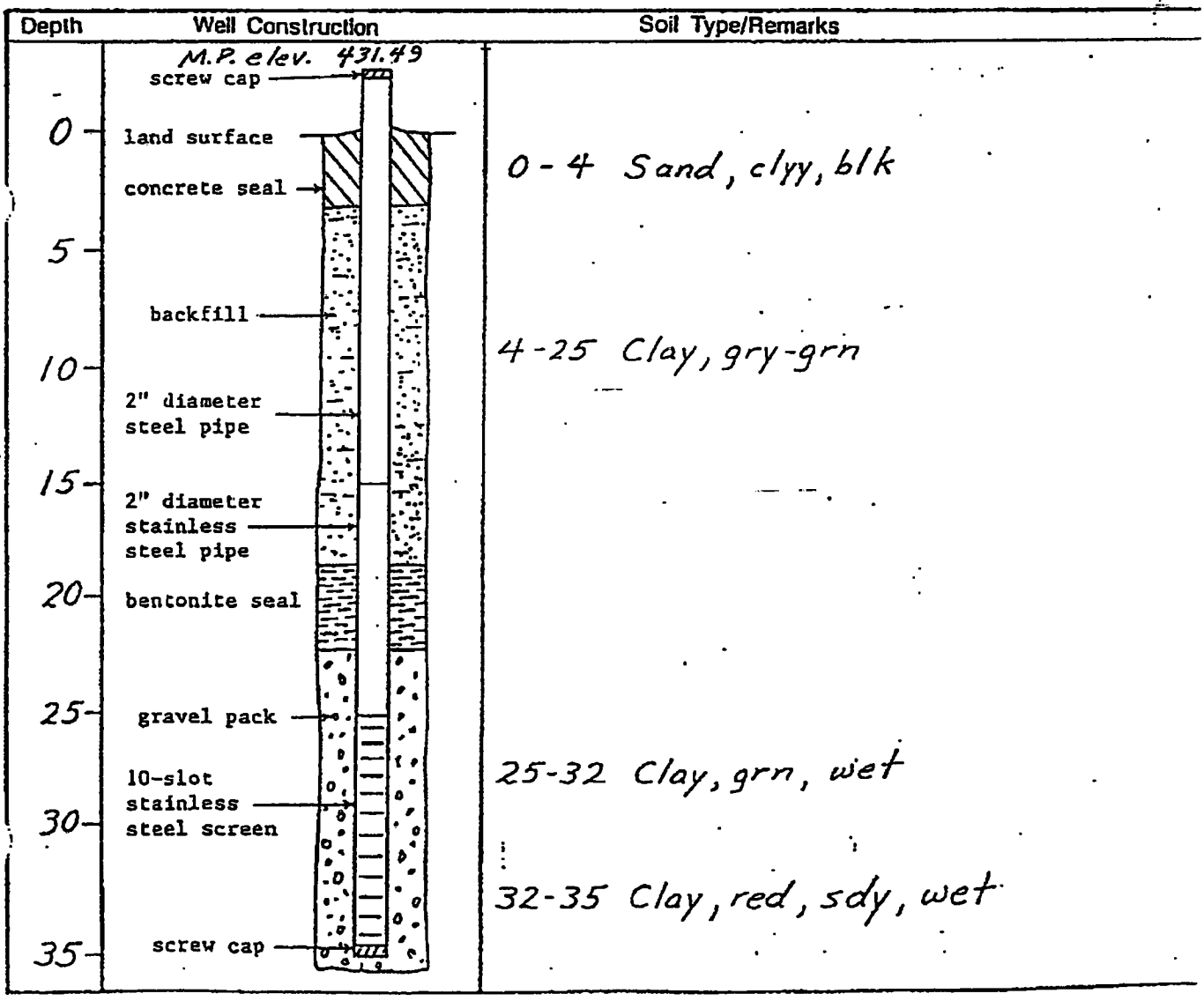
**HAND-SLOTTED WELL SCREENS ARE UNACCEPTABLE

IEPA# 6031

Amoco Corporation

Groundwater Management Section
Environmental Affairs and Safety Department

Well No. C-21A Date Drilled 7/24/86 Location Wood River, IL
Ssn refinery Drilling Method Aug Well Type observation
Hole Diameter 8" Total Depth 35'
Casing Type plain steel / s/s 316 Diameter 2" Length 25'
Screen Slot Size 10 Diameter 2" Length 10'
Gravel Pack 24-35' Seal above screen bent. at surface concrete/bent.



GERAGHTY &
MILLER, INC.

IEPA # G065

SAMPLE/CORE LOG

ing/Well G-25 Project/No. Amoco/OK0365HR03 Page 1 of 1

te
ocation Wood River, IL Drilling Started 18:00 Drilling Completed 18:35

Total Depth Drilled 55.0 feet Hole Diameter 6.5 inches Type of Sample/ Coring Device NA

Length and Diameter of Coring Device NA Sampling Interval NA feet

Land-Surface Elev. _____ feet [ ]Surveyed [ ]Estimated Datum _____

Drilling Fluid Used None Drilling Method H.S. Auger

Drilling Contractor J & R Drilling Driller Ray Coons Helper Greg

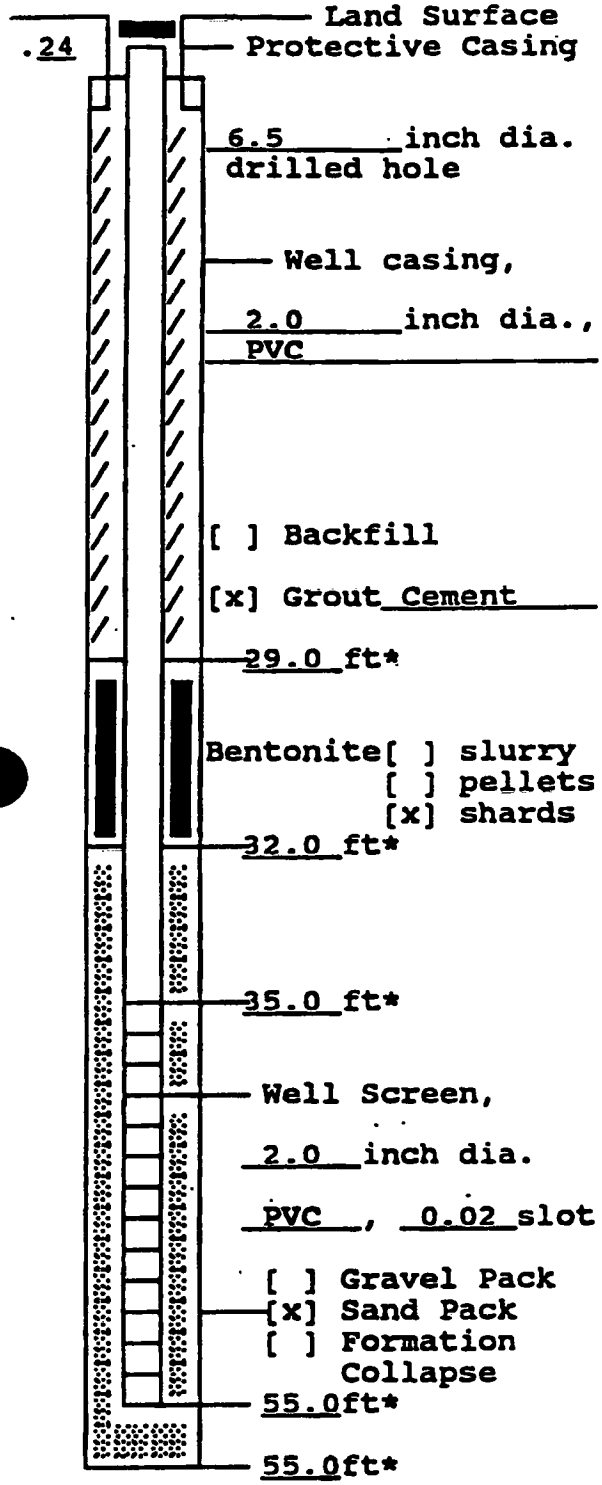
Prepared By LHW Hammer Weight NA Hammer Drop NA inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	1.5			TOPSOIL, tan, vf-grained sand and silt, dry,
				no odor
1.5				SAND, vf-fine grained, slightly silty, dry at
	10.0			top, no odor, coarsens to
10.0	45.0			SAND, fine-medium grained, no odor, moist
45.0				SAND, as above, strong HC odor, wet
	55.0			(encountered water table approx. 45 feet depth)

GERAGHTY &
MILLER, INC.

IEPA #: G065

WELL CONSTRUCTION LOG



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project AMOCO/OK0365HR03 Well G-25

Town/City Wood River

County Madison State IL

Permit No. _____

Measuring Point * Elevation
444.26 ft
[x] surveyed
[ ] estimated
* Measuring Point is top of casing

Installation Dates(s) 6-8-89

Drilling Method Hollow Stem Auger

Drilling Contractor J & R Drilling

Drilling Fluid None

Development Techniques(s) and Dates(s)
Bailing, 7-12-89

Fluid Loss During Drilling N/A gal

Water Removed During Dev. approx. 3.0 gal

Static Depth to Water N/A ft below MP

Pumping Depth to Water N/A ft below MP

Pumping Duration N/A hours

Yield N/A gpm Date N/A

Specific Capacity N/A gpm/ft

Well Purpose Ground water monitoring

Remarks _____

Prepared by LHW

Log of Boring: G-42/G082 **Project:** BP Area 9 Investigation **Project No:** 25364083.2MP20
Client: BP **Reviewed By:** George Varela
Location: Wood River, IL **Completion Depth (ft):** 40
Logged By: Lee White **Surface Elevation (ft):** 428.63
Date Started: 12/10/91 **Boring Diameter (in):** 2
Date Finished: 12/10/91 **Groundwater Depth (ft):**
Sheet: 1 of 3

Subsurface Profile				Sample Information						Remarks
Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	
428.63	0		Ground Surface							
0.00	0		***Clay (CL)*** Silty and sandy, very soft no HC odor, gravel in upper 1.0 foot							
	1									
	2									A90210BH05-01 at 2-3 ft (1120 hrs)
	3									
	4									A(0210BH05-02 at 4-5 ft (1145 hrs)
423.63	5		***CLAY (CL)*** Hard, slightly silty, HC odor							
5.00	6									
	7									
420.63	8		***CLAY (CL)*** Firm, slightly silty, HC odor, dense							
8.00	9									
418.63	10		***Clay (CL)*** Silty, upper 2.0 ft, fine, HC odor, HC sheen in cracks						Sand Filter	
10.00	11									
	12									

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: Brotcke Engineering
Driller:
Drilling Equipment: Drill Rig
Drilling Method: Hollow Stem Auger

Drill Bit Size/Type: 2-inches
Borehole Backfill: G-42/G082
Type of sampler: Continuous
Hammer weight/drop:

Log of Boring: G-42/G082 **Project:** BP Area 9 Investigation **Project No:** 25364083.2MP20 **Sheet** 2 of 3

Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	Remarks
414	15		***Clay (CL)*** Firm, plastic, silty, HC odor, HC sheen in layers							
409	20		***CLAY*** Silty at top, lower 2.0 feet hard, middle 1.0 ft wet and silty, HC sheen in wet zone, HC odor throughout section							
404	25		***CLAY (CL)*** Hard, orange-brown stains in areas, plastic, grades to red-brown clay, very hard, plastic, slight HC odor							

Well Construction: Top of Filter Elev. 23; Screen

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Log of Boring: G-42/G082 **Project:** BP Area 9 Investigation **Project No:** 25364083.2MP20 **Sheet** 3 of 3

Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	Remarks
399	30		***SAND (SP)*** Silty very fine grained, HC odor							
394	35		***SAND (SP)*** Silty, very fine-medium grained, HC odor, HC sheen on water							
389	40		End of Borehole						Bottom of Screen	

28 29 31 32 33 34 36 37 38 39 41 42

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

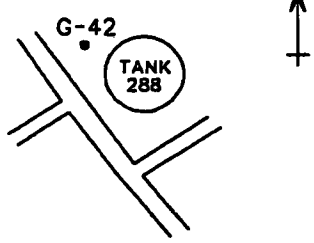
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

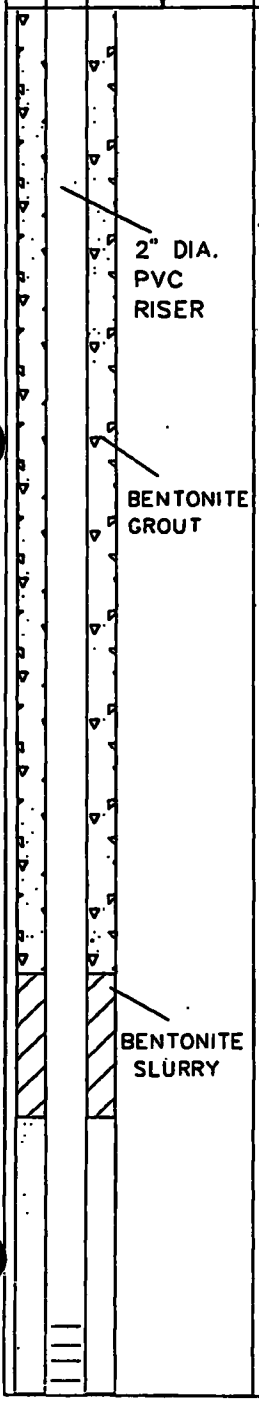
IEPA #: 6082

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K269.01	AMOCO-KOREA	WOOD RIVER, IL	G-42	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS
DRILLING START 1050 12/10/91 FINISH 1450 12/10/91	DEVEL. START 13:30 12-16-91 FINISH 14:00 12-16-91
STATIC DTW 33.29 TIME 7:30 DTO - DATE 12-11-91	DRILLED BY: BROTCKE ENGINEERING
ELEVATION TOC 431.13 GL 428.63	LOGGED BY: LEE WHITE

WELL LOCATION





DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		CLAY	BR	SILTY & SANDY, VERY SOFT	W						
				NO HC ODOR. GRAVEL IN							
1				UPPER 1.0 FOOT							
2											
				LOWER 2.0 FT. BLACK,							
3				COKE-LIKE MATERIAL,							
				HC ODOR							
4											
						6.4	1				CB
5		CLAY	BK-GR	HARD, SL. SILTY, HC ODOR,	M						
				(LOGGED FROM CUTTINGS)							
6											
7											
8		CLAY	GY-GR	FIRM, SL. SILTY, HC ODOR,	M						
				DENSE, (5 G 4/1)							
9					D						
						46	2				CB
10		CLAY	GY-GR	SILTY UPPER 2.0 FT., FINE,	M						
				HC ODOR. HC SHEEN IN							
11				CRACKS (5 G 4/1)							
12											
13											
14											
15						54	3				CB
		CLAY	GY-GR	FIRM, PLASTIC, SILTY, HC	W						
16				ODOR, HC SHEEN IN LAYERS							
					M						
17											
18											
19											
						120	4				CB

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

IEPA #: 6082

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K269.01	AMOCO-KOREA	WOOD RIVER, IL	G-42	2 OF 2

WELL LOCATION N

SEE PAGE 1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS
DRILLING START: - FINISH: -	DEVEL. START: - FINISH: -
STATIC DTW: - DTO: - TIME: - DATE: -	DRILLED BY: BROTCKE ENGINEERING
ELEVATION TOC: - GL: -	LOGGED BY: LEE WHITE

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
			CLAY	GR-GY	SL. SILTY. SILT AT TOP. LOWER	M						
					2.0 FEET HARD. MIDDLE 1.0 FT.							
	21				WET AND SILTY. (5 G 4/1). HC							
					SHEEN IN WET ZONE. HC ODOR							
	22				THROUGHOUT SECTION	W						
	23					M						
2" DIA. .010" SLOT PVC SCREEN												
	24											
							86	5				CB
	25		CLAY	GR-GY	HARD. ORANGE-BROWN STAINS IN	M						
					AREAS. PLASTIC. GRADES TO RED-							
	26				BROWN CLAY. VERY HARD. PLASTIC.							
					SLIGHT HC ODOR.							
	27											
	28		CLAY	RD-BR	10 R 3/4	M						
	29											
16-30 SIZE GRAVEL PACK												
	30		SAND	GY-BR	SILTY. VF-FINE GRAINED. HC ODOR	M	48	6				CB
	31				DARK GREENISH BROWN. SILTY	W						
					& CLAYEY. VF-FINE GRAINED.							
	32				THIN LAYERS OF CLAY THROUGHOUT							
					SECTION. LOWER 2 FT. OF SAND IS							
	33				FINE-MED. GRAINED W/ MINOR							
					COARSE SAND & GRAVEL. SLIGHT							
	34				HC ODOR							
							130	7				CB
	35											
			SAND	GY-BR	SILTY. VF-MED GRAINED. HC ODOR.	W					10	
	36				HC SHEEN ON WATER							
	37											
	38											
	39											
					T.D. AT 40.0 FEET		70	8				CB

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

PERSONNEL
G - T. DeReamer
D - D. Cady
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(0-7) fill; rock with silt and clay									
427.0			1							
426.0			2							
425.0			3							
424.0			4							
423.0			5							
422.0			6							
421.0			7							
	(7-15) Lean clay; firm; medium plasticity; not tested dilatancy; olive gray; moist; odor									
420.0			8							
419.0			9							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

PERSONNEL
G - T. DeReamer
D - D. Cady
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(7-15) Lean clay; firm; medium plasticity; not tested dilatancy; olive gray; moist; odor *(continued)*									
417.0			11							
416.0			12							
415.0			13							
414.0			14							
413.0			15							
	(15-17) Well-graded sand; subround grains; moderate cementation; gray; wet; odor; medium to coarse grained									
412.0			16							
411.0			17							
	(17-22) Lean clay; firm; medium plasticity; not tested dilatancy; olive gray; moist; odor									
410.0			18							
409.0			19							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL: G - T. DeReamer; D - D. Cady; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet
	(17-22) Lean clay; firm; medium plasticity; not tested dilatancy; olive gray; moist; odor *(continued)*		
407.0			21
406.0	(22-25) Silt; soft; low plasticity; not tested dilatancy; brown; moist; odor; clayey silt		22
405.0			23
404.0			24
403.0			25
	(25-36) Lean clay; soft; medium plasticity; not tested dilatancy; brownish gray grading to reddish brown at 30 feet bgs; moist; odor		
402.0			26
401.0			27
400.0			28
399.0			29

REMARKS

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

PERSONNEL
G - T. DeReamer
D - D. Cady
H -
H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	REMARKS
	(25-36) Lean clay; soft; medium plasticity; not tested dilatancy; brownish gray grading to reddish brown at 30 feet bgs; moist; odor *(continued)*									
397.0			31							
396.0			32							
395.0			33							
394.0			34							
393.0			35							
392.0	(36-38) Well-graded sand; subround grains; weak cementation; grayish black; wet; odor; fine to coarse grained		36							
391.0			37							
390.0	(38-40) Poorly graded sand; subround grains; weak cementation; grayish black; saturated; odor; medium grained		38							
389.0			39							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in)	PENETROMETER	N VALUES (BLOW COUNTS)	OVA or HNU READINGS	PERSONNEL / REMARKS
	(40-50) Poorly graded sand; subround grains; weak cementation; grayish black; saturated; odor; fine grained									G - T. DeReamer D - D. Cady H - H -
387.0			41							
386.0			42							
385.0			43							
384.0			44							
383.0			45							
382.0			46							
381.0			47							
380.0			48							
379.0			49							

(950226)

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. R31L Monitor Well No. R31L

Site File Name BP Wood River - Riverfront Property Surface Elevation 428.0 Completion Depth 60.0

Fed. ID. No. ILD980503106 Auger Depth _____ Rotary Depth _____

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/18/23 Finish 4/19/23

UTM (or State Plane) Coord. N.(Y) 796148.8 E.(X) 2315296.5

Latitude 38 ° 51 ' 11.26 " Longitude -90 ° 6 ' 3.46 "

Boring Location R31L

Drilling Equipment Geoprobe 8250LS

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in) | PENETROMETER | N VALUES (BLOW COUNTS) | OVA or HNU READINGS

PERSONNEL: G - T. DeReamer; D - D. Cady; H - ; H -

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	(50-60) Poorly graded sand; subround grains; weak cementation; light brown; saturated; odor; fine grained			
377.0			51	
376.0			52	
375.0			53	
374.0			54	
373.0			55	
372.0			56	
371.0			57	
370.0			58	
369.0			59	

(950226)

R000358

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191155009 County: Madison

Site Name: BP Products North America, Inc. - Wood River - Riverfront Property Well #: R31L

State Plane Coordinate: X ____ Y ____ (or) Latitude: 38° 50' 52.92" Longitude: -90° 6' 11.29" Borehole #: R31L

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: Environmental Works, Inc. Driller: Dakota Cady (EWI)

Consulting Firm: Sovereign Consulting, Inc. Geologist: Tom DeReamer (Sovereign)

Drilling Method: Sonic Drilling Fluid (Type): N/A

Logged By: Tom DeReamer (Sovereign) Date Started: 04/18/23 Date Finished: 04/19/23

Report Form Completed By: Matthew Cauthon (Sovereign) Date: 05/09/23

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: sand (2.75 ft) / bentonite (2 ft)

Installation Method: gravity

Setting Time: 21 hrs

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: gravity

Setting Time: 21 hrs

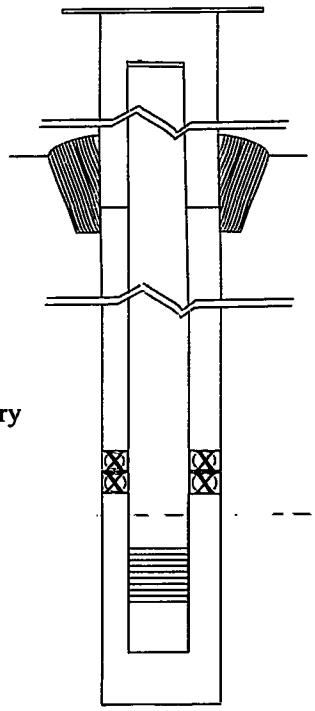
Type of Sand Pack: filter sand

Grain Size: 10/20 (Sieve Size)

Installation Method: gravity

Type of Backfill Material: N/A (if applicable)

Installation Method: ____



	Elevations (MSL)*	Depths (BGS)	(.01ft.)
		-3	Top of Protective Casing
		-3	Top of Riser Pipe
		0	Ground Surface
		-2.75	Top of Annular Sealant
		25.8	Static Water Level (After Completion)
		1	Top of Seal
		48	Top of Sand Pack
		50	Top of Screen
		55	Bottom of Screen
		55	Bottom of Well
		60	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	6
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	5
Riser Pipe Length (feet)	53
Bottom of Screen to End Cap (feet)	0.2
Screen Length (1st slot to last slot) (feet)	5
Total Length of Casing (feet)	58
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

Boring/Well G33 Project/No. OK00703 05901 Page 1 of 1

Site Location Wood River Refinery Drilling Started 11/3/89 Drilling Completed 11/3/89

Total Depth Drilled 44 feet Hole Diameter 7¼ OD / 3¾ ID inches Type of Sample/ Coring Device

Length and Diameter of Coring Device Sampling Interval feet

Land-Surface Elev. feet ☐ Surveyed ☐ Estimated Datum

Drilling Fluid Used none Drilling Method Hollowstem

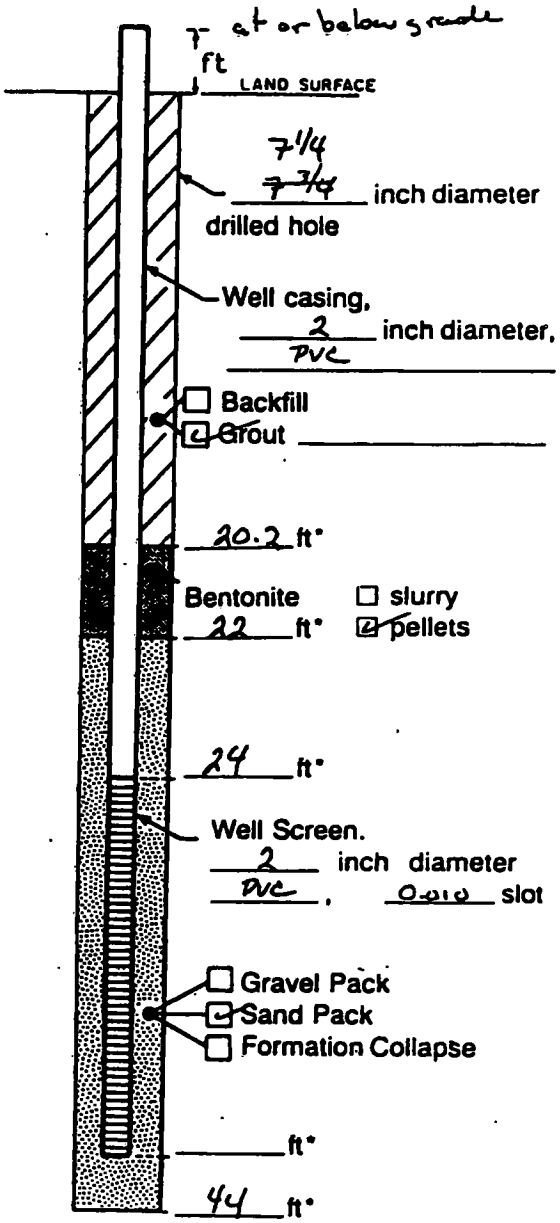
Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

Prepared By Rick Dotson Hammer Weight — Hammer Drop — inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	1			tan, silty sand
1	3			top soil, loam, dark brn,
3	4			sandy, stiff clay, gray
4	8			clay, med. dense, brn, ; coming out in balls
8	10			silty sand, sl. moist, f-grained, brn.
10	44			sand, f-grained, sl. moist, well-sorted, brn.
				- formation collapse to 33' below l.s.
				sand - 3 bags (100lbs)
				top of sand . 22' below l.s.
				clay - 2-½ bags - chunks
				top of clay — 20.2'

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK002703 0590/ Well G33
Town/City Wood River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 11/3/89
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

Fluid Loss During Drilling _____ gallon
Water Removed During Development 5 gallon
Static Depth to Water _____ feet below M.P
Pumping Depth to Water _____ feet below M.P
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitor

Remarks No hydrocarbon odor.

Prepared by R. Dotson

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

IEPA# G71L

Boring/Well G31 Project/No. OK~~00203~~ 35901 Page 1 of 1

Site Location Wood River Refinery Drilling Started 11/2/89 Drilling Completed 11/2/89

Total Depth Drilled ~60 feet Hole Diameter 7¼ 00 inches 7¾ ID Type of Sample/Coring Device none

Length and Diameter of Coring Device none Sampling Interval none feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used none Drilling Method Hollow-stem

Drilling Contractor Hughes Driller Tom Helper Bill, Gordon

Prepared By R. Dotson Hammer Weight — Hammer Drop — inches

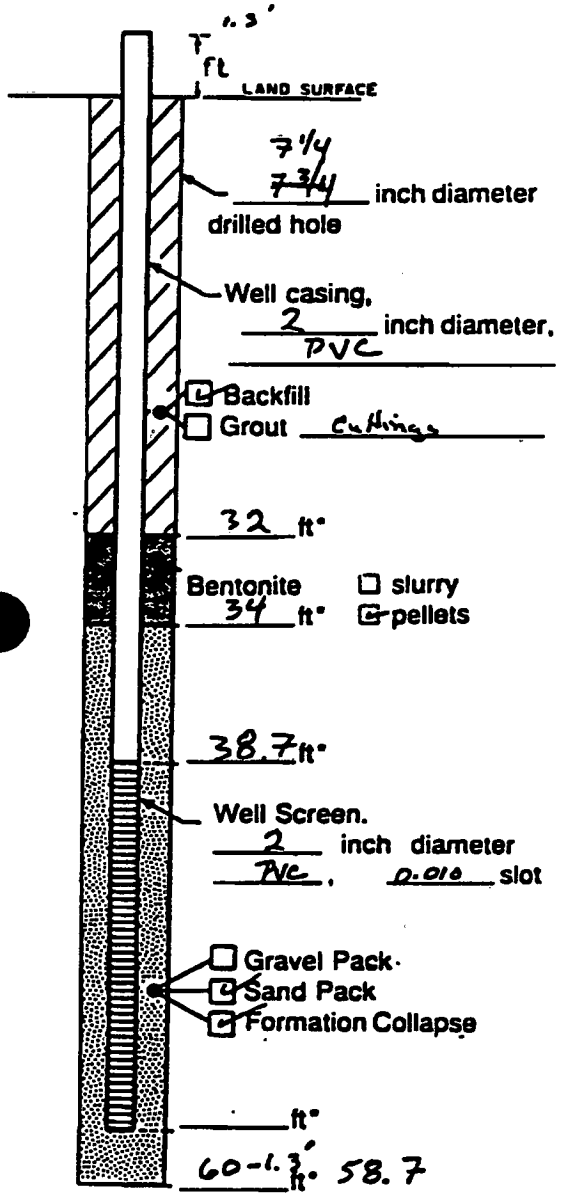
Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	10			silty sand, sl. moist; F. grained, BRN
10	15			same, sl. more silt & clay
15	18 ~~15~~			silty sand, Black, no hydrocarbon odor,
-				moist; layers with higher silt & clay content
18	25			sand, F. grained, well-sorted, moist, lt. Brn.
				- drillers adjusted fittings on rig (down time ~15 min)
	35			same - sl. hydrocarbon odor.; gray
40	45			same; sl. hydrocarbon odor; lt. Brn.
	60			same - TD
				Sand - 3 bags (100 lb)
				Plug - 1/2 bag - chunks
				Top of sand - 34 Ft.
				Top of Plug - 32 Ft.
				DTW - 50 to TOC
				Casing ≈ 14 inches above grave

G&M Form 12 5-86 Southwest 87-1718

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA#: G71L

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK880703 05701 Well G31
Town/City Wood River Refinery
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 11/2/89
Drilling Method Hollow stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

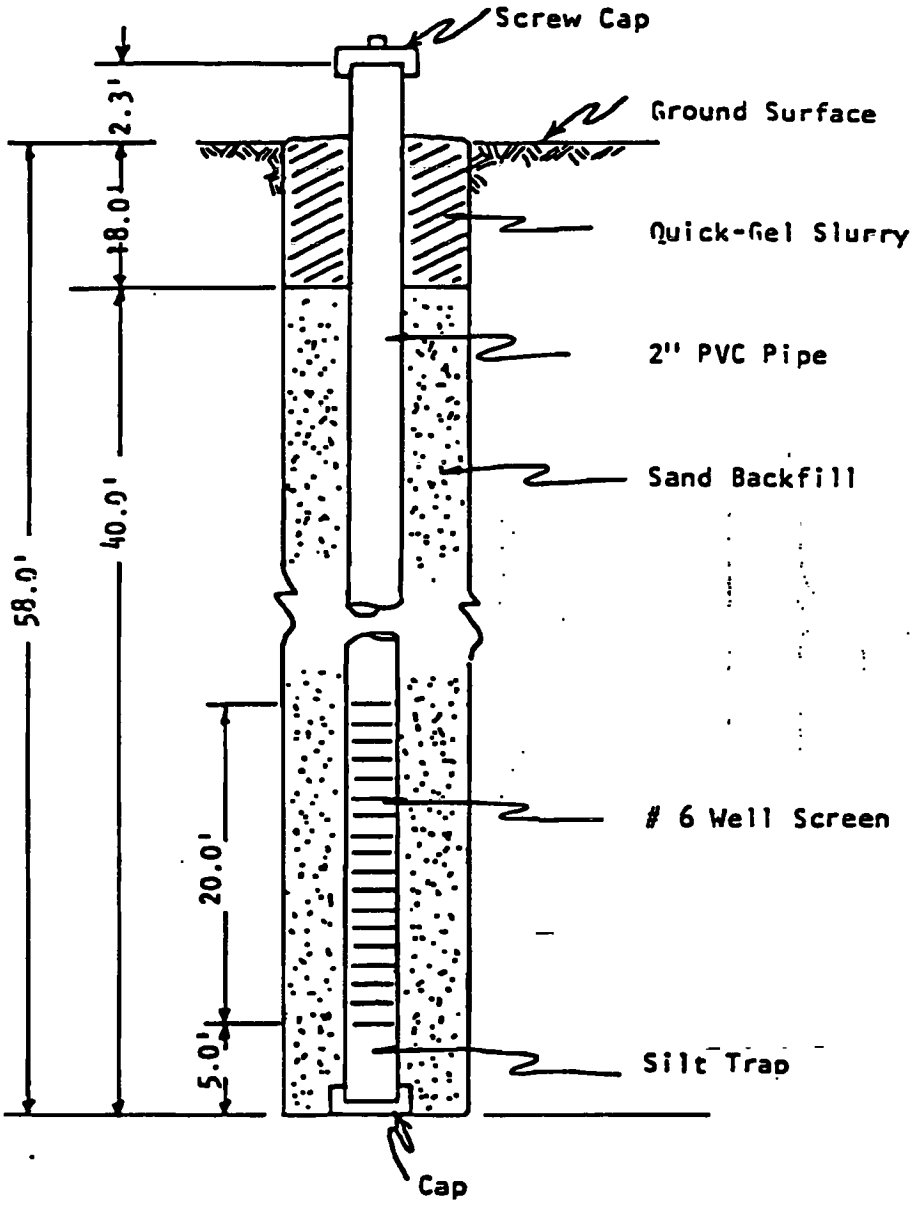
Development Technique(s) and Date(s)
bailer; 11/3/89

Fluid Loss During Drilling none gallons
Water Removed During Development 8 gallons
Static Depth to Water 50.41 before develop. feet below M.P
Pumping Depth to Water — feet below M.P
Pumping Duration — hours
Yield _____ gpm Date _____
Specific Capacity — gpm/ft
Well Purpose
Monitoring

Remarks
DTP = 50.36 DTP = depth to product
DTW = 50.41
measured on north side of well
Bailed 8 gallons; ~~8~~ skim of hydrocarbon in well.

Prepared by Rick Dotson

IEPA # G97L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-17
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA #s: G306 & G307

Observation Wells Installed in the Spray Pond Area

IEPA #: G307

Well RP-7. Located 50 feet west of tank 826, 50 feet south of road on north side of spray pond 1.

Depth interval	Material encountered
0 - 7 feet	Fill
7 - 9	same, hydrocarbon odors
9 - 19	Clay, silty, dark green-brown
19 - 34	Sand, very fine to medium, silty
34 - 49	same, fine to coarse, moist
49	Total depth

10 slot screen set 39 to 49, gravel-packed, bentonite seal 16 to 19 feet

Well RP-7S. Located 5 feet west-southwest of well #1.

Depth interval	Material encountered
0 - 7 feet	Fill, silty, dark brown
7 - 9	same, hydrocarbon odor
9 - 14	Clay, dark brown to dark gray
14	Total depth

20 slot screen set 4 to 14, gravel-packed, sealed at surface

IEPA #: G306

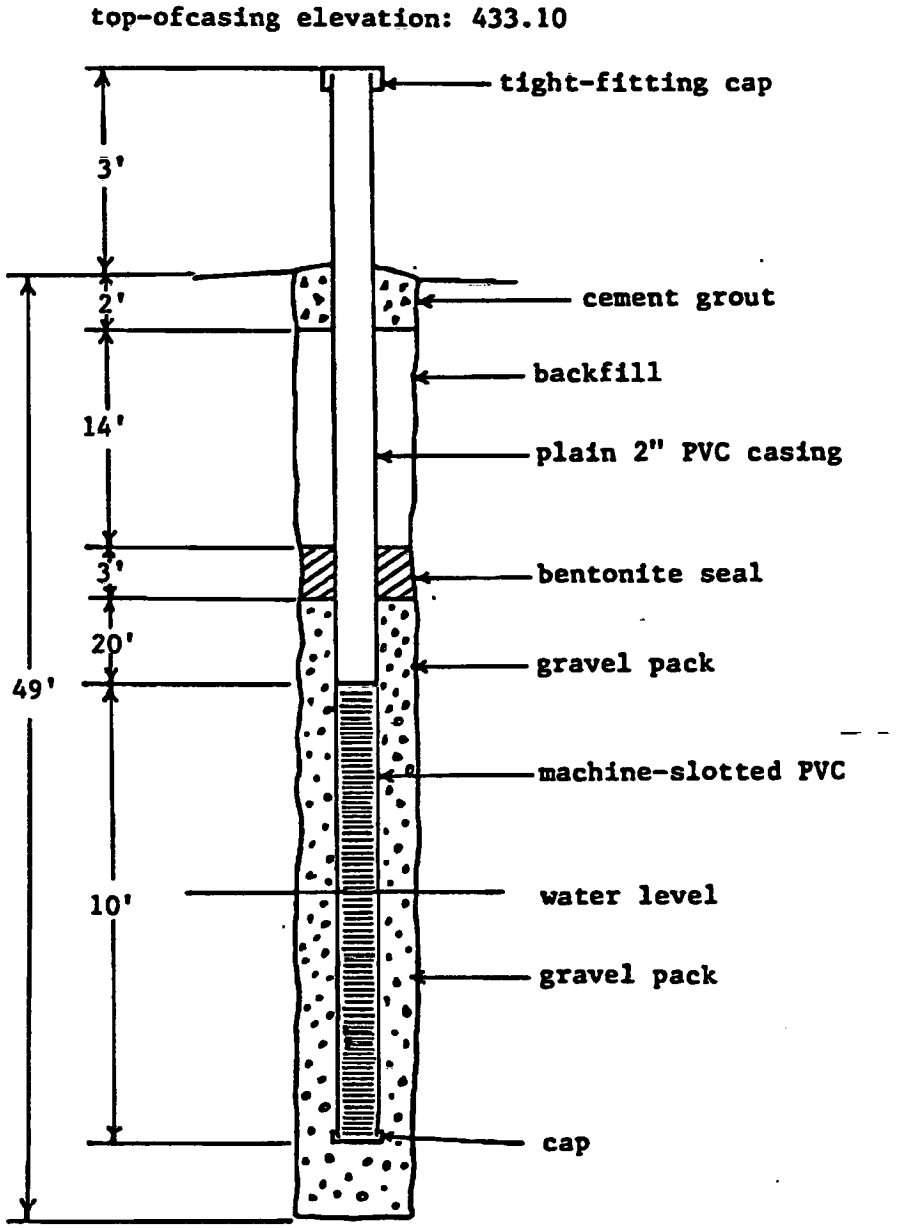
Well RP-6. Located on south side of road, 400 feet west of well #1.

Depth interval	Material encountered
0 - 8 feet	Fill, silt and gravel
8 - 19	Clay, gray to tan-brown
19 - 22	Silt, very sandy
22 - 39	Sand, very fine to medium
29 - 49	same, wet
49	Total depth

10 slot screen set 39 to 49, gravel-packed, bentonite seal 16 to 19 feet

IEPA #G306

Observation well RP-6

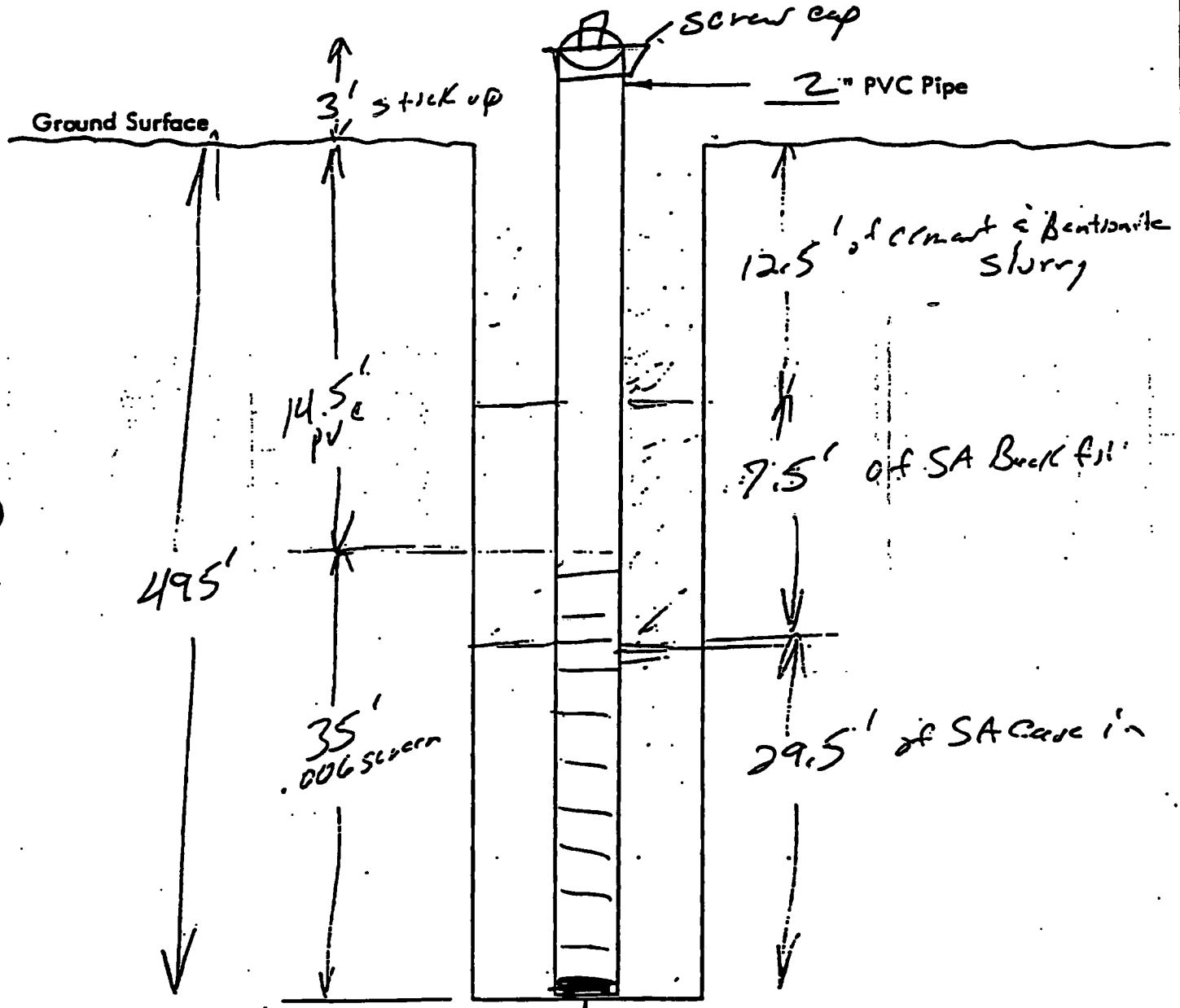


IEPA #: G016

RECORD OF PIEZOMETER INSTALLATION

JOHN MATHES & ASSOCIATES

Boring No. C-6 Contract No. 1439 Date Installed 5-23-83



NOTES:

Information Checklist:

Type of Backfill Soil Strata

Type of Screen Length of Screen Length of Pipe Height of Pipe Above Ground

Cap on Bottom Cap on Top How Sealed at Surface

GERAGHTY &
MILLER, INC.

IEPA #: 6046

SAMPLE/CORE LOG

Boring/Well G-6 Project/No. AMOCO-OK0365HR01 Page 1 of 1

Site Location Wood River, IL Drilling Started 13:30 Drilling Completed 14:45

Total Depth Drilled 50.0 feet Hole Diameter 7.25 inches Type of Sample/ Coring Device N/A

Length and Diameter of Coring Device N/A Sampling Interval N/A feet

Land-Surface Elev. 441.4 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling Driller Tom Hughes Helper Mike

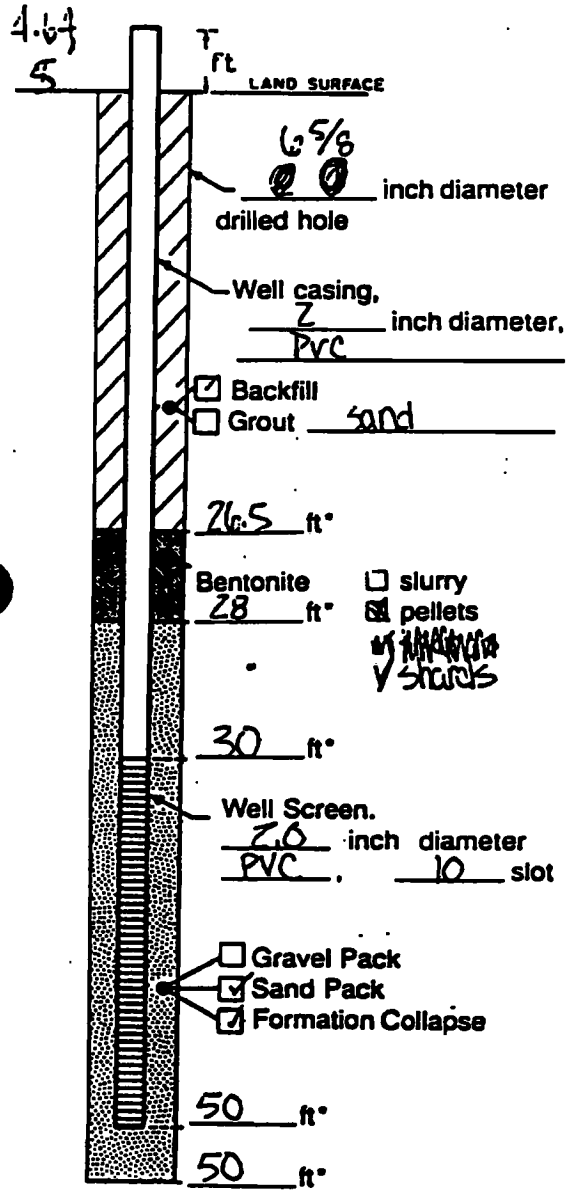
Prepared By L. White Hammer Weight N/A Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	0.5			CINDERS- silt to sand sized, black
.5	6.0			SAND- v. fine grained, silty, clayey, orange-brn
6.0	10.0			SAND- v. fine grained, silty, clayey, black
				hydrocarbon odor.
10.0	45.0			SAND- v. fine-fine grained, subang-subrnd, wl.
				sorted, lt. grey, hydrocarbon (gas) odor.
45.0	50.0			SAND- fine grained w/ minor med. sized grains,
				subang-subrnd, wl. sorted, sl. hydrocarbon odor.

IEPA #: G046

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is
Top of Well Casing
Unless Otherwise Noted.

*Depth Below Land Surface

Project OK0365HB01 Well G-6
Town/City WOOD RIVER
County _____ State Ill.
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 10/11/88
Drilling Method H.S. Auger
Drilling Contractor Hughes Drilling
Drilling Fluid -

Development Technique(s) and Date(s)

Fluid Loss During Drilling - gallo
Water Removed During Development _____ gallo
Static Depth to Water 4ft. 7.4 feet below M.
Pumping Depth to Water - feet below M.
Pumping Duration - hours
Yield - gpm Date _____
Specific Capacity - gpm/ft
Well Purpose
Monitoring Well

Remarks

Prepared by J. Stonfelt

GERAGHTY &
MILLER, INC.

IEPA # G050

SAMPLE/CORE LOG

Boring/Well G-10 Project/No. AMOCO-OK0365HR01 Page 1 of 1

Site Location Wood River, Il Drilling Started 10/05/88 Drilling Completed 10/05/88

Total Depth Drilled 45.0 feet Hole Diameter 7.25 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' x 0.2' I.D. Sampling Interval N/A feet

Land-Surface Elev. 430.5 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling Driller Tom Hughes Helper Mike

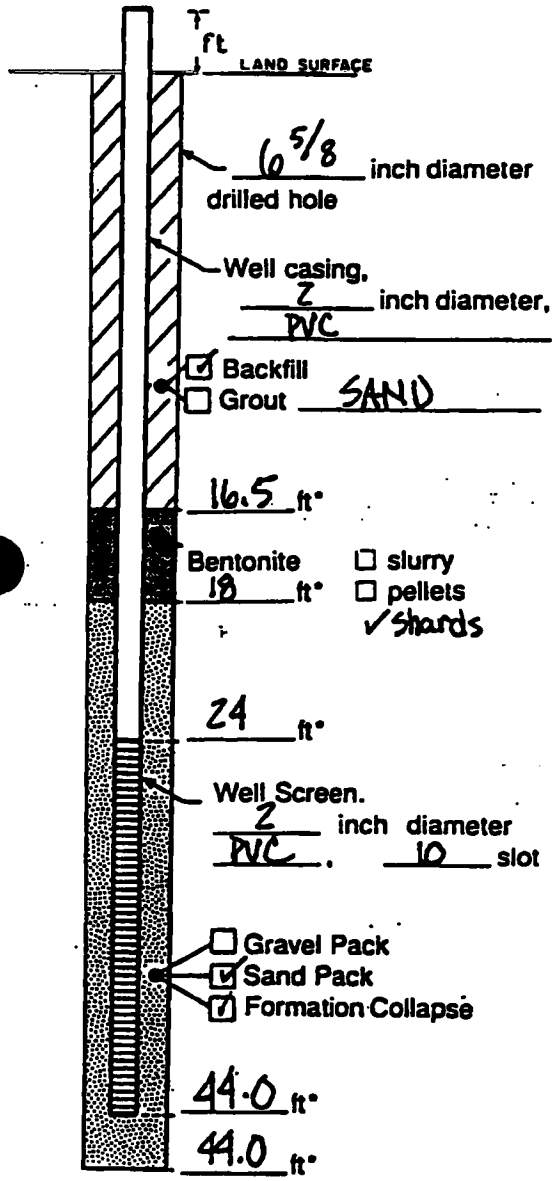
Prepared By G. Cipriano Hammer Weight N/A Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
.0	1.0			ASPHALT
1.0	6.0			CLAY-dense, pliable, grayish-green.
6.0	20.0			SAND-fine grained, well sorted, gray strong
				hydrocarbon (gas) odor.
20.0	35.0			SAND-fine grained, minor amounts of coarse
				grains, moderately sorted, hydrocarbon odor.
35.0	44.0			SAND-very fine grained, well sorted, light gray
				hydrocarbon odor.
	45.0			T.D.

IEPA # G050

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project 060365HR01 Well G-10
Town/City WOOD RIVER
County Madison State Ill
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 10/12/88
Drilling Method Hollow Stem Auger
Drilling Contractor Hughes Drilling
Drilling Fluid -

Development Technique(s) and Date(s)

Fluid Loss During Drilling _____ gallons
Water Removed During Development _____ gallons
Static Depth to Water _____ feet below M.P
Pumping Depth to Water 42.18; DTProduct = 35.98 feet below M.P
Pumping Duration - hours
Yield - gpm Date -
Specific Capacity - gpm/ft
Well Purpose
Monitoring well / observation well

Remarks

Prepared by J. STONFELT

Log of Boring: G31R **Project:** MP Compliance **Project No:** 25365025
Client: BP Products North America Inc. **Reviewed By:** J. Dennison
Location: Former Wood River Refinery Wood River, IL **Completion Depth (ft):** 44
Logged by: Mark Wallace **Surface Elevation (ft):** 432.40
Date Started: 3/1/04 **Boring Diameter (in):** 9.5
Date Finished: 3/1/04 **Groundwater Depth (ft):** 34
Easting: 2316452.973 **Northing:** 798645.789 **Sheet:** 1 of 4

Subsurface Profile				Sample Information					
Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID	Well Construction	Remarks
432.40	0		Ground Surface					TOC at 435.26	
430.90	1		***SAND (SP)*** Dry, gray to black medium cinder fill with medium to fine sand		Geo-P	40/48	0	Seal Pack Bentonite Chips	
	2		Becomes moist, reddish-brown, fine, trace clay				0		
428.40	3						0		
	4		***Clayey SAND (SC)*** Moist, reddish-brown, low-plasticity				0		
426.40	5						0		
	6		***SAND (SP)*** moist, reddish-brown, low plasticity		Geo-P	48/48	0		
424.28	7						0		
	8		Becomes medium to fine				0		
	9						0		
	10								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G31R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 2 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	11				Geo-P	36/48	0		
	12						-		
	13						0		
	14						0		
					Geo-P	44/48	0		
417	15		Becomes brown				0		
	16						0		
	17						0.2		
	18				Geo-P	46/48	0		
	19						0		
	20						0		
	21						0		
	22				Geo-P	48/48	0		
	23						0	Screen	
	24						0		
407	25								

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G31R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 3 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	26		Trace clay at 25-26 feet				0		
					Geo-P	48/48	0.2		
	27						0		
	28								
	29						0		
							0		
	30								
401					Geo-P	48/48	0		
	31		1" Clay lense				0		
	32								
							0.2		
399	33		Trace limestone cobbles						
			Becomes wet				0.1		
	34								
					Geo-P	48/48	0		
	35								
							0		
	36								
							0		
395	37		2" span of bedding lenses						
			with organic material				0.1		
	38								
					Geo-P	40/48	0.2		
	39								
							0		
	40								

Seal Pack Sand

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

Log of Boring: G31R **Project:** MP Compliance **Project No:** 25365025 **Sheet** 4 of 4

Elevation	Depth	Graphic	Description	Sample No.	Sample Type	Recovery (inches)	Sample PID (ppm)	Well Construction	Remarks
	41						0		
							0		
390	42		Intermittent gray coloration		Geo-P	46/48	0.2		
	43								
							0.2		
388	44		End of Borehole						
	45								
	46								
	47								
	48								
	49								
	50								
	51								
	52								
	53								
	54								
	55								

URS
122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I
Driller: P. Gotto
Drilling Equipment: GEO-CAT
Drilling Method: Geoprobe

Drill Bit Size/Type: 2-in.
Borehole Backfill: Well
Type of sampler: 4-in. Macro
Hammer weight/drop: N/A

This form may be completed within Acrobat before printing.

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: Former Wood River Refinery Wood River, IL-Main Plant Well #: G31R

State Plane Coordinate: X 2310452.773 Y 798645.789 (or) Latitude: ° ' " Longitude: ° ' " Borehole #:

Surveyed by: Larry Stahlhut (Crawford, Murphy, and Tilly, Inc.) IL Registration #: 35-2214

Drilling Contractor: Roberts Environmental Drilling, Inc Driller: P. Gotto

Consulting Firm: URS Corporation Geologist: Mark Wallace

Drilling Method: Hollow Stem Auger Drilling Fluid (Type):

Logged By: Mark Wallace Date Started: 3/2/04 Date Finished: 3/2/04

Report Form Completed By: Emily Fox Date: 3/19/04

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Medium Bentonite Chips

Installation Method: Placed (Poured)

Setting Time:

Type of Bentonite Seal - (Granular) Pellet, Slurry (Choose One)

Installation Method: Placed (Poured)

Setting Time:

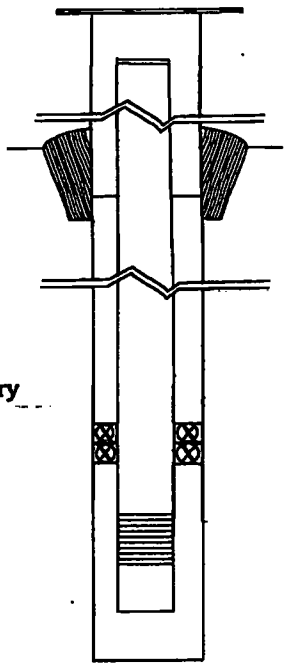
Type of Sand Pack: Morie Sand

Grain Size: 16/30 (Sieve Size)

Installation Method:

Type of Backfill Material: N/A (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
435.26	-3.4	Top of Protective Casing
435.06	-3.2	Top of Riser Pipe
432.40	0	Ground Surface
432.40	0	Top of Annular Sealant
398.40	34	Static Water Level (After Completion)
432.40	0	Top of Seal
412.38	20.02	Top of Sand Pack
410.38	22.02	Top of Screen
390.38	42.02	Bottom of Screen
389.88	42.22	Bottom of Well
388.40	44	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, (PVC) or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, (PVC), or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9.5
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	
Riser Pipe Length (feet)	25.6
Bottom of Screen to End Cap (feet)	0.2
Screen Length (1st slot to last slot) (feet)	20
Total Length of Casing (feet)	47.3
Screen Slot Size **	0.010

**Hand-Slotted Well Screens are Unacceptable

IEPA #: G83L

DRILLERS LOGS

JOHN MATHES & ASSOCIATES, INC.

BORING NO. H-3 CONTRACT NO. 1048 ELEVATION ____

DATE DRILLED 7-17-81 PROJECT AMOCO

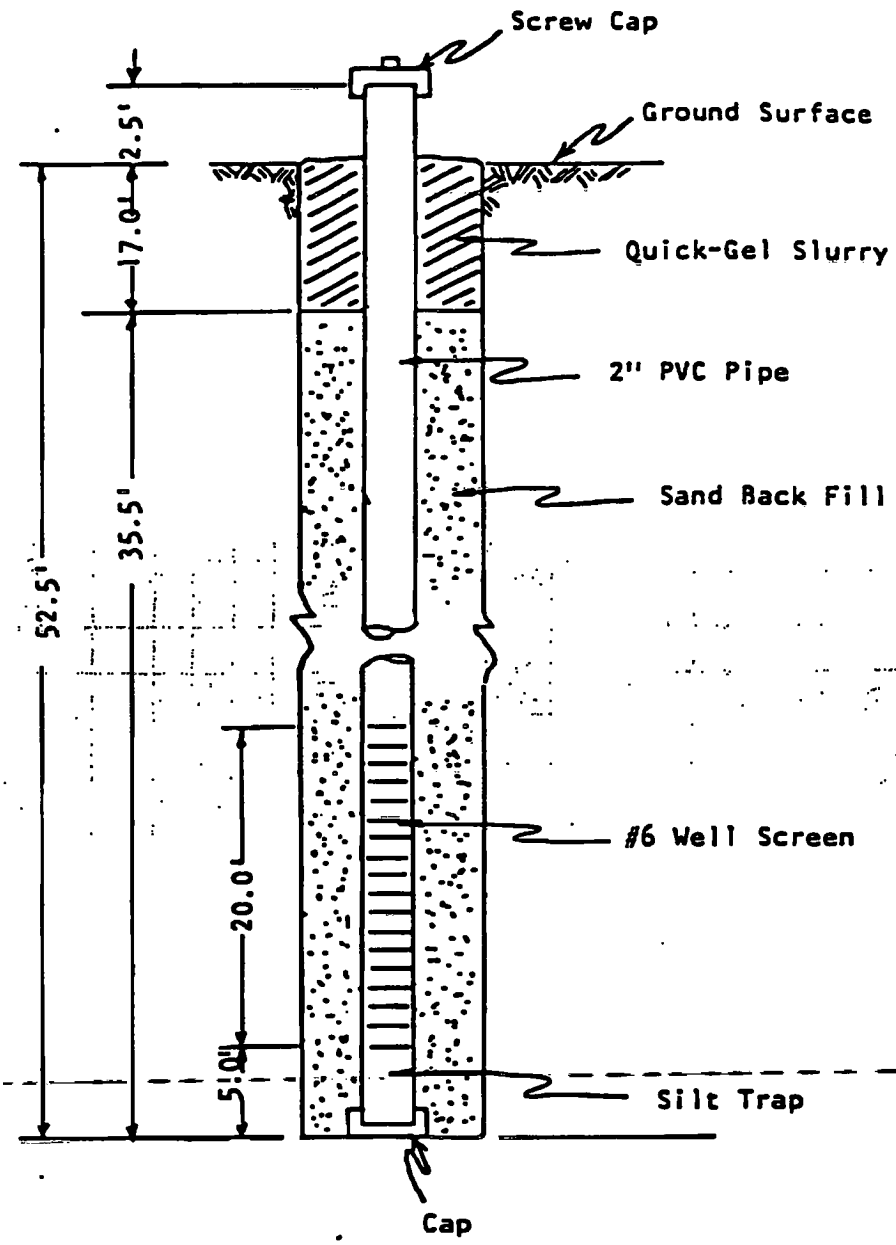
DRILLING METHOD H.A. HELPER J.B. DRILLER J.S.

Depth	Sample No.	Sample Depth	Sample Type	Recovery	SAMPLE DESCRIPTION	Qp	N/6"			REMARKS
					Augered to 29'					
					Br to Gr f: SA					Strong Odor
30	1	29/30½	SS	18"	Gr f: SA		5	7	8	Strong Odor
	2	31½/33	SS	16"	Gr f: SA		4	11	14	Strong Odor
										Hit fluid @ 31.5'
35	3	34/35½	SS	18"	Gr f: SA (Strong w/tr silty seams		5	13	15	Mixed Thick Recovery + filled augers before drilling deeper
	4	36½/38	SS	16"	Gr. f. SA (Strong! w/tr silty seams		7	12	19	
40	5	39/40½	SS	16"	Gr f: SA w/tr silty seams		12	13	17	Strong
	6	41½/43	SS	14"	Gr f: SA w/tr silty seams		6	10	17	Strong
45	7	44/45½	SS	14"	" " "		9	16	17	"
	8	46½/48	SS		" " "		7	7	7	"
50	9	49/50½	SS				9	11	13	
					Auger @ 52.5'					

COMMENTS: T.O.B. @ 52.5'

PIEZOMETER: Yes ✓ No ____

IEPA #: G83L



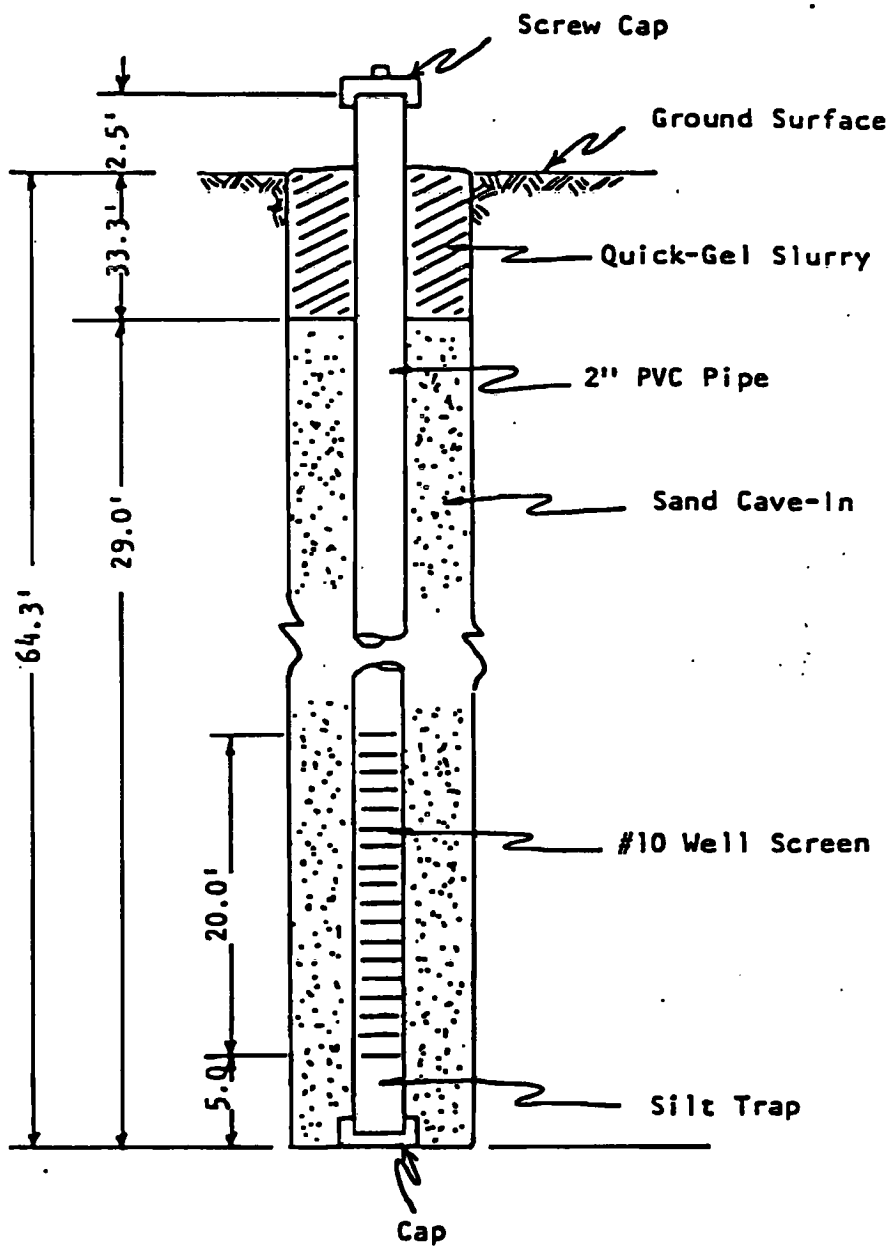
Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-3
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA #: G86L



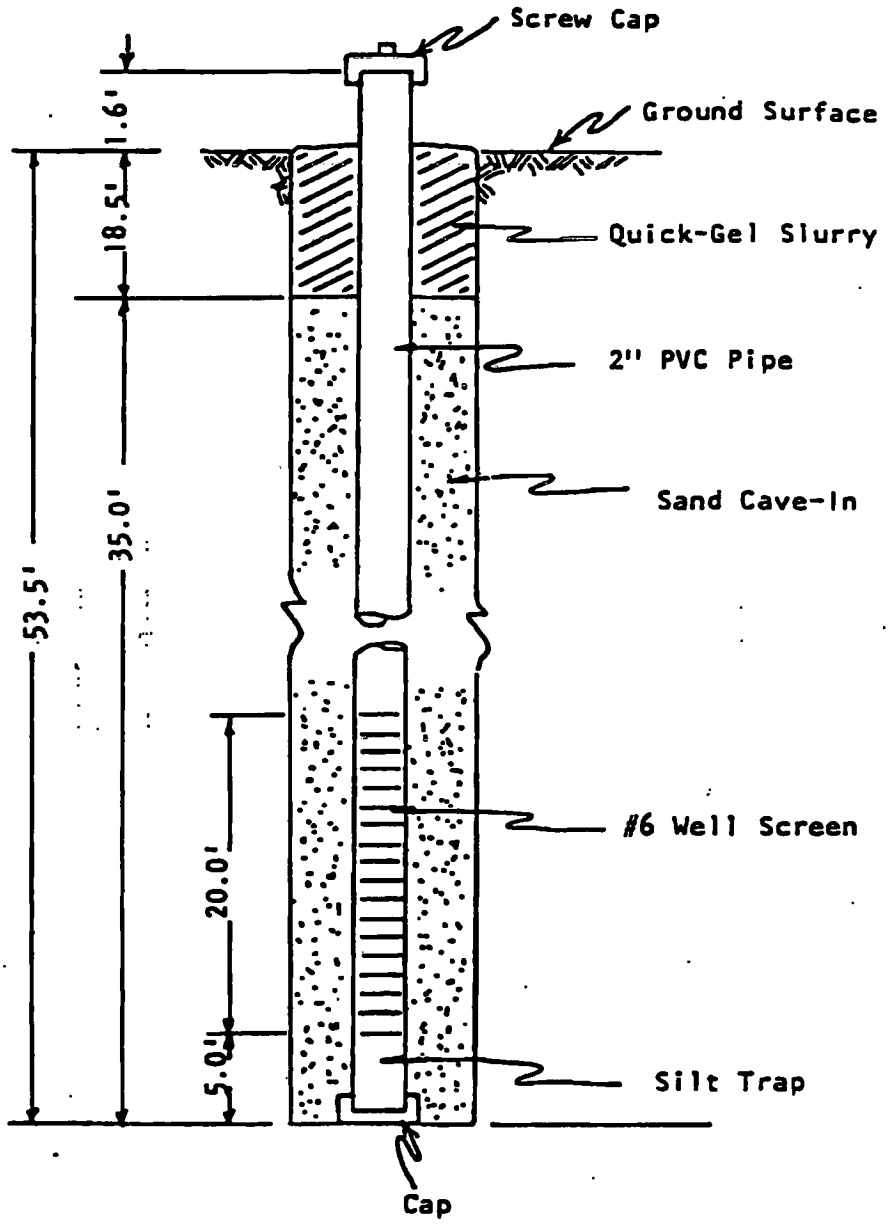
Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-6
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA # G89L



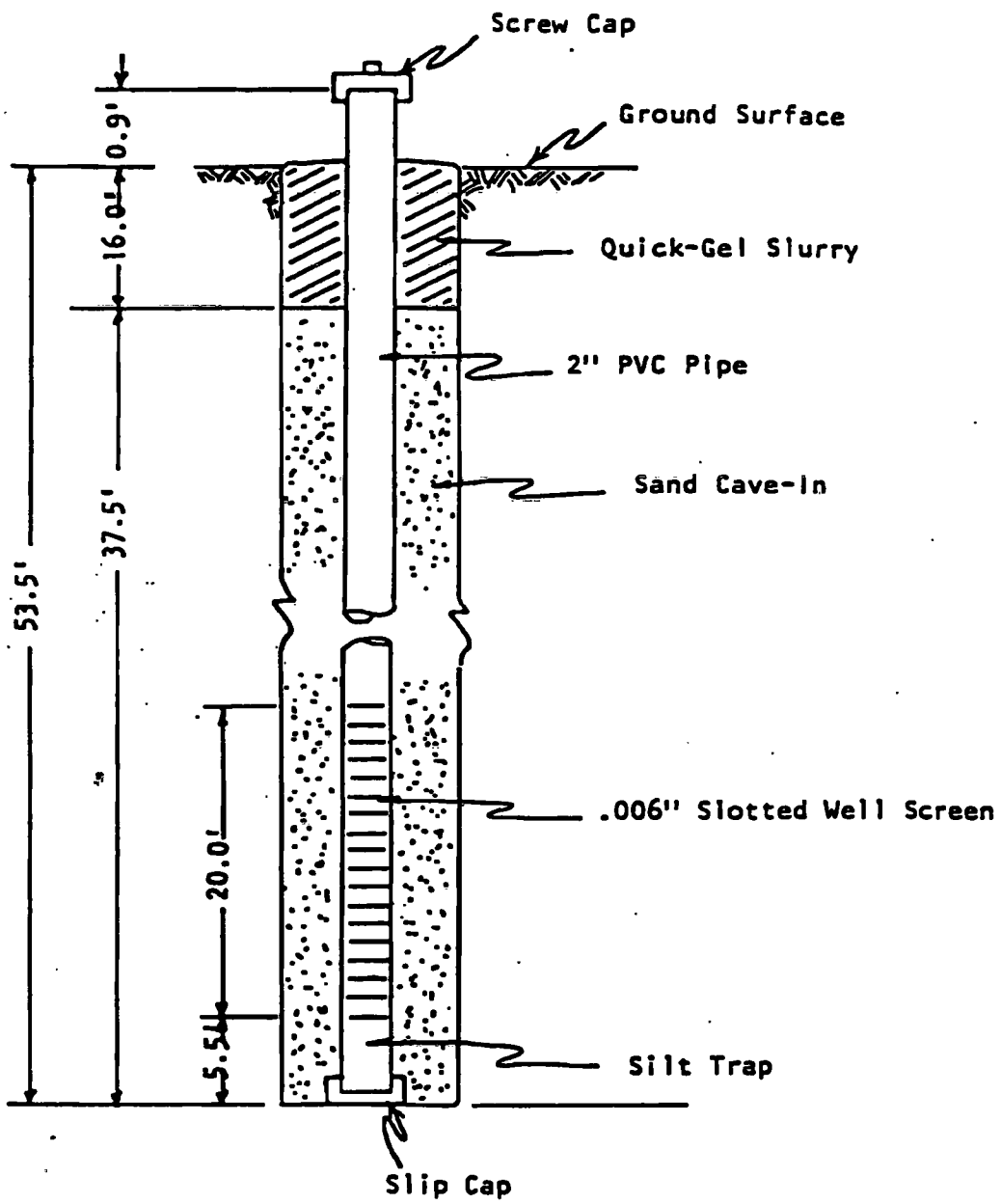
Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-9
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA #: G99L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-19
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW04

Sheet 1 of 3

Date(s) Drilled	10/25/13 and 11/7/13 - 11/8/13	Logged By	A. Heitger	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	53.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 28.0' bgs ATD and 29.5' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						Loose, dry, brown, fine to medium SAND (SP)		
			Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	5								
							Not Sampled - Began Sampling at 23' BGS		3/8-inch Bentonite Chips
	10								
			DP-1	0	N/A				Filter Sand
	15								
									4-inch SCH 40 PVC 0.020-inch Slotted Screen
	20								

URS

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW04

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	20		DP-1	0	N/A		Not Sampled - Began Sampling at 23' BGS		
	25		DP-2	41	2365		Medium dense, moist, brown and gray, medium to coarse SAND (SP) trace fine black sand, with weathered gasoline odor		
					1152				Filter Sand
					1557		becomes fine to medium grained moisture content increases becomes dense, wet, brownish gray	▽	
	30		DP-2	44	1650				
					1507		1-inch layer dark gray staining		
					1719		with 1/2-inch dark gray stained layers becomes fine grained		
	35		DP-3	44	1630		becomes fine to medium grained, brown and gray, with trace gray staining		
					1816				4-inch SCH 40 PVC 0.020-inch Slotted Screen
	40		DP-4	0	N/A		Not Sampled - Continued Sampling at 38' BGS		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW04

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	45		DP-4	0	N/A		Not Sampled - Continued Sampling at 38' BGS		Filter Sand
	50		DP-5	60	200 210 1830		Dense, wet, gray, fine to medium SAND (SP) with 1/8-inch dark gray seams, hydrocarbon sheen on groundwater trace coarse sand		4-inch SCH 40 PVC 0.020-inch Slotted Screen Native Material
							End of Boring at 53' bgs.		
	55								
	60								
	65								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BIBP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery **Project Location:** Wood River, IL **Project Number:** 13816540.104080	**Log of Monitoring Well A8MW05** Sheet 1 of 2

Date(s) Drilled	10/25/13 and 11/13/13	Logged By	S. Bates	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	48.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 28.0' bgs ATD and 29.2' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRASS / TOPSOIL		
							Medium dense, moist to dry, dark brown, fine to medium SAND (SP)		
			Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	5								
							Not Sampled - Began Sampling at 23' BGS		
	10								3/8-inch Bentonite Chips
			DP-1	0	N/A				
	15								
									Filter Sand
	20								4-inch SCH 40 PVC 0.020-inch Slotted Screen

Report: GEOP FT_LINER_WELL; File: K:\PROJECTS\B\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW05

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	25		DP-2	44	2050		Medium dense, moist, gray, fine SAND (SP)		
					2204		becomes dark brown to black stained		Filter Sand
					1785		Sand saturated with LNAPL becomes wet		
	30		DP-3	49	1632				
					2003				
							Not Sampled - Continued Sampling at 43' BGS		
	35								
			DP-4	0	N/A				
	40								4-inch SCH 40 PVC 0.020-inch Slotted Screen
							Dense, wet, gray, fine SAND (SP)		
	45		DP-5	47	789				
					992				
					1394				
							End of Boring at 48' bgs.		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW06/ A8BH267

Sheet 1 of 3

Date(s) Drilled	10/25/13 and 11/4/13	Logged By	A. Heitger / C. Landaverde	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	73.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 26.0' bgs ATD and 28.0 bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRASS / GRAVEL / TOPSOIL [FILL]		
							Dense, moist, dark brown, fine to coarse SAND, with concrete and brick debris [FILL]		
			Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	5						Medium dense, moist, dark brown, fine to medium SAND (SM)		
			DP-1	0	N/A				3/8-inch Bentonite Chips
							Medium dense, moist, light yellowish brown, fine GRAVEL (GP)		
					Soil Core 8.0-10.5'		Medium dense, moist, yellowish brown, silty SAND (SM)		
	10		DP-2	43			Medium dense, moist, dark yellowish brown, fine to medium SAND (SP) becomes yellowish brown		
					Soil Core 10.5-13.0'				
					0.0				Filter Sand
	15		DP-3	45	0.0		with trace fine rounded gravel		
					0.0		becomes fine to medium grained		4-inch SCH 40 PVC 0.020-inch Slotted Screen
					0.0				
	20		DP-4	43			Medium dense, moist, pale brown and brown layered, fine to coarse SAND (SW) becomes fine to medium grained becomes pale brown becomes very dark grayish brown		
					Soil Core 20.0-23.0'				Filter Sand

Report: GEOPFT_LINER_WELL; File: K:\PROJECTS\BGP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW06/ A8BH267

Sheet 2 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	25		DP-5	48	Soil Core 23.0-26.5		becomes light yellowish brown becomes dense and wet		
					Soil Core 26.5-28.0		becomes fine to medium grained and yellowish brown		
	30		DP-6	51	Soil Core 28.0-30.5		becomes gray and brown layered, fine sand content increases		
					Soil Core 30.5-33.0				
	35		DP-7	58	Soil Core 33.0-35.5		Dense, wet, very dark gray layered, silty SAND (SM)		4-inch SCH 40 PVC 0.020-inch Slotted Screen
					Soil Core 35.5-38.0				
	40		DP-8	59	Soil Core 38.0-40.0		Dense, wet, gray, fine SAND (SP) with hydrocarbon sheen on groundwater becomes gray, fine grained, trace silt		
					1846		becomes fine to medium grained, without silt		Filter Sand
					1961				
	45		DP-9	59	Soil Core 43.0-45.5				
					Soil Core 45.5-48.0		becomes fine grained		4-inch SCH 40 PVC 0.020-inch Slotted Screen
			DP-10	57	1923		Medium dense, wet, gray and dark gray layered, fine silty SAND (SM)		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW06/ A8BH267

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	50		DP-10	57	1613		Medium dense, wet, gray and dark gray layered, fine SAND (SP)		
					1719		Medium dense, wet, brown, fine to coarse SAND (SW)		
							Dense, wet, brownish gray, fine to medium SAND (SP) with weathered gasoline odor		
	55		DP-11	51	1699				
					1732				
							with hydrocarbon sheen on groundwater		
					1598				
	60		DP-12	50			1-inch black oil stained layer		Native Material
					1828				
					1784				
							becomes medium dense and gray		
					2219				
							becomes medium to coarse grained, brown and gray		
	65		DP-13	48			Saturated with brown and black oil		
					Soil Core 65.0-68.0'				
							becomes gray		
					Soil Core 68.0-71.0'		becomes medium to coarse grained		
							3-inch layer of brown oil saturation		
	70		DP-14	42			trace brown and black oil staining		
					1057		Medium dense, wet, gray and dark brown, medium to coarse SAND (SW) with fine to coarse gravel		
							End of Boring at 73' bgs.		
	75								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
G011

SHEET 1 OF 3

Project:		Project No.:			
Location:		Elevation:		Coordinates (N,E):	
Drilling Company:		Date Started:		Date Finished:	
Drilling Equipment:		Refusal Depth (ft bgs):	Rock Depth (ft bgs):	Completion Depth (ft bgs): 35.0	
Drilling Method:		Water Level (ft bgs)		Number of Samples	
Drill Bit Type/Diameter:		First Encount.: NM	At Completion: NR	Well Installed? Yes	Dist.: / Undist.: / Core:
Sampler Type/Diameter:		Driller:		Field Logger:	
Boring Location Description:		Reviewed by:			

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	SAMPLES Type	SAMPLES Rec (")	SAMPLES Blow Count 6"	SAMPLES Pocket Pen (TSF)	PID/FID Head (ppm)	PID/FID Scan (ppm)	REMARKS
		(FILL).				30					
			2								
		(FILL).									
			4								
						42					
			6								
			8								
			10			38					
		(SM).									
			12								
		(SP).									

URS-CHICAGO WOO[illegible]R MAIN PLANT.GPJ URS-CHICAGO.GDT 10/10/13

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
G011

Project:	Project No.:	
Location:	Elevation:	Coordinates (N,E):

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES ID No.	SAMPLES Type	SAMPLES Rec (")	SAMPLES Blow Count 6"	SAMPLES Pocket Pen (TSF)	PID/ FID Head (ppm)	PID/ FID Scan (ppm)	REMARKS
			16			40					
			18								
			20			39					
			22								
			24								
			26			48					
			28								
			30			54					

URS-CHICAGO WOOD MAIN PLANT.GPJ URS-CHICAGO.GDT 10/10/13

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
G011

SHEET 3 OF 3

Project:	Project No.:	
Location:	Elevation:	Coordinates (N,E):

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES					PID/ FID Head (ppm)	PID/ FID Scan (ppm)	REMARKS
				ID No.	Type	Rec (")	Blow Count 6"	Pocket Pen (TSF)			
			32								
			34								

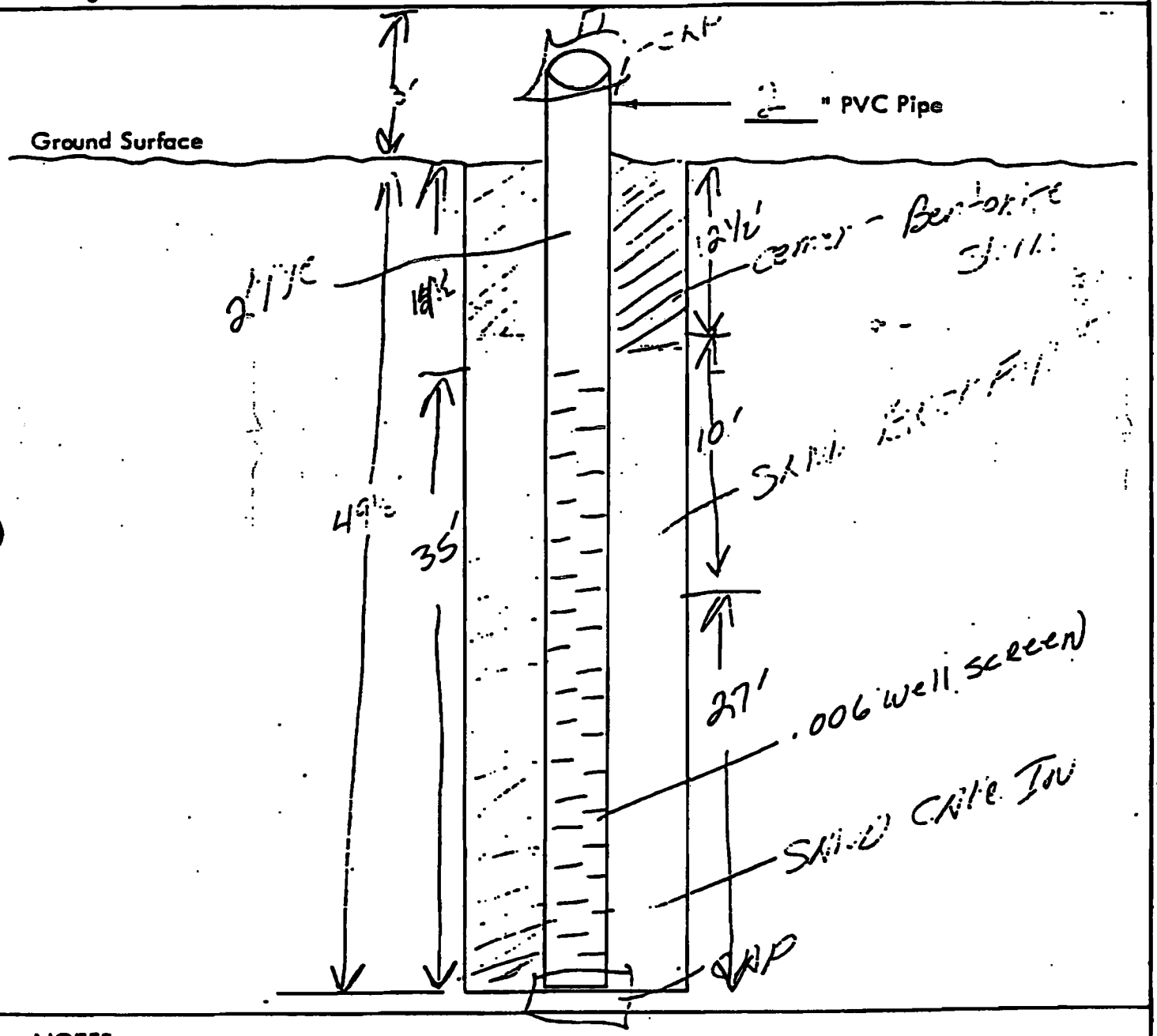
URS-CHICAGO WOO ER MAIN PLANT.GPJ URS-CHICAGO.GDT 10/10/13

IEPA # 6011

RECORD OF PIEZOMETER INSTALLATION

JOHN MATHES & ASSOCIATES

Boring No. C-1 Contract No. 11130 Date Installed 5-20-83



NOTES:

Information Checklist:

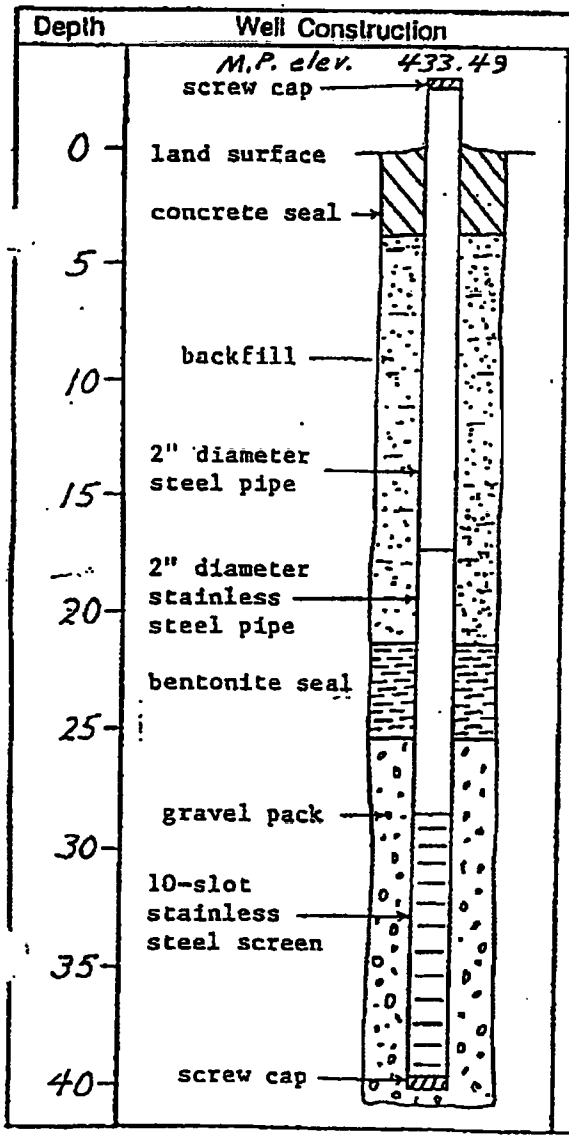
Type of Backfill | Soil Strata | Type of Screen | Length of Screen | Length of Pipe | Height of Pipe Above Ground | Cap on Bottom | Cap on Top | How Sealed at Surface

Amoco Corporation

IEPA #: G027

Groundwater Management Section
Environmental Affairs and Safety Department

Well No. C-17 Date Drilled 7/24/86 Location Wood River, IL
Ssn refinery Drilling Method Aug. Well Type observation
Hole Diameter 8" Total Depth 40'
Casing Type plain steel / s/s 316 Diameter 2" Length 25'
Screen Slot Size 10 Diameter 2" Length 10'
Gravel Pack 28-40' Seal above screen bent at surface concrete/bent.



GERAGHTY &
MILLER, INC.

IEPA # 0049

SAMPLE/CORE LOG

Boring/Well G-9 Project/No. AMOCO-OK0365HR01 Page 1 of 1

Site Location Wood River, IL Drilling Started 9:35 Drilling Completed 10:55

Total Depth Drilled 50.0 feet Hole Diameter 7.25 inches Type of Sample/ Coring Device Auger bit

Length and Diameter of Coring Device N/A Sampling Interval 30,35,40,45,& 50 feet

Land-Surface Elev. 429.2 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling Driller Tom Hughes Helper Mike

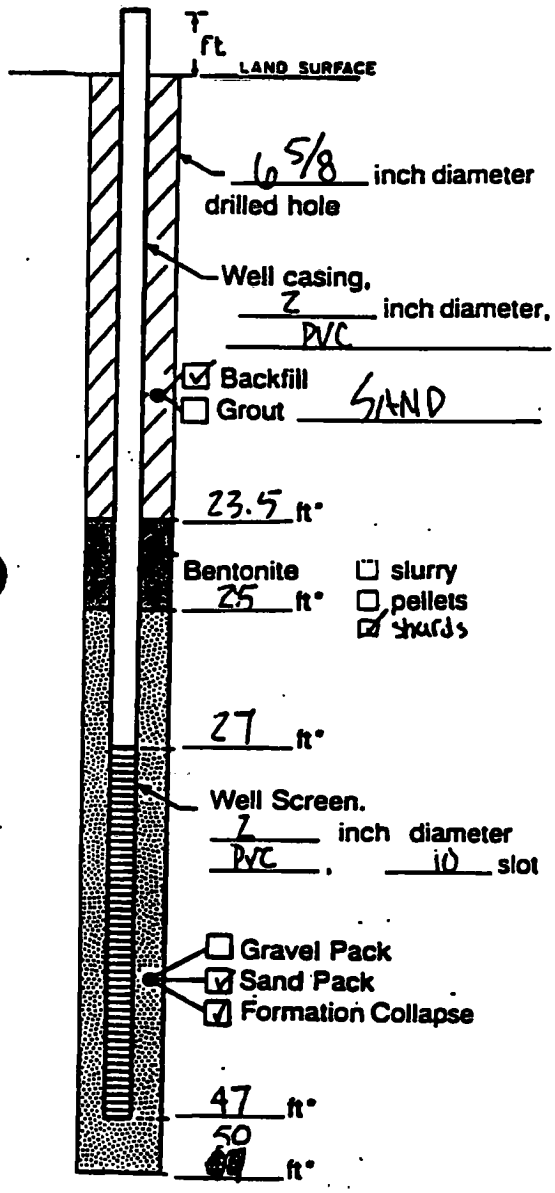
Prepared By J. Shonfelt Hammer Weight N/A Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
0	1.0			CLAY- sandy, black, abund. coke
1.0	4.0			CLAY- v. dense, pliable, organic rich, gray-
				black, no odor.
4.0	14.0			CLAY- sandy, organic rich layers, drk. gray
14.0	20.0			SAND- med.-coarse grained, wl. sorted, drk. gray
20.0	30.0			SAND- fine grained, subrnd, wl. sorted, clean
				lt. brn. sl. hydrocarbon odor.
30.0	37.0			SAND- med. grained w/ minor coarse grains,
				subang-subrnd, poorly sorted, lt. brn. sl.
				hydrocarbon odor, wet at 37 ft w/ product.
37.0	45.0			SAND- coarse grained, minor gravel, subrnd.,
				poorly sorted, lt. brn. hydrocarbon odor.
45.0	50.0			CLAY-sandy, (50% sand; 50% clay), fine grained
				subrnd., poorly sorted, lt. brn. sl. hydrocarbon
				odor, wet.

GERAGHTY & MILLER, INC.
Ground-Water Consultants

IEPA # G049 10/12/88

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

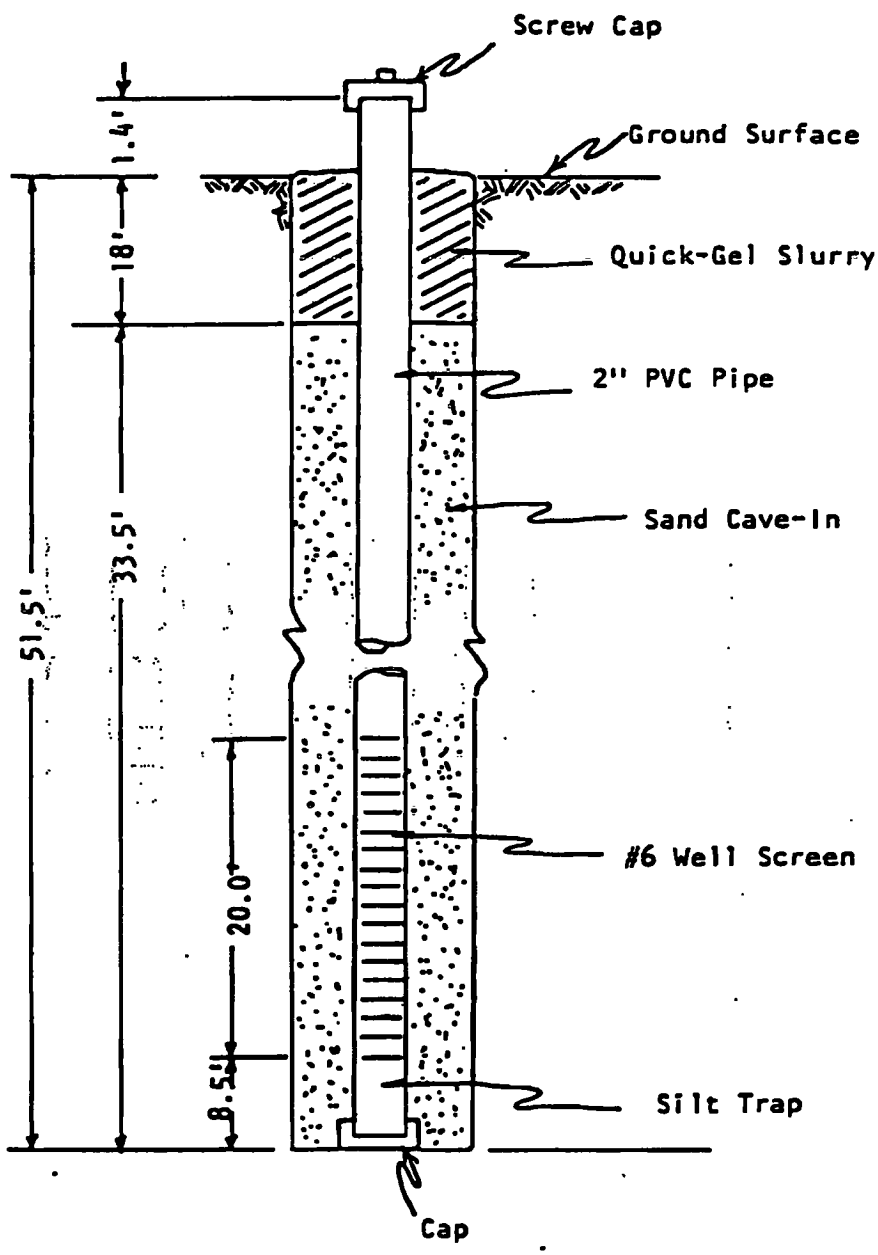
*Depth Below Land Surface

Project OK0365HRC1 Well G-9
Town/City WOOD RIVER
County Madison State Ill
Permit No. _____
Land-Surface Elevation and Datum _____ feet ☐ Surveyed ☐ Estimated
Installation Date(s) 10/12/88
Drilling Method Hollow Stem Auger
Drilling Contractor Hughes Drilling
Drilling Fluid -
Development Technique(s) and Date(s)
Fluid Loss During Drilling _____ gallc
Water Removed During Development _____ gallc
Static Depth to Water _____ feet below M.
Pumping Depth to Water - feet below M.
Pumping Duration - hours
Yield - gpm Date -
Specific Capacity - gpm/ft
Well Purpose Groundwater Monitoring / Pump test observation well
Remarks

Prepared by J. SHONFELT

G&M Form 05 5-87

IEPA #: G13L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-23
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

IEPA ID: G34

GERAGHTY & MILLER, INC.
Ground-Water Consultants

SAMPLE/CORE LOG

Boring/Well G34 Project/No. OK00703 05901 Page 1 of 1

Site Location Wood River Drilling Started 11/3/89 Drilling Completed 11/3/89

Total Depth Drilled 60 feet Hole Diameter 7¼ OD / 3¼ ID inches Type of Sample/ Coring Device none

Length and Diameter of Coring Device _____ Sampling Interval _____ feet

Land-Surface Elev. _____ feet ☐ Surveyed ☐ Estimated Datum _____

Drilling Fluid Used none Drilling Method Hollow-stem

Drilling Contractor Hughes Drilling Driller Tom Helper Bill, Gordon

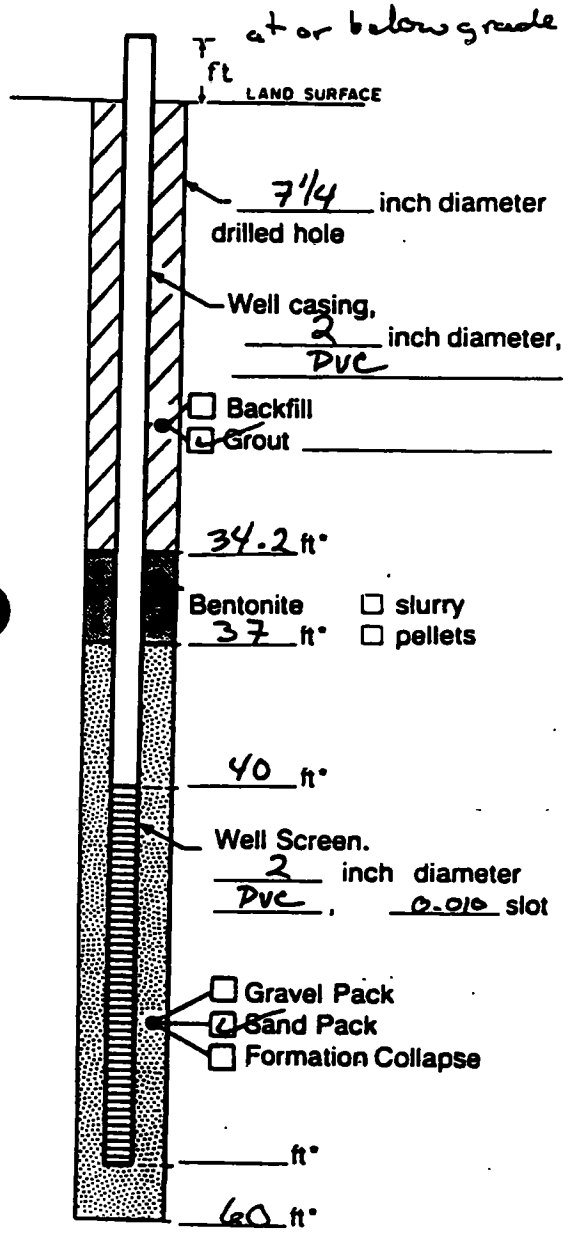
Prepared By R. Dotson Hammer Weight _____ Hammer Drop _____ inches

Sample/Core Depth (feet below land surface) From	To	Core Recovery (feet)	Time/Hydraulic Pressure or Blows per 6 inches	Sample/Core Description
0	5			silty sand, f.-grn., yellow-brn
5	15			silty sand, very fine to f.-m grn, poorly sorted, sl. moist, brn
15	45			sand, f-grn, well to poorly sorted, med. moist, brn
45	60			same
				sand - 2 bags (100 lbs)
				Top of sand - 37'
				Plug - 1 bag chunks
				Top of plug - 34.2'
				No hydrocarbon odor.

IEPA ID: G34

GERAGHTY & MILLER, INC.
Ground-Water Consultants

WELL CONSTRUCTION LOG
(UNCONSOLIDATED)



Measuring Point is Top of Well Casing Unless Otherwise Noted.

*Depth Below Land Surface

Project OK00703 05901 Well G34
Town/City Wood River
County _____ State IL
Permit No. _____
Land-Surface Elevation
and Datum _____ feet ☐ Surveyed
_____ ☐ Estimated
Installation Date(s) 11/3/89
Drilling Method Hollow-stem
Drilling Contractor Hughes Drilling
Drilling Fluid none

Development Technique(s) and Date(s)
Bailer; 11/4/89

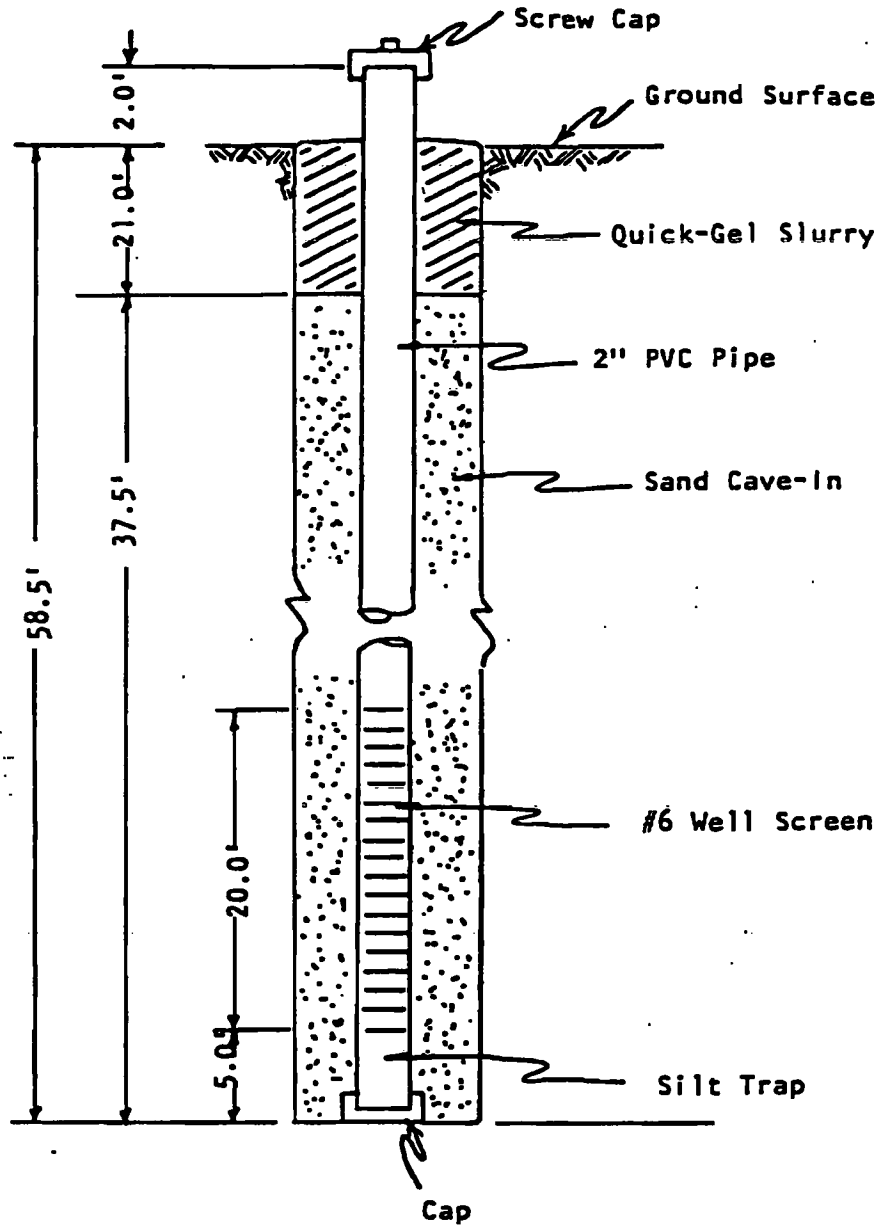
Fluid Loss During Drilling _____ gallon
Water Removed During Development 5 gallon
Static Depth to Water 50.05 feet below M.P
Pumping Depth to Water _____ feet below M.P
Pumping Duration _____ hours
Yield _____ gpm Date _____
Specific Capacity _____ gpm/ft
Well Purpose Monitor

Remarks No hydrocarbon odor from cuttings.

Prepared by Rick Dotson

G&M Form 05 5 87

IEPA #G96L



Not to Scale

PIEZOMETER INSTALLATION SKETCH

Boring H-16
AMOCO Oil, Recovery Well
Wood River, IL

JOHN MATHES & ASSOCIATES, INC.

Illinois Environmental Protection Agency — Field Boring Log — Page 1 of 2

Site File No.: 83C054-S102 County MADISON — Boring No. B-17 — Monitor Well No —

Site File Name AMOCO WOOD RIVER — Surface Elev 432.42 — Completion Depth 30ft

Fed ID No ILD980700967 — Auger Depth 7ft — Rotary Depth 30'

Quadrangle _____ Sec. ____ T. 5N R. 9W — Date: Start 3/20/95 0925 Finish 3/20/95 1050

Boring Location SWMU 12 Main Plant

Drilling Equipment CME-75D

Personnel: G - T. HICKS; D - J. CRANIL; H - N. GIPSON

Elev.	DESCRIPTION	Depth in feet	Sample No	Sample Type	Sample Recovery	Penetrometer	N Values Blows/ft	OVA (or PID) readings	REMARKS 96.5
	SOFT, WET, BLACK, LOW PLASTIC SILTY CLAY WITH C-F GRAVEL AND BRICK FRAGMENTS (CL) (FILL)	1							BACKGROUND 0 PPM
		2						0	
		3	1	S	36/48			0	
		4						0	
		5						/	
	LOOSE, WET, GRAY, CLAYEY SILTY SAND	6						2.8	
		7	2	S	36/60			11.5	
		8						250	SAMPLE 0940
		9						/	
	LOOSE, WET, BLACK/GRAY SILTY SANDY C-F GRAVEL	10						-	
	SOFT, MOIST, GRAY, LOW PLASTIC SILTY CLAY WITH BLACK STAINING	11						1.4	
		12	3	S	60/60			1.4	
		13						1.4	
	∇ BECOMING BROWN NO STAINING	14						0	
		15						0	

Illinois Environmental Protection Agency — Field Boring Log — Page 2 of 2

Site File No.: 83C054-S102 County MADISON — Boring No. B-17 — Monitor Well No —

Site File Name AMOCO WOOD RIVER — Surface Elev 432.42 — Completion Depth 30ft

Fed ID No ILD980700967 — Auger Depth 1ft — Rotary Depth 30'

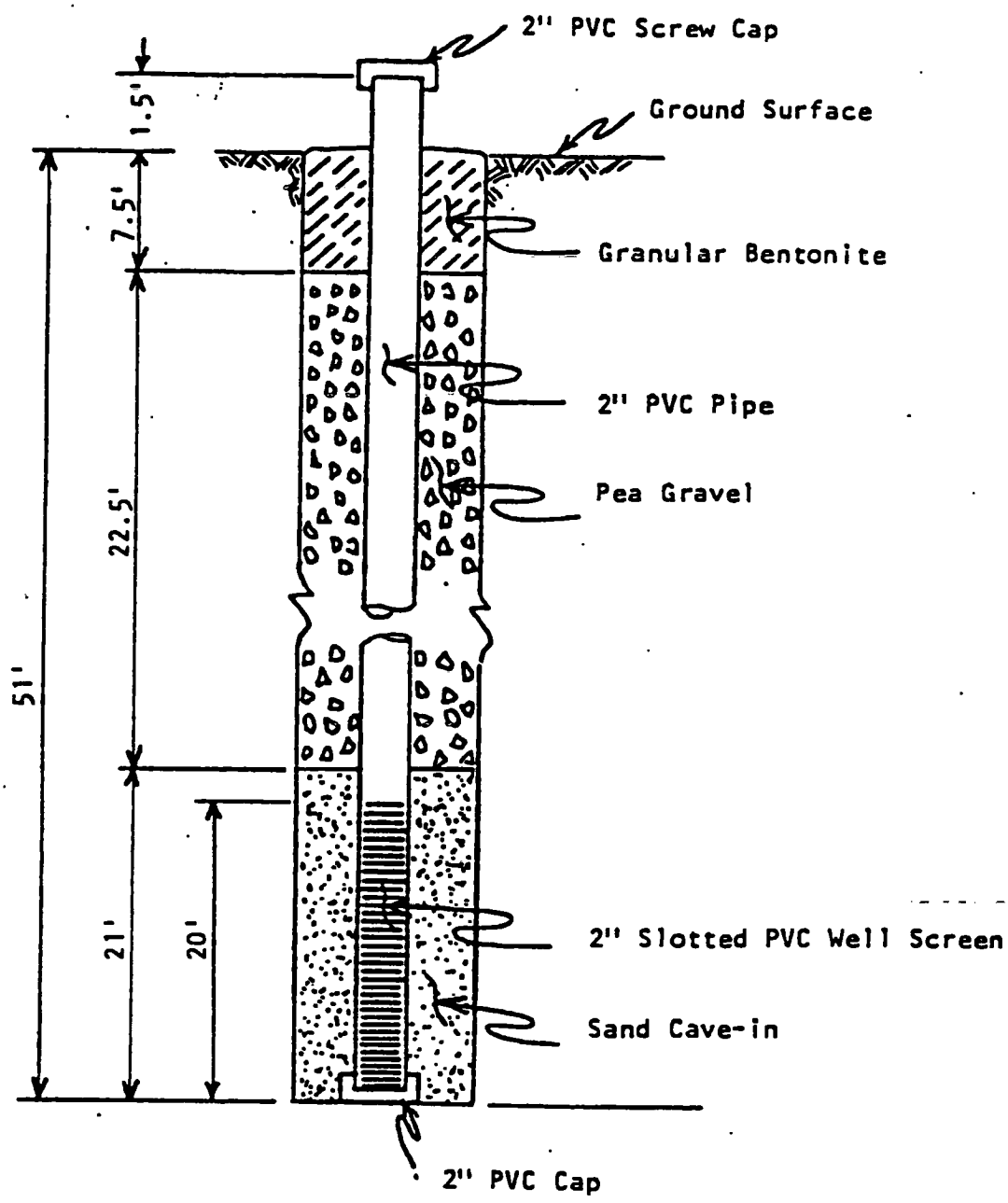
Quadrangle — Sec. — T. 5N R. 9W — Date: Start 3/20/95 Finish 3/20/95

Boring Location SWMU 12 MAIN PLANT

Drilling Equipment CME 750

Personnel: G. D. H. K. L

Elev.	DESCRIPTION	Depth in feet	Sample No.	Sample Type	Sample Recovery	Penetrometer	N Values (Blows)	OVA or PID readings	REMARKS
16	STIFF, MOIST, BROWN/GRAY, MED PLASTIC SILTY CLAY	16						0	
17		17			60			0	
18	↓ BECOMING GRAY WITH BLACK STAINING	18	4	S	/ 60			0	
19		19						0	
20		20						0	
21	SOFT, WET, GRAY, LOW PLASTIC SILTY SANDY CLAY	21						0	
22	LOOSE, WET, GRAY SILTY F SAND	22	5	S	42 / 60			0	
23	↓ BECOMING BROWN	23						0	
24		24						/	
25		25						/	
26		26						0	
27		27			60			0	
28		28	6	S	60			0	
29		29						0	
30		30						0	BOB 30 ft



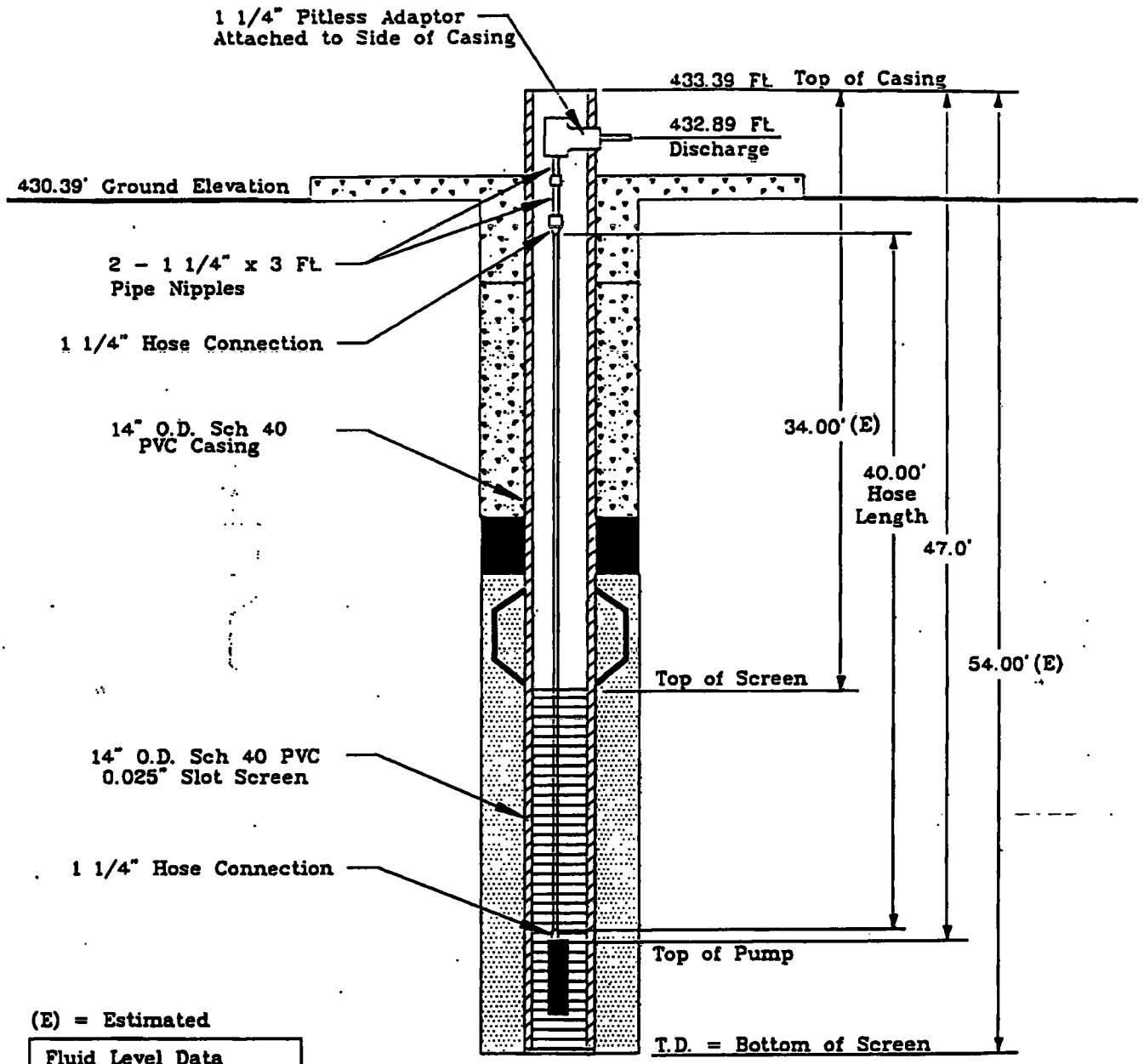
Not to Scale

PIEZOMETER SKETCH

B-17
AMOCO, Refinery Monitoring Wells
Wood River, Illinois

IEPA # G603

WOOD RIVER WELL RC-3



(E) = Estimated

Fluid Level Data		
Date	DTP	DTW
1/6/92	36.59'	38.62'

Pump Type = Grundfos Redi-Flo
Submersible Pump
Model 16E7. 3/4 H.P.

Date Drilled = 6/83

DRAWING NOT TO SCALE

HYDROCARBON RECOVERY WELL
PUMP SETTING DIAGRAM
WELL RC-3

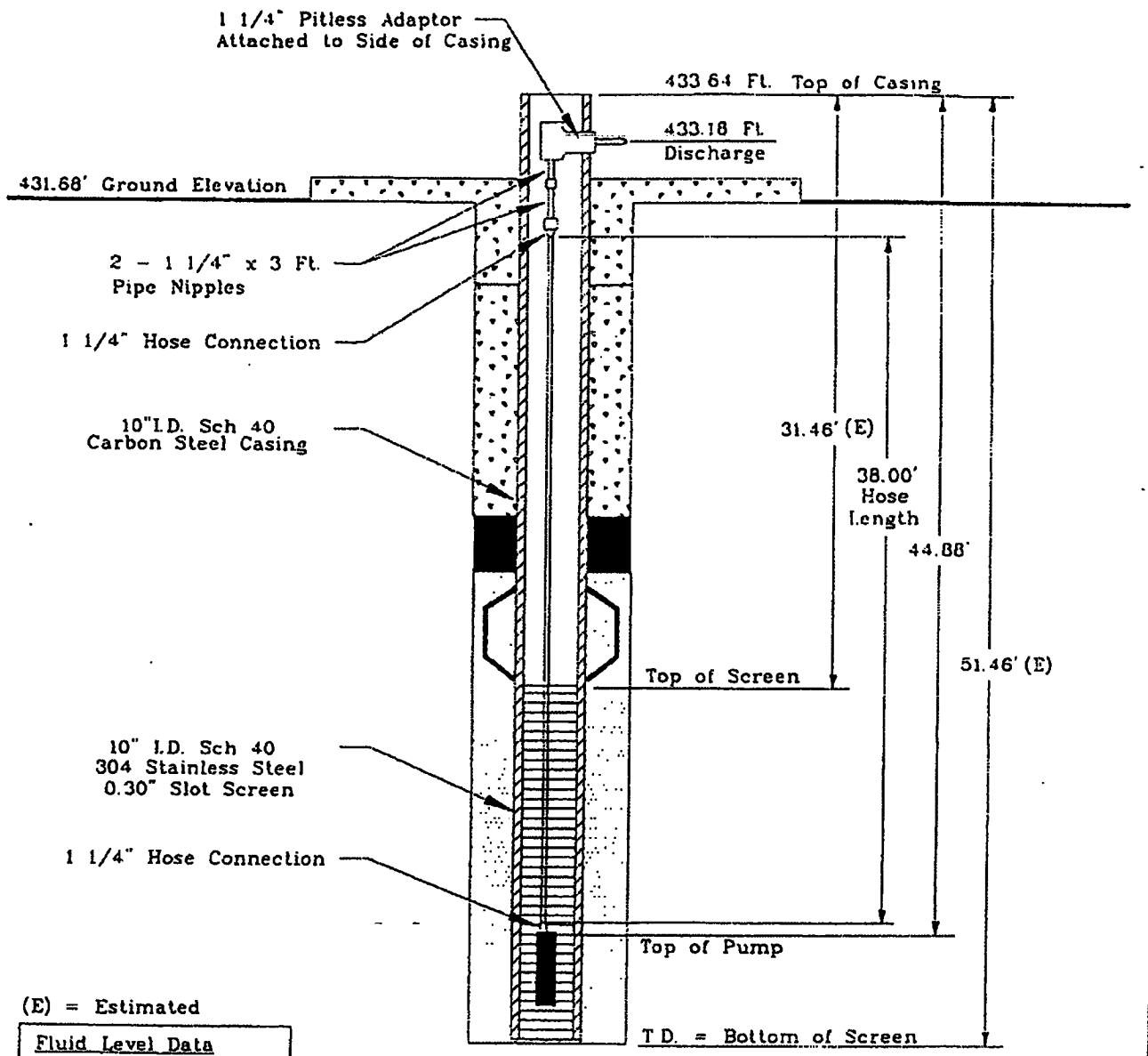
FIGURE
A90-
5R2919-
RC003

PROJECT NO. 5R-2919

DWG DATE: 2-4-92 | PRJCT NO.: OK08110 | FILE NO.: RC003 | DRAWING: - | CHECKED: RANDY PRYOR | APPROVED: MONROE MARTIN | DRAFTER: JIM HARBESTON

IEPA # 6604

WOOD RIVER WELL RC-4



(E) = Estimated

Fluid Level Data		
Date	DTP	DTW
1/6/92	36.39'	40.42'

Pump Type = Grundfos Redi-Flo
Submersible Pump
Model 16E7. 3/4 H P

Date Drilled = 10-31-88

DRAWING NOT TO SCALE

FIGURE
A90-
5R2919-
RC004

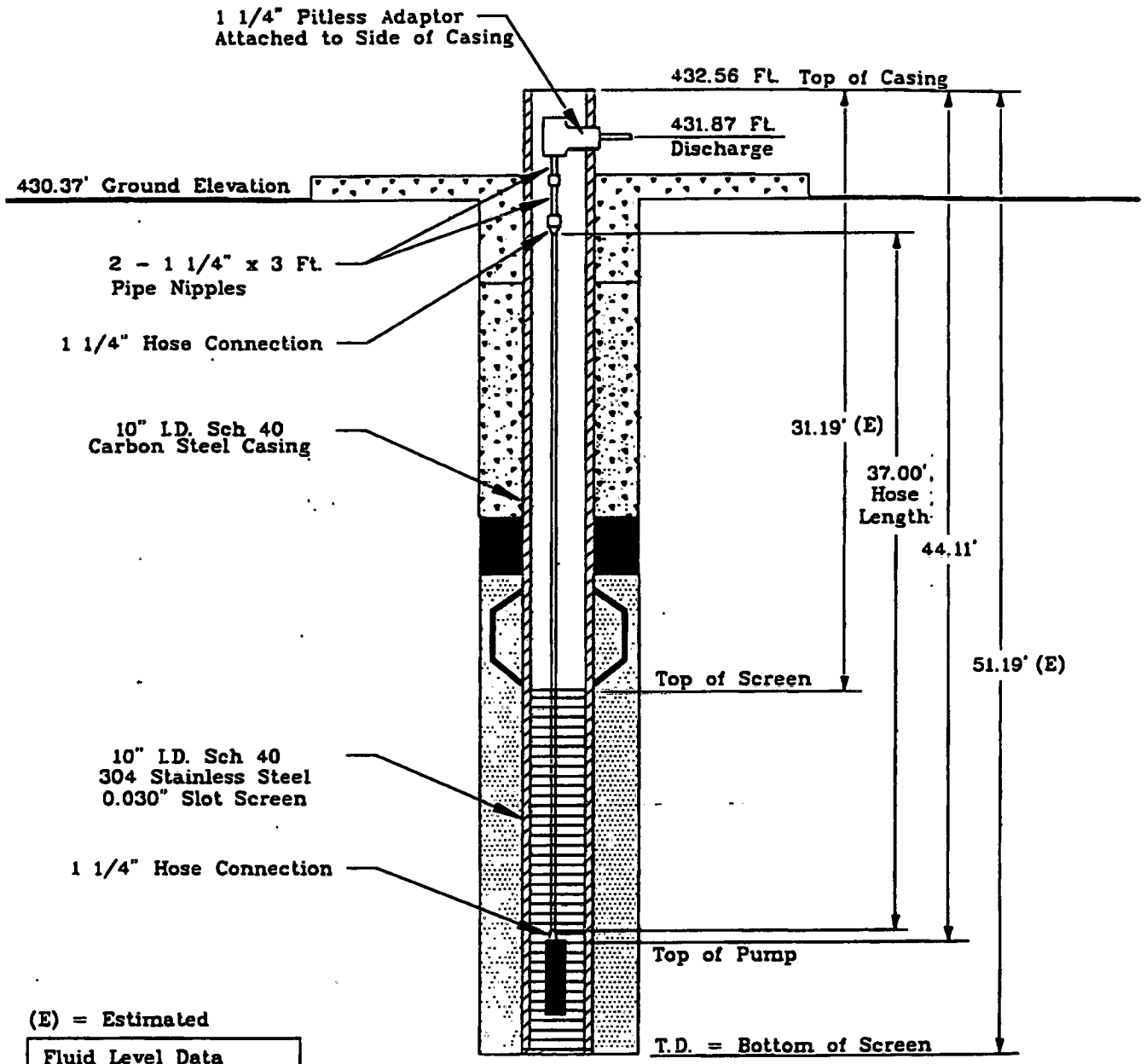
HYDROCARBON RECOVERY WELL
PUMP SETTING DIAGRAM
WELL RC-4

PROJECT NO. 5R-2919

DRAFTER: JIM HARBESTON | APPROVED: MONROE MARTIN | CHECKED: RANDY PRYOR | DRAWING: - | FILE NO.: RC004 | PRJCT NO.: OK08110 | DWG DATE: 2-11-92

IEPA # 6605

WOOD RIVER WELL RC-5



(E) = Estimated

Fluid Level Data		
Date	DTP	DTW
1/6/92	40.60'	49.05'

Pump Type = Grundfos Redi-Flo
Submersible Pump
Model 16E7, 3/4 H P.

Date Drilled = 11-1-88

DRAWING NOT TO SCALE

HYDROCARBON RECOVERY WELL
PUMP SETTING DIAGRAM
WELL RC-5

FIGURE
A90-
5R2919-
RC005

AMOCO

PROJECT NO. 5R-2919

DWG DATE: 2-4-92 | PROJCT NO.: 0K0B110 | FILE NO.: RC005 | DRAWING: - | CHECKED: RANDY PRYOR | APPROVED: MONROE MARTIN | DRAFTER: JIM HARBESTON

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

IEPA #G613

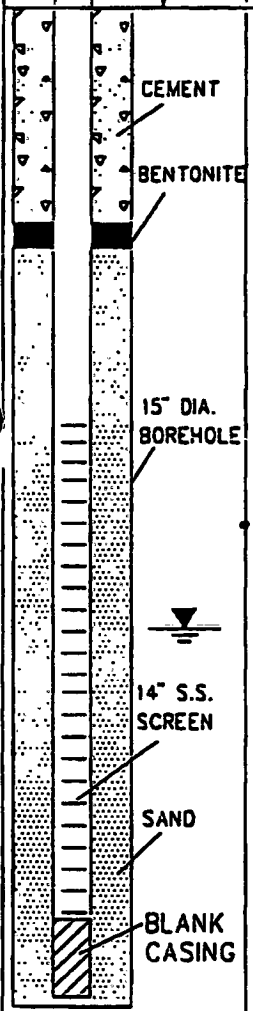
JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K081.10	AMOCO OIL CO.	WOOD RIVER	RC-13	1 OF 1

WELL LOCATION

N

DRILLING METHOD: AUGER (PILOT HOLE)	SAMPLING METHOD: AUGER FLIGHTS
DRILLING START 6-22-91 FINISH 6-25-91	DEVEL START 7-3-91 FINISH 7-9-91
STATIC DTW 39.3 DTO	TIME 0950 DATE 7-10-91
ELEVATION TOC - GL -	DRILLED BY: HUGHES DRILLING
	LOGGED BY: RANDY PRYOR

WELL CONSTRUCTION

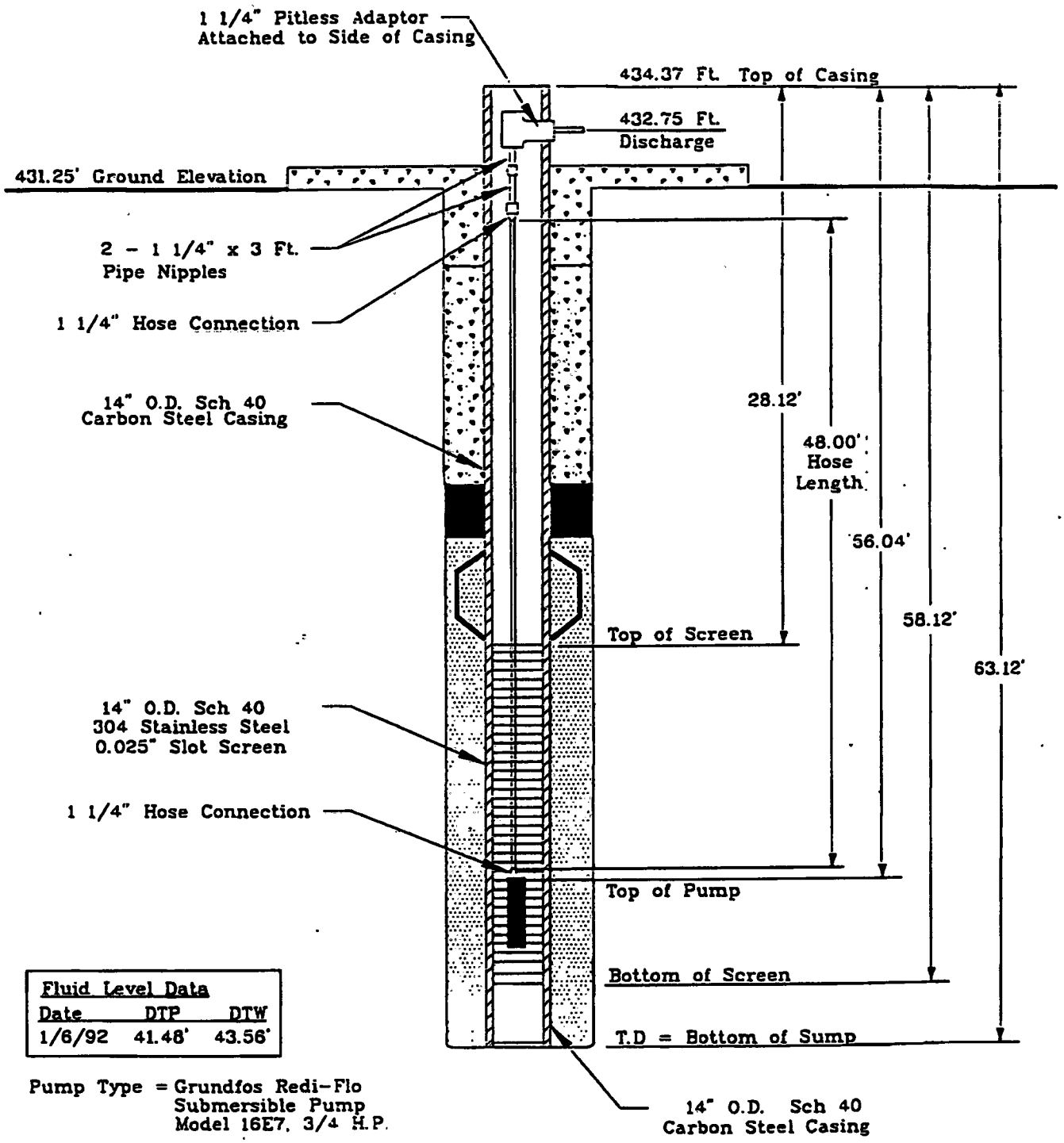


DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	I (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		FILL	BLK	GRAVEL, SANDY, LITTLE CLAY, COKE FRAG. HC SATURATED.	W						
	CL	CLAY	BLK	GRAVELLY, LITTLE VF SAND. HC DISCOLORATION.	M						
10											
	CL	CLAY	BKGY	SANDY, VF-FINE, LITTLE SILT, HC STAINED.	M						
20	SW	SAND	BKGY	VF-FINE, LITTLE-SOME SILT, SLIGHT HC ODOR.	M						
	SW	SAND	TNGY	FINE-MED, LITTLE SILT, SLIGHT HC ODOR, TAN @ 27'	M						
30	CL	CLAY	GY	SLIGHTLY SHALEY, LITTLE SAND, VF-FINE.	M						
	SW	SAND	TNGY	FINE-MED, LITTLE SILT, TRACE CHERT FRAGMENTS, SLIGHT HC ODOR.	W		1	35/37			G
40											
50				SAME							
60											
70											
	SW	SAND	TNGY	FINE-MED, LITTLE SILT, TRACE CHERT FRAG., SLIGHT HC ODOR.	W		2	42/42			G

NOTE: 1 = SAMPLED WITHIN HOLLOW-STEM W/SHOILT FLIGHT AUGER.
2 = SAMPLED OFF BOTTOM AUGER.

IEPA # G613

WOOD RIVER WELL RC-13



Fluid Level Data		
Date	DTP	DTW
1/6/92	41.48'	43.56'

Pump Type = Grundfos Redi-Flo
Submersible Pump
Model 16E7, 3/4 H.P.

Date Drilled = 6-22-91

DRAWING NOT TO SCALE

HYDROCARBON RECOVERY WELL
PUMP SETTING DIAGRAM
WELL RC-13

FIGURE
A90-
5R2919-
RC013

PROJECT NO. 5R-2919

DWG DATE: 2-4-92 | PRJCT NO.: OK08110 | FILE NO.: RC013 | DRAWING: - | CHECKED: RANDY PRYOR | APPROVED: MONROE MARTIN | DRAFTER: JIM HARBESTON

White & [illegible] Copies:
Ill. [illegible] of Public Health
Yellow Copy: Well Contractor
Golden Copy: Well Owner

Well Construction Report

SENT TO [illegible]
1/31/92

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS
OF WELL COMPLETION AND SENT TO
THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

1. Type of Well
   a. Bored____ Hole Diam.____in. Depth____ft
      Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled X Finished in Drift X In Rock____
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Portland Type I	0	13'

2. Well furnished water for human consumption? Yes___ No X
3. Date well drilled June 22-25, 1991
4. Permanent pump installed? Yes X Date 1-6-92 No X
   Manufacturer Grundfos Redi-Flo Type 11E.7
   Location
   Capacity 15 gpm. Depth of setting 57.04 ft.
5. Well top sealed? Yes___ No X Type
6. Pitless adapter installed? Yes X No___
   Manufacturer Martinson Model No. 512.0
   How attached to casing?
7. Well disinfected? Yes___ No X
8. Pump and equipment disinfected Yes___ No X

IMPORTANT NOTICE
This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL482-0126

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Henry L. Bush License No. 092-003987
10. Well Site Address 301 Evans Avenue, Wood River, IL
11. Property Owner Amoco Well No. RC-13
12. Permit No. 020083 Date Issued 4-4-91
13. Location: County Madison
    Sec. 27
    Twp. 05N
    Rge. 09W.

X			



Show location in section plat

14. Water from sand at depth 35.0' ft to 60.0' ft

15. Casing and Liner Pipe

Diam. (in)	Kind and Weight	From (ft)	To (ft)
14	.280 wall carbon steel	+3	25
14	304 stainless steel screen	25	55
14	.280 wall carbon steel	55	60

16. Screen: Diam. 14 in, Length 30 in, Slot Size 0.025" 431.25
17. Size hole below casing 22 in. 18. Ground Elev. -NA- ft msl.
19. Static level 42.10 ft below casing top which is 3.12 ft. above ground level. Pumping level 47.12 ft, pumping gpm for 1 hours.

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Fill and Clay	0	18'
Very fine to fine grained sand	18	32
Clay	32	35
Fine to medium grained sand	35	60

Continue on separate sheet if necessary.

Signed Henry L. Bush Date 7-10-91

IEPA # G613

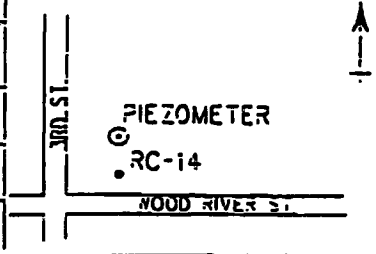
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

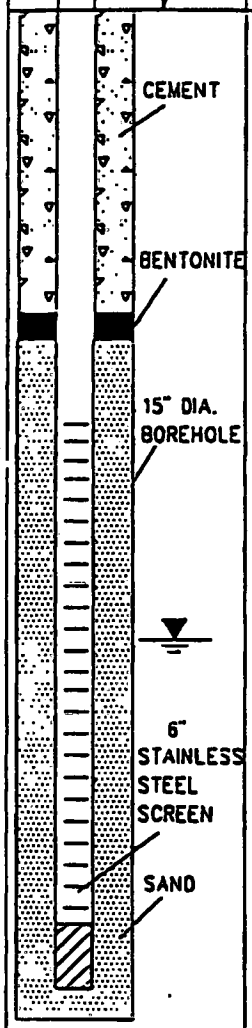
IEPA #: G614

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K081.10	AMOCO OIL CO.	WOOD RIVER	RC-14	1 OF 1

DRILLING METHOD: AUGER (PILOT) ROTARY	SAMPLING METHOD: GRAB SAMPLES OFF AUGERS
DRILLING START 4-25-91 FINISH 4-26-91	DEVEL. START 4-27-91 FINISH 4-27-91
STATIC DTW 46.59 DTO 40.36 TIME 1540 DATE 5-7-91	DRILLED BY: HUGHES DRILLING
ELEVATION TOC - GL -	LOGGED BY: GDS

WELL LOCATION



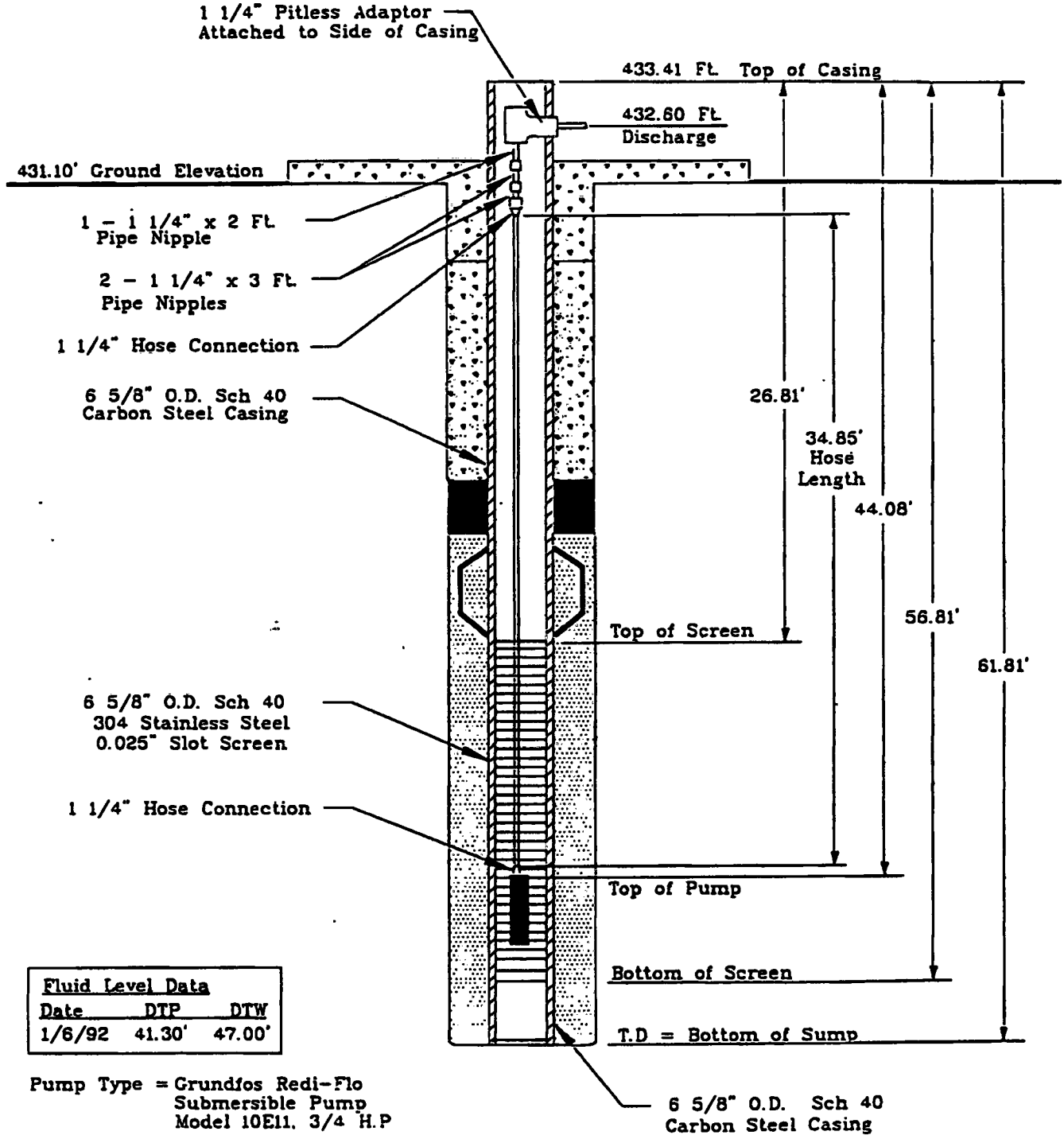


DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	W.C.	(PPM) SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
		FLYASH	BLK	FILL MATERIAL. 6" SLUDGE LAYER FROM 4.5-5.0'.						
	CL	CLAY	BKGY	MOIST; MED.STIFF-STIFF.						
10										
	SM	SILTY SAND	BLK	FINE-MED. GRAINED SILTY SAND. 5-10% SILT. STRONG HC ODOR.						
20	SP	SAND	LTBR	FINE-MED. GRAINED SAND. STRONG HC ODOR.						
30										
40	SP	SAND	LTBR	MED.-COARSE GRAINED SAND. SOME PEBBLES.				38	1	
50	SP	SAND	GY	FINE-MED. GRAINED SAND. SOME MINOR PEBBLES AND COAL PIECES.				48	2	
60	SP	SAND	DKGY	NUMEROUS COAL PIECES AT 58'. TOTAL DEPTH IS 61'.				58	21	
70										

NOTE: 1 = SAMPLES WITHIN HOLLOW-STEM AUGERS USING SMALL DIA. AUGER.
2 = GRAB SAMPLES FROM HOLLOW-STEM AUGERS.

IEPA #: 0614

WOOD RIVER WELL RC-14



Fluid Level Data		
Date	DTP	DTW
1/6/92	41.30'	47.00'

Pump Type = Grundfos Redi-Flo Submersible Pump Model 10E11, 3/4 H.P

Date Drilled = 4-25-91

DRAWING NOT TO SCALE

HYDROCARBON RECOVERY WELL PUMP SETTING DIAGRAM WELL RC-14

FIGURE A90-5R2919-RC014

PROJECT NO. 5R-2919

DRAFTER: Jim HARBESTON | APPROVED: MONROE MARTIN | CHECKED: RANDY PRYOR | DRAWING: - | FILE NO.: RC014 | PRJCT NO.: OK08110 | DWG DATE: 2-4-92

[illegible] copies:
Ill. [illegible]t. of Public Health
Yello[illegible]y: Well Contractor
Golden Copy: Well Owner

Well Construction Report

SENT TO B. CARRY 1/31/92

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS
OF WELL COMPLETION AND SENT TO
THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

1. Type of Well
   a. Bored____ Hole Diam.____in. Depth____ft
      Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled X Finished in Drift X In Rock____
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Portland Type I	0.0.	18.0

2. Well furnishes water for human consumption? Yes___ No X
3. Date well drilled April 25, 1991
4. Permanent pump installed? Yes X Date 1-1-92 No___
   Manufacturer [illegible] REAL-FLO Type [illegible]
   Location____
   Capacity [illegible] gpm. Depth of setting 45.08 ft.
5. Well top sealed? Yes___ No X Type____
6. Pitless adapter installed? Yes X No___
   Manufacturer MARTINSON Model No. [illegible]
   How attached to casing?____
7. Well disinfected? Yes___ No X
8. Pump and equipment disinfected Yes___ No X

IMPORTANT NOTICE

This State Agency is requesting disclosure of information that is necessary to accomplish the statutory purpose as outlined under Public Act 85-0863. Disclosure of this information is mandatory. This form has been approved by the Forms Management Center.

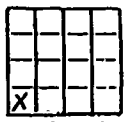
PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL482 0126

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Henry L. Bush License No. 092-003987
10. Well Site Address 301 Evans, Wood River, Ill.
11. Property Owner Amoco Well No. RC-14
12. Permit No. 020089 Date Issued 4-4-91
13. Location: County MADISON
    Sec. 27
    Twp. 05N
    Rge. 09W

X			



Show location in section plat

14. Water from sand at depth 42.0 ft to 59.5 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
6	.280 wall carbon steel	42.5	24.5
6	304 stainless steel screen	24.5	54.5
6	.280 wall carbon steel	54.5	59.5

16. Screen: Diam. 6 in, Length 360 in, Slot Size [illegible] 431.10
17. Size hole below casing 15 in. 18. Ground Elev. -NA ft msl.
19. Static level 43.01 ft below casing top which is 2.31 ft. above ground level. Pumping level 5[illegible] ft, pumping gpm for 1 hours.

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Fill Material	0.0	5.0
Silty Clay	5.0	15.0
Silty Sand	15.0	20.0
Fine-medium grained sand	20.0	61.0

Continue on separate sheet if necessary.

Signed Henry L. Bush Date 6-18-91

IEPA # G614

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G615

SHEET 1 OF 4

Project: Area 5 historic boring logs	Project No.: OKO81.10, AMOCO-OKO365HR01
Location: Wood River, IL	Elevation: NM; Coordinates (N,E):
Drilling Company: Hughes Drilling	Date Started: 04/22/91; Date Finished: 04/24/91
Drilling Equipment:	Refusal Depth (ft bgs): ; Rock Depth (ft bgs): ; Completion Depth (ft bgs): 61.0
Drilling Method: Auger (Pilot) Rotary	Water Level (ft bgs): First Encount.: ; At Completion: ; Well Installed? Yes; Number of Samples: Dist.: 0, Undist.: 0, Core: 0
Drill Bit Type/Diameter:	
Sampler Type/Diameter:	Driller: Henry Bush; Field Logger: GDS
Boring Location Description: Wood River, IL	Reviewed by:

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Medium stiff, dark gray, **SILTY CLAY**, (CL), moist, black hydrocarbon staining; strong hydrocarbon odor.	2					
		Becomes siltier, becomes olive gray.	4					
			6					
			8					
			10					
			12					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G615

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Some hematitic staining @ 15'.						
		Light brown, **SAND**, (SP), fine to medium, slight hydrocarbon odor.	16					
			18					
			20					
		Light brown, **SAND**, (SW), medium to very coarse, some pebbles, strong hydrocarbon odor.	22					
			24					
			26					
			28					
			30					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICA...DT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G615

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			32					
			34					
			36					
			38					38 ft Collected sample within hollow stem auger using small diameter auger
		Interbedded silty clay layers (40'-42').	40					
		Light brown, **SAND**, (SP), medium to coarse, some pebbles and coal pieces.	42					
			44					
			46					

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING G615

SHEET 4 OF 4

Project:	Project No.:	
Area 5 historic boring logs	OKO81.10, AMOCO-OKO365HR01	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	NM	

ELEV	Graphic	DESCRIPTION	DEPTH	Rec (ft)	Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
			48					48 ft Collected grab sample from hollow stem auger
			50					
			52					
		Light brown, **GRAVELLY SAND**, (SW), coarse to very coarse, (20-30%) gravel.	54					
			56					
			58					58 ft Collected sample grab sample from hollow stem auger
			60					61 ft End of boring

Report: URS-CHICAGO Project File: Z:\83C054\GINT\AREA 5\AREA_5_HISTORIC_BORING_LOGS.GPJ; Data Template:URS-CHICAGO.GDT Printed: 4/5/11

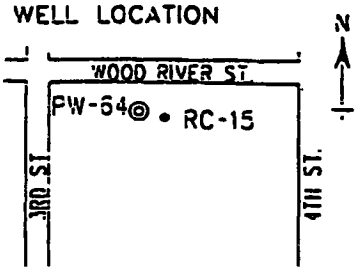
GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

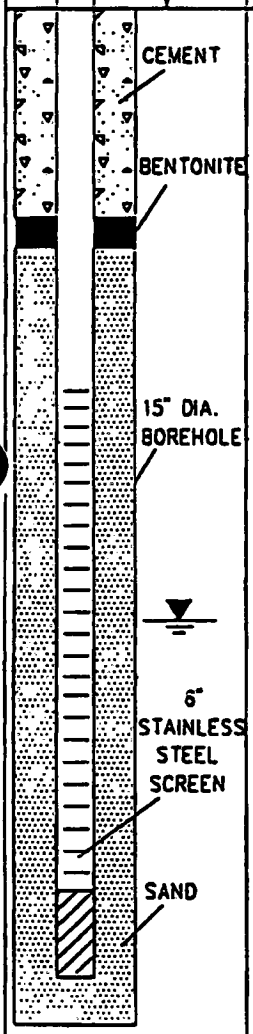
IEPA #: G615

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K081.10	AMOCO OIL CO.	WOOD RIVER	RC-15	1 OF 1

DRILLING METHOD: AUGER (PILOT) ROTARY	SAMPLING METHOD: GRAB SAMPLES FROM AUGER & SAND BAILER
DRILLING START 4-22-91 FINISH 4-24-91	DEVEL. START 4-24-91 FINISH 4-24-91
STATIC DTW 45.72 DTO 38.54 TIME 0800 DATE 4-26-91	DRILLED BY: HUGHES DRILLING
ELEVATION TOC - GL -	LOGGED BY: GDS

WELL LOCATION



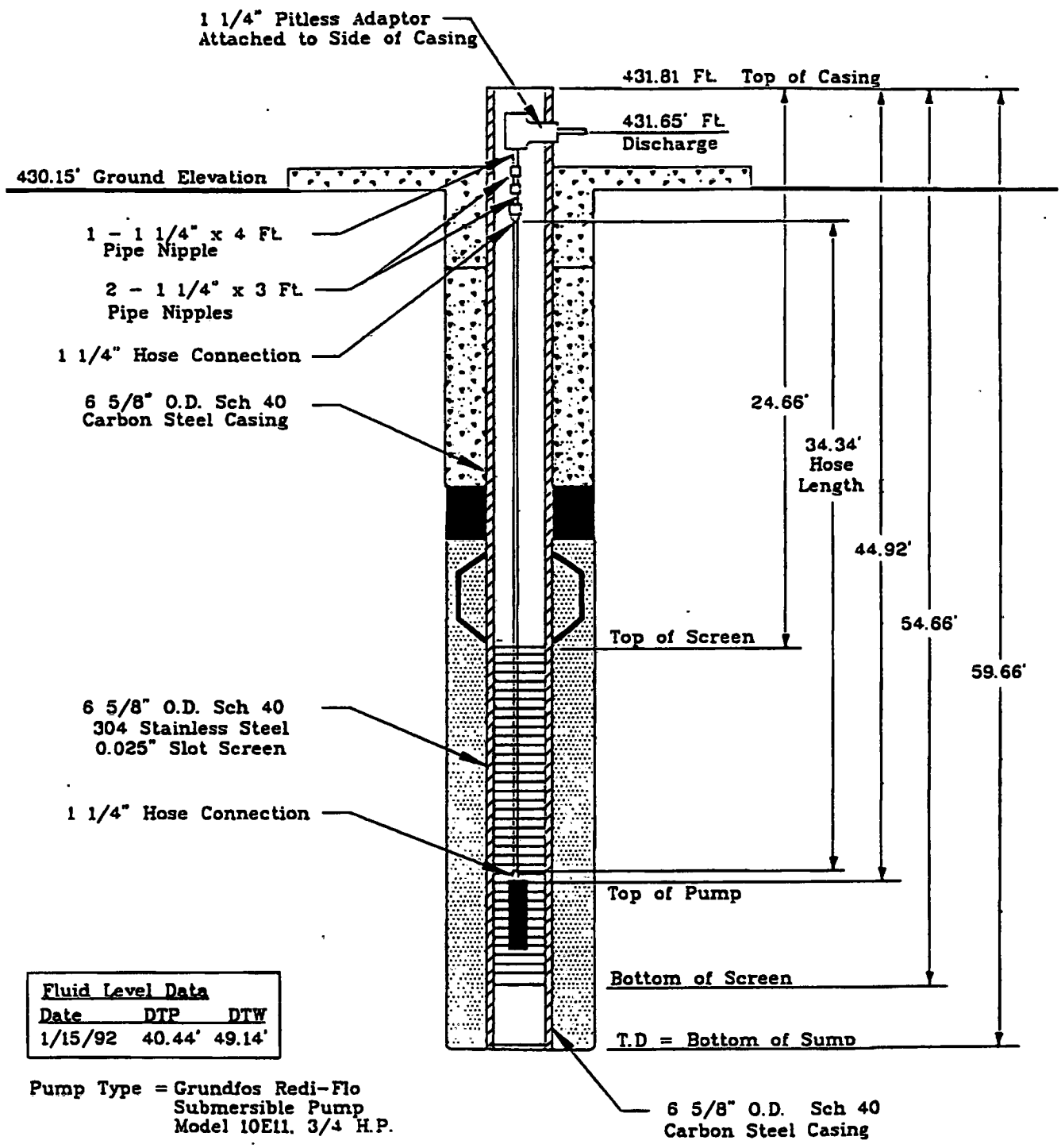


DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	(PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	CL	SILTY CLAY	DKGY	MED. STIFF, MOIST, BLACK HC STAINING, STRONG HC ODOR.							
			OLGY	CHANGE IN ODOR AT 5' TO OLIVE GRAY, BECOMES SILTIER.							
10				SOME HEMATITIC STAINING AT 15'.							
	SP	SAND	LTBR	FINE-MED. GRAINED SAND, SLIGHT HC ODOR.							
20											
	SW	SAND	LTBR	MED.-VERY COARSE GRAINED SAND, SOME PEBBLES, STRONG HC ODOR.							
30											
								38			1
40				INTERBEDDED SILTY CLAY LAYERS FROM 40-42'.							
	SP	SAND	LTBR	MED.-COARSE GRAINED SAND, SOME PEBBLES AND COAL PIECES.				48			2
50											
	SW	GRAVELLY SD	LTBR	COARSE-VERY COARSE GRAINED SAND; 20-30% GRAVEL.				58			2
60				TOTAL DEPTH IS 61'.							
70											

NOTE: 1 = SAMPLED WITHIN HOLLOW-STEM AUGERS USING SMALL DIA. AUGER.
2 = GRAB SAMPLES FROM HOLLOW-STEM AUGERS.

IEPA # 0615

WOOD RIVER WELL RC-15



Fluid Level Data		
Date	DTP	DTW
1/15/92	40.44'	49.14'

Pump Type = Grundfos Redi-Flo
Submersible Pump
Model 10E11. 3/4 H.P.

Date Drilled = 4-22-91

DRAWING NOT TO SCALE

HYDROCARBON RECOVERY WELL
PUMP SETTING DIAGRAM
WELL RC-15

FIGURE
A90-
5R2919-
RC015

PROJECT NO. 5R-2919

DWC DATE: 2-4-92 | PRJCT NO.: OK0B110 | FILE NO.: RC015 | DRAWING: - | CHECKED: RANDY PRYOR | APPROVED: MONROE MARTIN | DRAFTER: JIM HARBESTON

Whit	Pink Copies:
Il	pt. of Public Health
Yell	Copy: Well Contractor
Golden Copy: Well Owner	

Well Construction Report

SENT TO B. BARRY 1/31/92

THIS FORM MUST BE COMPLETED WITHIN 30 DAYS
OF WELL COMPLETION AND SENT TO
THE ILLINOIS DEPARTMENT OF PUBLIC HEALTH
DIVISION OF ENVIRONMENTAL HEALTH
525 WEST JEFFERSON STREET
SPRINGFIELD, ILLINOIS 62761

1. Type of Well
   a. Bored____ Hole Diam.____in. Depth____ft
      Buried Slab: Yes___ No___
   b. Driven____ Drive Pipe Diam.____in. Depth____ft
   c. Drilled X Finished in Drift X In Rock____
   d. Grout:

(KIND)	FROM (Ft.)	TO (Ft.)
Portland Type 1	0.0	13.0

2. Well furnished water for human consumption? Yes____ No X
3. Date well drilled April 22, 1991
4. Permanent pump installed? Yes X Date 1-1-92 No X
   Manufacturer Grundfos REDI-FLO Type 10E11
   Location
   Capacity 10 gpm. Depth of setting 45.92 ft.
5. Well top sealed? Yes____ No X Type
6. Pitless adapter installed? Yes X No____
   Manufacturer MARTINSON Model No. 520
   How attached to casing?
7. Well disinfected? Yes____ No X
8. Pump and equipment disinfected Yes____ No X

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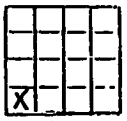
PRESS FIRMLY WITH BLACK PEN OR TYPE
Do Not Use Felt Pen

IL482 0126

GEOLOGICAL AND WATER SURVEYS WELL RECORD

9. Driller Henry L. Bush License No. 092-003987
10. Well Site Address 301 Evans, Wood River, Ill.
11. Property Owner Amoco Well No. RC-15
12. Permit No. 020090 Date Issued 4-4-91
13. Location: County Madison
    Sec. 27
    Twp. 05N
    Rge. 09W

X			



Show location in section plat

14. Water from sand at depth 40.0 ft to 58.0 ft

15. Casing and Liner Pipe

Diam.(in)	Kind and Weight	From (ft)	To (ft)
6	.280 wall carbon steel	+2.0	23.0
6	304 stainless steel screen	23.0	53.0
6	.280 wall carbon steel	53.0	58.0

16. Screen: Diam. 6 in, Length 360 in, Slot Size 0.025" 430.15
17. Size hole below casing 15 in. 18. Ground Elev. -NA- ft msl.
19. Static level____ft below casing top which is 1.66 ft. above ground level. Pumping level ____ft, pumping gpm for 1 hours

20. Earth Materials Passed Through	Depth of Top	Depth of Bottom
Silty Clay	0.0	16.0
Sand (fine-medium grained)	16.0	54.0
Gravelly Sand	54.0	61.0

IEPA # G615

Continue on separate sheet if necessary.

Signed Henry L. Bush Date 6-16-91

IEPA # 6617

DATE STARTED 3/6/00	DATE FINISHED 3/6/00	TOTAL DEPTH DRILLED (feet) 58.0	DIAMETER OF BORING (inches) 12 in.
HAMMER WEIGHT (lbs)	HAMMER DROP (inches)	GROUNDWATER DEPTH (feet) 43.0 Feet	DATE MEASURED 3/6/00
DRILLING COMPANY Roberts Environmental Drilling		DRILLING EQUIPMENT CME	
DRILLING METHOD Hollow Stem Auger		BOREHOLE BACKFILL Vapor Extraction Well	LOGGED BY Kim Gerred
APPROXIMATE SURFACE ELEVATION (feet)			

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
				Dark grayish brown sandy CLAY (CL/SC), very fine grained, moist, soft, med. to high plasticity			Borehole logged from cuttings.
				moderate hydrocarbon odor			
5				Dark gray silty SAND (SM), fine grained, moist, rounded, loose			HNu = 0 to 1 ppm in breathing zone.
				Strong hydrocarbon odor			
							HNu = 0 to 1 ppm in breathing zone.
10				...increase in moisture content with depth until it is saturated at 15 feet. Sheen on soil.			
							HNu = 0 to 1 ppm in breathing zone.
15				Dark grayish brown sandy CLAY (CL/SC), moist, very soft, med. to high plasticity, hydrocarbon odor			
				Yellowish brown SAND (SP), fine to medium grained, rounded, loose, moist, No hydrocarbon odor			HNu = 0 to 1 ppm in breathing zone.

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-17

Figure 1 of 3

6/19/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA # G617

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER TSf	HNu (ppm)	REMARKS
25							HNu = 0 to 1 ppm in breathing zone.
30							HNu = 0 to 1 ppm in breathing zone.
35				Gray silty SAND (SM), fine to coarse grained, moist to wet, rounded, loose			
				...thin silty clay seams (< 1/4"), slight hydrocarbon odor			
40				...becoming fine grained, increase in silt content with depth.			HNu = 0 ppm in breathing zone.

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-17

Figure 2 of 3

6/13/00 RGLOG1 AWR

Woodward-Clyde Consultants

IEPA# G617

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
45							Filled augers with water.
50							
55							
				END OF BORING 58.0 FEET			
60							
65							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-17

Figure 3 of 3

6/19/00 BGLOG1 AWR

Woodward-Clyde Consultants

GROUND SURFACE ELEVATION: 428.41

TOP OF WELL CASING ELEVATION: 430.28

PROTECTIVE CASING ELEVATION: 430.48

NORTHING: -1360.09

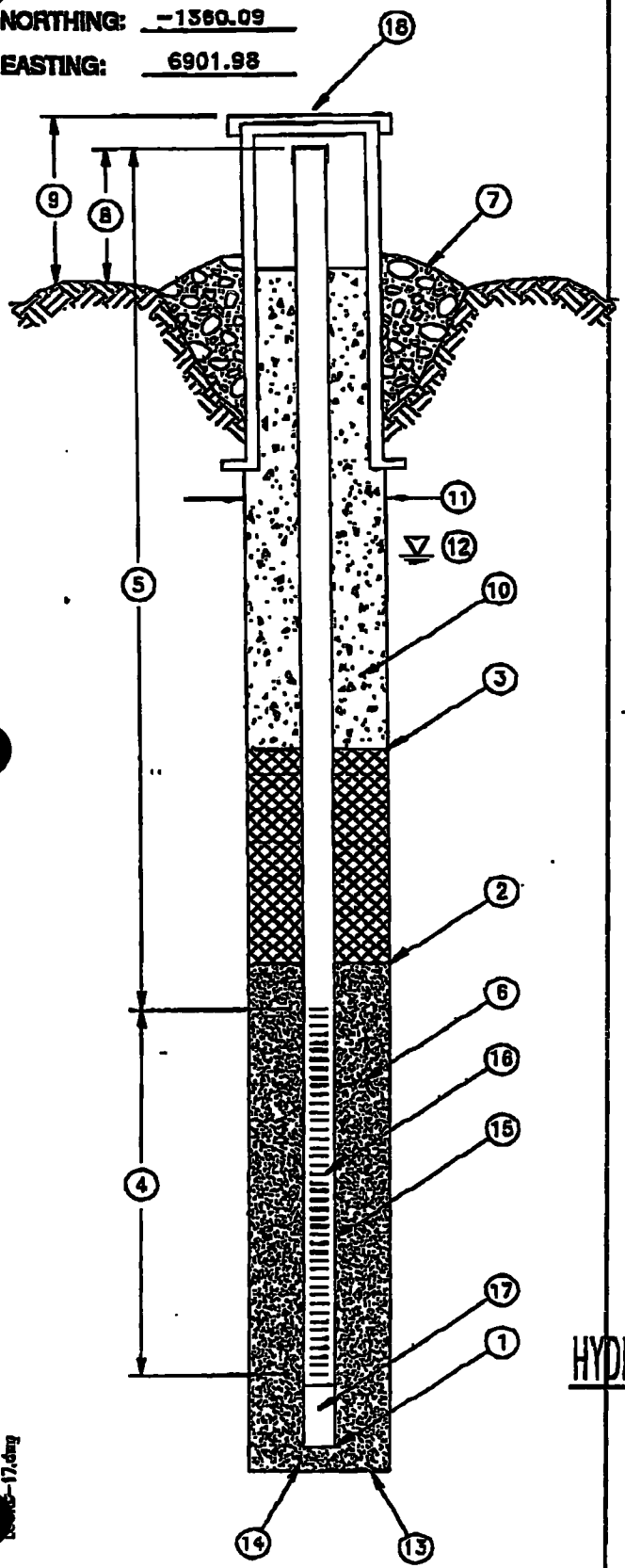
EASTING: 6901.98

JOB NUMBER: 22-0083C054.15 0MP33

LOCATION: BP AMOCO-WOOD RIVER

BORING NUMBER: RC-17

DATE: 3/06/00



1. DEPTH TO BOTTOM OF WELL SUMP OR SLOTTED PIPE 58.0 FEET. *
2. DEPTH TO BOTTOM OF SEAL (IF INSTALLED) 16.0 FEET. *
3. DEPTH TO TOP OF SEAL (IF INSTALLED) 15.0 FEET. *
4. LENGTH OF WELL SCREEN 17.0 FEET. SLOT SIZE 0.025 INCHES.
5. TOTAL LENGTH OF PIPE 25.0 FEET AT 6 INCH DIAMETER.
6. TYPE OF PACK AROUND WELL POINT OR SLOTTED PIPE FILTER SAND # & ##.
7. CONCRETE CAP ? (YES) NO (CIRCLE ONE)
8. HEIGHT OF WELL CASING ABOVE GROUND 2.0 FEET.
9. PROTECTIVE CASING ? (YES) NO (CIRCLE ONE) HEIGHT ABOVE GROUND 2.2 FEET. DIAMETER 8 INCHES. LOCKING CAP ? (YES) NO (CIRCLE ONE)
10. TYPE OF UPPER BACKFILL BENTONITE GROUT
11. BOREHOLE DIAMETER 10.5 INCHES.
12. DEPTH TO GROUND WATER 33.1 FEET. * 10/18/00
13. TOTAL DEPTH OF BOREHOLE 58.0 FEET. *
14. TYPE OF LOWER BACKFILL FILTER SAND # & ##
15. PIPE MATERIAL PVC
16. SCREEN MATERIAL STAINLESS STEEL
17. WELL SUMP ? (YES) NO (CIRCLE ONE) LENGTH 60.0 INCHES.
18. STAINLESS STEEL SURFACE COVER 8 INCHES.

* = DEPTH FROM GROUND SURFACE

HYDRAULIC GRADIENT CONTROL WELL INSTALLATION DETAILS

(SINGLE CASING STRING)

URS

IEPA # G618

DATE STARTED	3/8/00	DATE FINISHED	3/8/00	TOTAL DEPTH DRILLED (feet)	57.5
HAMMER WEIGHT (lbs)		HAMMER DROP (inches)		GROUNDWATER DEPTH (feet)	NA
DRILLING COMPANY	Roberts Environmental Drilling			DRILLING EQUIPMENT	CME
DRILLING METHOD	Hollow Stem Auger			BOREHOLE BACKFILL	Vapor Extraction Well
APPROXIMATE SURFACE ELEVATION (feet)					

DIAMETER OF BORING (inches)	12 in.							
DATE MEASURED	3/8/00							
LOGGED BY	Tim Hicks							

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
				Tan, moist, loose, silty SAND (SM), coarse to fine with some clay Strong hydrocarbon odor, too windy for PID reading.			Hit obstruction, moved borehole 10 feet south. HNu = 1 ppm in breathing zone, 10-20 mph winds.
5							
				...becoming black and saturated.			
10							
				...no clay content below 12 feet.			
15				Black/gray, loose, wet, coarse to fine SAND (SM), with some silt			HNu = 0-5 ppm in

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-18

Figure 1 of 3

8/16/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA# G618

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
				...becoming dry			breathing zone, spikes of 15 ppm.
25							
30				...becoming moist.			
							HUu = 0-5 ppm in breathing zone, 15-20 ppm 2.5 ft. above boring. Begin adding water.
35				Black/gray, moist, medium dense, medium to fine SAND (SM), with some silt			
40							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-18

Figure 2 of 3

8/16/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA# GL618

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu - (ppm)	REMARKS
45							
50							
55							
				END OF BORING 57.5 FEET			
60							
65							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-18

Figure 3 of 3

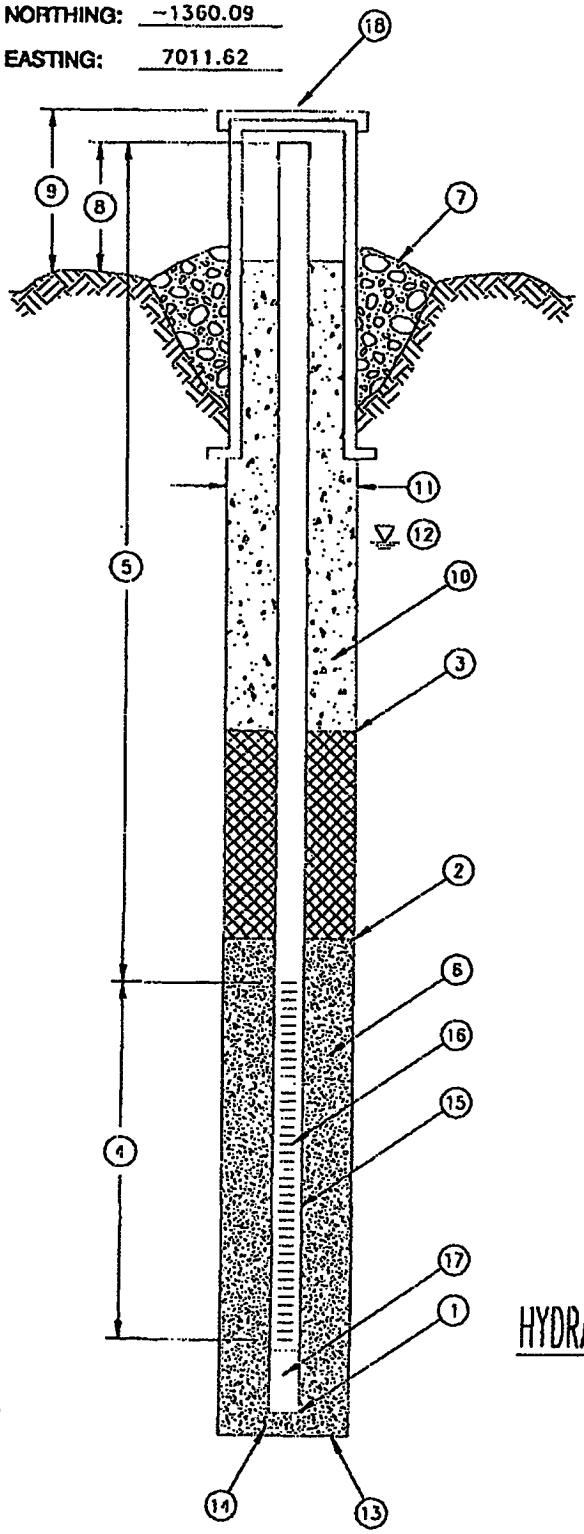
BP16/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA # 6618

GROUND SURFACE ELEVATION: 429.26
TOP OF WELL CASING ELEVATION: 431.79
PROTECTIVE CASING ELEVATION: 431.99
NORTHING: -1360.09
EASTING: 7011.62

JOB NUMBER: 22-0083C054.15 OMP33
LOCATION: BP AMOCO-WOOD RIVER
BORING NUMBER: RC-18
DATE: 3/06/00



1. DEPTH TO BOTTOM OF WELL SUMP OR SLOTTED PIPE 57.5 FEET. *
2. DEPTH TO BOTTOM OF SEAL (IF INSTALLED) 15.5 FEET. *
3. DEPTH TO TOP OF SEAL (IF INSTALLED) 13.0 FEET. *
4. LENGTH OF WELL SCREEN 35.0 FEET. SLOT SIZE 0.025 INCHES.
5. TOTAL LENGTH OF PIPE 20.0 FEET AT 6 INCH DIAMETER.
6. TYPE OF PACK AROUND WELL POINT OR SLOTTED PIPE FILTER SAND ø & øø.
7. CONCRETE CAP ? (YES) NO (CIRCLE ONE)
8. HEIGHT OF WELL CASING ABOVE GROUND 2.5 FEET.
9. PROTECTIVE CASING ? (YES) NO (CIRCLE ONE)
   HEIGHT ABOVE GROUND 2.7 FEET.
   DIAMETER 8 INCHES.
   LOCKING CAP ? (YES) NO (CIRCLE ONE)
10. TYPE OF UPPER BACKFILL BENTONITE GROUT.
11. BOREHOLE DIAMETER 10.5 INCHES.
12. DEPTH TO GROUND WATER 32.8 FEET. *10/18/00
13. TOTAL DEPTH OF BOREHOLE 57.5 FEET. *
14. TYPE OF LOWER BACKFILL FILTER SAND ø & øø.
15. PIPE MATERIAL PVC.
16. SCREEN MATERIAL STAINLESS STEEL.
17. WELL SUMP ? (YES) NO (CIRCLE ONE)
    LENGTH 60.0 INCHES.
18. STAINLESS STEEL SURFACE COVER 8 INCHES.

* = DEPTH FROM GROUND SURFACE

HYDRAULIC GRADIENT CONTROL WELL INSTALLATION DETAILS

(SINGLE CASING STRING)

URS

LOGRC-18.dwg

IEPA # G619

DATE STARTED 3/6/00	DATE FINISHED 3/7/00	TOTAL DEPTH DRILLED (feet) 58.0	DIAMETER OF BORING (inches) 12 in.
HAMMER WEIGHT (lbs)	HAMMER DROP (inches)	GROUNDWATER DEPTH (feet) NA	DATE MEASURED 3/7/00
DRILLING COMPANY Roberts Environmental Drilling		DRILLING EQUIPMENT CME	
DRILLING METHOD Hollow Stem Auger		BOREHOLE BACKFILL Vapor Extraction Well	LOGGED BY Kim Gerred
APPROXIMATE SURFACE ELEVATION (feet)			

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
				Reddish brown silty SAND (SM), moist, loose, fine to med. grained, rounded, trace roots and gravel in top six inches			
				Weak hydrocarbon odor.			Borehole logged from cuttings.
				Dark brownish gray silty SAND (SM), fine to med. grained, rounded, loose, moist to wet.			
				Strong hydrocarbon odor.			
5							HNu = 0 to 1 ppm in breathing zone.
				...becoming gray, still strong hydrocarbon odor.			
10							
							HNu = 0 to 1 ppm in breathing zone.
15							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-19

Figure 1 of 3

6/19/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA# 0619

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
				...becoming all fine grained sand, slightly less hydrocarbon odor.			HNu = 0 to 1 ppm in breathing zone.
25				From 3 to 35 feet are seams of med. to fine grained sand within the fine grained sand. These coarser sand seams contain more hydrocarbons (sometimes almost wet) and have a stronger hydrocarbon odor. The seams observed were 2 to 4 feet thick.			
				...becoming medium grained, stronger hydrocarbon odor.			
30							
				...fine to med. grained.			
35							
40							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-19

Figure 2 of 3

GPJ 9/00 BGLOG1 AWR

Woodward-Clyde Consultants

IEPA # GL19

DEPTH, ft	SAMPLES	BLOWS/ft (N Value)	GRAPHIC LOG	DESCRIPTION	POCKET PENETROMETER tsf	HNu (ppm)	REMARKS
45							
50							HNu = 2 to 5 ppm in breathing zone with 20 ppm spikes.
55				END OF BORING 58.0 FEET			
60							
65							

Project: BP Amoco Wood River
Project Number: 220083C054.15-0MP33

LOG OF BORING RC-19

Figure 3 of 3

6/19/00 BGLOG1 AWH

Woodward-Clyde Consultants

GROUND SURFACE ELEVATION: 426.92

TOP OF WELL CASING ELEVATION: 429.17

PROTECTIVE CASING ELEVATION: 429.37

NORTHING: -1025.99

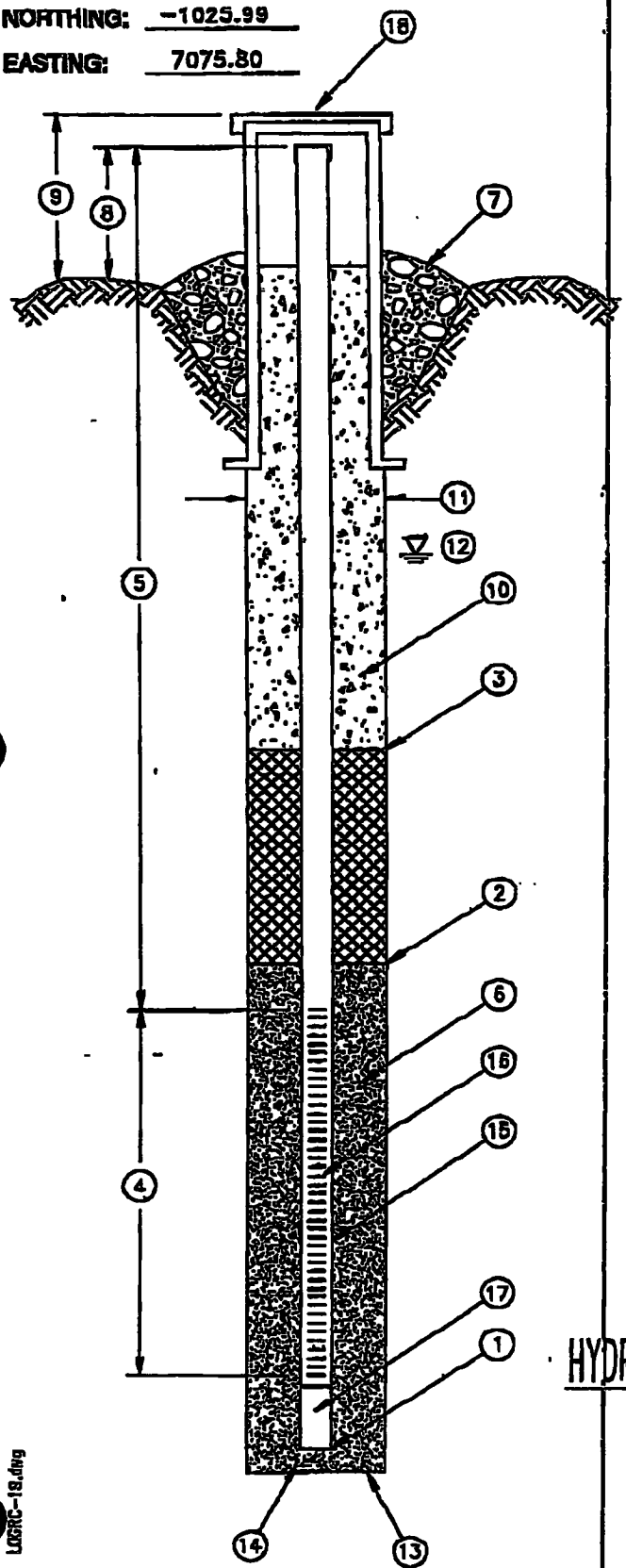
EASTING: 7075.80

JOB NUMBER: 22-0083C054.15 0MP33

LOCATION: BP AMOCO--WOOD RIVER

BORING NUMBER: RC-19

DATE: 3/06/00



1. DEPTH TO BOTTOM OF WELL SUMP OR SLOTTED PIPE 58.0 FEET. *
2. DEPTH TO BOTTOM OF SEAL (IF INSTALLED) 16.5 FEET. *
3. DEPTH TO TOP OF SEAL (IF INSTALLED) 15.5 FEET. *
4. LENGTH OF WELL SCREEN 35.0 FEET. SLOT SIZE 0.025 INCHES.
5. TOTAL LENGTH OF PIPE 20.0 FEET AT 6 INCH DIAMETER.
6. TYPE OF PACK AROUND WELL POINT OR SLOTTED PIPE FILTER SAND ø & øø
7. CONCRETE CAP ? (YES) NO (CIRCLE ONE)
8. HEIGHT OF WELL CASING ABOVE GROUND 2.0 FEET.
9. PROTECTIVE CASING ? (YES) NO (CIRCLE ONE) HEIGHT ABOVE GROUND 2.2 FEET. DIAMETER 8 INCHES. LOCKING CAP ? (YES) NO (CIRCLE ONE)
10. TYPE OF UPPER BACKFILL BENTONITE GROUT
11. BOREHOLE DIAMETER 10.5 INCHES.
12. DEPTH TO GROUND WATER 29.35 FEET. *10/18/00
13. TOTAL DEPTH OF BOREHOLE 58.0 FEET. *
14. TYPE OF LOWER BACKFILL FILTER SAND ø & øø
15. PIPE MATERIAL PVC
16. SCREEN MATERIAL STAINLESS STEEL
17. WELL SUMP ? (YES) NO (CIRCLE ONE) LENGTH 60.0 INCHES.
18. STAINLESS STEEL SURFACE COVER 8 INCHES.

* = DEPTH FROM GROUND SURFACE

HYDRAULIC GRADIENT CONTROL WELL INSTALLATION DETAILS

(SINGLE CASING STRING)

URS

LOGRC-19.dwg

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191150001 County: Madison

Site Name: BP Products North America Inc. Well #: G620

State Plane Coordinate: X ____ Y ____ (or) Latitude: ° ' " Longitude: ° ' " Borehole #: ____

Surveyed by: ____ IL Registration #: ____

Drilling Contractor: Reynolds Drilling Driller: ____

Consulting Firm: URS Corporation Geologist: ____

Drilling Method: ____ Drilling Fluid (Type): ____

Logged By: Mark Wallace Date Started: May 9, 2005 Date Finished: May 10, 2005

Report Form Completed By: George Varela Date: December 14, 2006

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: high solids grout

Installation Method: tremie pipe

Setting Time: 2 days

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: free fall

Setting Time: 30 minutes

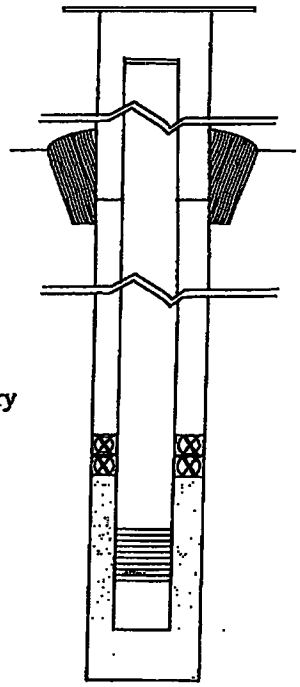
Type of Sand Pack: Sorted Silica

Grain Size: No. 20 (Sieve Size)

Installation Method: free fall

Type of Backfill Material: see above (if applicable)

Installation Method: ____



Elevations (MSL)*	Depths (BGS)	(.01ft.)
N/A	N/A	Top of Protective Casing
432.20	-2.0	Top of Riser Pipe
430.08	0	Ground Surface
429.08	1.0	Top of Annular Sealant
400	30.08	Static Water Level (After Completion)
411.78	18.3	Top of Seal
408.49	21.59	Top of Sand Pack
406.49	23.59	Top of Screen
349.85	80.23	Bottom of Screen
344.72	85.36	Bottom of Well
343.08	87.0	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	30-inches
ID of Riser Pipe (inches)	12-inches
Protective Casing Length (feet)	approx. 1-ft
Riser Pipe Length (feet)	25.59
Bottom of Screen to End Cap (feet)	5.19
Screen Length (1" slot to last slot) (feet)	56.64
Total Length of Casing (feet)	87.36
Screen Slot Size **	0.010-inch

**Hand-Slotted Well Screens are Unacceptable

GERAGHTY & MILLER, INC.

IEPA # G-11

SAMPLE/CORE LOG

ing/Well G-11 Project/No. AMOCO-OK0365HR01 Page 1 of 2

Site Location Wood River, Il | Drilling Started 10/05/88 | Drilling Completed 10/05/88

Total Depth Drilled 50.0 feet | Hole Diameter 7.25 inches | Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' x 0.2' I.D. | Sampling Interval N/A feet

Land-Surface Elev. 431.2 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A | Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling | Driller Tom Hughes | Helper Mike

Prepared By G. Cipriano | Hammer Weight N/A | Hammer Drop N/A inches

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
.0	7.0			BACKFILL - coke, concrete, and other debris.
7.0	16.0			SAND - med. grain, matrix with few coarser
				grains subrounded, moderately well-sorted,
				light brown gas odor.
16.0	23.0			SAND - fine grain, minor coarse grains,
				subrounded moderately well sorted, light brown,
				clay increases downward.
23.0	30.0			SAND - fine grain subrounded, well sorted,
				light brown.
30.0	35.0			SAND - fine to med. grain, few coarse grains,
				subrounded, moderately sorted, clean, light
				brown, hydrocarbon odor, wet at 34' with product
35.0	40.0			SAND - fine grain, few med. grains, subrounded,
				well sorted, clean, light gray, hydrocarbon
				odor, very wet.
)	50.0			SAND - very fine grained, silty, subrounded,

GERAGHTY &
MILLER, INC.

IEPA #: G-11

SAMPLE/CORE LOG (Cont.d)

Boring/Well G-11 Page 2 of 2

Prepared
By J. Shonfelt

Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
40.0	50.0			moderately sorted, light gray, hydrocarbon odor

GERAGHTY &
MILLER, INC.

IEPA #: G-12

SAMPLE/CORE LOG

Boring/Well G-12 Project/No. AMOCO-OK0365HR01 Page 1 of 1

State Location Wood River, Il Drilling Started 10/05/88 Drilling Completed 10/05/88

Total Depth Drilled 45.0 feet Hole Diameter 7.25 inches Type of Sample/ Coring Device Split Spoon

Length and Diameter of Coring Device 2' x 0.2' I.D. Sampling Interval N/A feet

Land-Surface Elev. 431.4 feet [x]Surveyed [ ]Estimated Datum

Drilling Fluid Used N/A Drilling Method H.S. Auger

Drilling Contractor Hughes Drilling Driller Tom Hughes Helper Mike

Prepared By G. Cipriano Hammer Weight N/A Hammer Drop N/A inches

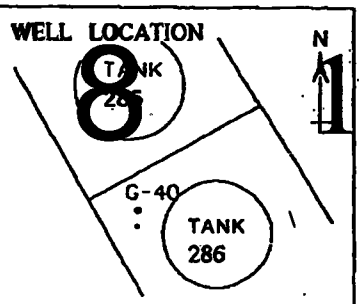
Smpl/Core Depth (ft BLS) From	To	Core Rec. (ft)	Time/Hydraulic Press. or Blows/6 in.	Sample/Core Description
	2.0			COKE-fine grained, black.
2.0	10.0			CLAY-dense, very pliable, black to gray color.
10.0	15.0			SAND-fine to med. grained, few coarse grains,
				subrounded, moderately well sorted, light brown
				slight hydrocarbon odor.
15.0	25.0			SAND-fine grained, subrounded-well rounded,
				well sorted, clean, light brown, hydrocarbon
				odor.
25.0	35.0			SAND-fine-grained, subrounded to well rounded,
				well sorted, clean, light grayish-brown,
				hydrocarbon odor, wet at 33' with product.
35.0				

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K269.01	AMOCO-KOREA	WOOD RIVER, IL	G-40	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS
DRILLING START 1445 12-6-91 FINISH 1015 12-9-91	DEVEL START 13:00 12-10-91 FINISH 13:30 12-16-91
STATIC DTW 33.15 TIME 13:00 DTO DATE 12-16-91	DRILLED BY: BROTCKE ENGINEERING
ELEVATION TOC 431.41 GL 428.82	LOGGED BY: LEE WHITE

WELL LOCATION



WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOVERY	TYPE
3'			CLAY	BY-GR	DENSE, HIGH PLASTICITY,	W						
					DARK GREENISH GRAY,							
	1				GRADING TO GRAY-BLACK,							
					HC ODOR							
	2			GY-BK	(5 GY 4/1 TO N2)	M						
	3											
2" DIA. PVC RISER												
	4				OLD MAROON BRICK PAVEMENT @ 4 FT. DEPTH							
							220	1				CB
	5		CLAY	GY-BK	DENSE, HIGHLY PLASTIC,	M						
				TO	COLOR GRADES FROM GRAY-							
	6			GY-GR	BLACK TO GRAY-OLIVE GREEN							
BENTONITE GROUT					W/ PATCHES OF ORANGE-							
	7				BROWN STAINS. (5 Y 4/1 TO							
					5 GY 4/1). SLIGHT HC ODOR							
	8											
	9											
							310	2				CB
	10		CLAY	BY-GR	DENSE, HIGHLY PLASTIC AT	M						
					TOP, MED AT BOTTOM, SIL.							
	11				SILTY AT BASE OF INTERVAL							
					HC ODOR IN LOWER 1.0 FOOT							
	12			YW-BR	NATURAL ORGANIC PIECES IN							
					SEDIMENT							
	13											
	14			GY-OR								
BENTONITE SLURRY							940	3				CB
	15		CLAY	GY-GR	SILTY, LOW PLASTICITY,	M						
					INCREASING SILT TOWARD							
	16				BASE, DARK GRAY-GREEN,							
					(5 GY 4/1). VERY SLIGHT							
	17				HC ODOR. NATURAL ORGANIC							
					PIECES IN SEDIMENT							
	18											
	19											
							700	4				CB

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE 2 OF 2
OK26901	AMOCO-KOREA	WOOD RIVER, IL	G-40	

WELL LOCATION — N

SEE PAGE 1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CONTINUOUS
DRILLING START: - FINISH: -	DEVEL START: - FINISH: -
STATIC DTW: - DTD: - TIME: - DATE: -	DRILLED BY: BROTCKE ENGINEERING
ELEVATION TOC: - GL: -	LOGGED BY: LEE WHITE

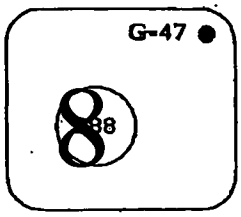
WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
	21		CLAY	GY-CR	SILT, VARIES W/ LAYER, SOME SOME ZONES WET, (5 GY 4/1) COLOR VARIES FROM DARK GRAY	M						
	22				GREEN TO TAN-ORANGE, LOW PLASTICITY NO HC ODOR.	W	1					
2" DIA. .010" SLOT PVC SCREEN	23					M						
	24											
	25						>2,000	5				CB
			CLAY	GY-GR	SILTY, (5 GY 4/1); GRADES TO MED-BROWN (5 OR 3/4); 0.5' LAYER	M						
	26				OF FINE-MEDIUM SAND AND ORGAN-	W						
	27				ICS. SLIGHT HC ODOR.							
	28				CLAY IS DENSE, PLASTIC. SL HC							
					ODOR TOWARD BASE.							
16-30 SIZE GRAVEL PACK	29											
	30						1100	6				CB
						M						
	31											
	32					W						
	33		SAND	GY-GR	FINE-COARSE GRAINED W/ GRAVEL.	W						
					MINOR CLAY LAYERS UPPER							
	34				INTERVAL. STRONG HC ODOR.							
	35						710	7				
			SAND			W						CB
	36			GY-GR	VERY FINE-COARSE GRAINED,							
					SLIGHTLY SILTY, COARSER LAYERS							
	37				NEAR BASE W/ MINOR GRAVEL							
	38											
	39											
					T.D. = 40.0 FT.		500	8				CB

ROBERTSON & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
DK26902	AMOCO OIL CO.	WOODRIVER,ILL.	G-47	1 OF 2

DRILLING METHOD: HOLLOW STEM AUGER	SAMPLING METHOD: CME-CONTIN.CORE
DRILLING START 4-9-92 0800 FINISH 4-9-92 1000	DEVEL START 4-9-92 1200 FINISH 4-9-92 1230
STATIC DTW 32.71 TIME 1330 DTO - DATE 4-9-92	DRILLED BY: BROTCKE ENG.
ELEVATION TOC - GL -	LOGGED BY: RANDY PRYOR

WELL LOCATION



N

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	M.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV.%	TYPE
3 FT STICKUP			FILL	BR-GY	SILT, GRAVELLY, SOME CLAY,	M					70	CC
	1				LITTLE SAND, VF-F, HC							
					STAINED, MILD HC ODOR							
GROUT	2		FILL	BR-GY	CLAY, W/ WOOD FRAGMENTS							
					HC STAINED, MILD HC ODOR							
	3						12	1				
	4											
	5		CLAY	GY-TN	SILTY, FIRM, MOTTLED,	M					100	CC
	6				TR SAND, VF, SLIGHT HC ODOR							
BENTONITE	7						2	2				
	8											
	9											
	10		CLAY	GY-TN	SAME	M					100	CC
	11											
	12		SILT	GY-GN	CLAYEY, LITTLE SOME SAND,	M						
					VF-F, SLIGHT HC ODOR,							
	13				INCREASED MOISTURE CONTENT							
					W/ DEPTH, FRIABLE		2	3				
	14											
	15		SILT	GY-GN	SAME AS ABOVE	M					100	CC
	16											
					HNU= 0 IN B.Z.							
	17				HNU= 0 AT BOREHOLE							
							2	4				
	18											
SAND	19		CLAY	GY-TN	SILTY, FIRM, TR. SAND	M						
					VF, SLIGHT HC ODOR, MOTTLED							

GERAGHTY & MILLER INC.
ENVIRONMENTAL SERVICES

JOB NUMBER	CLIENT	LOCATION	WELL NO.	PAGE
0K26902	AMOCO OIL CO.	VOORHEES, ILL.	G-47	2 OF 2

DRILLING METHOD: SEE PAGE 1	SAMPLING METHOD: SEE PAGE 1
DRILLING START: SEE PAGE 1 FINISH: -	DEVEL. START: SEE PAGE 1 FINISH: -
STATIC DTW: SEE PAGE 1 TIME: SEE PAGE 1 DTD: - DATE: -	DRILLED BY: SEE PAGE 1
ELEVATION TOC: SEE PAGE 1 GL: -	LOGGED BY: SEE PAGE 1

WELL LOCATION

N

SEE PAGE ONE

WELL CONSTRUCTION	DEPTH FEET	CLASS	NAME	COLOR	DESCRIPTION: GRADATION, SECONDARY CHARACTERISTICS, ODOR, REMARKS.	H.C.	HNU (PPM)	SAMPLE NO.	SAMPLE DEPTH	BLOWS	RECOV. %	TYPE
			CLAY	GY-TN	SAME AS ABOVE	M					100	CC
	21				SLIGHT HC ODOR							
	22						21	5				
	23											
	24											
	25		CLAY	GY-TN	SAME AS ABOVE SLIGHT HC ODOR	M					100	CC
	26		CLAY	RD	SILTY, FIRM, MOTTLED, TR.	M						
					VF SAND, SLIGHT HC ODOR							
	27											
SAND					HNU = 0 IN B.Z.							
	28				HNU = 4 AT BOREHOLE							
	29		SAND	GY-TN	M-C, SOME SILT,	V	34	6				
					HC STAINED, MILD HC ODOR							
	30		SAND	GY-TN	SAME, W/ GRAVEL FRAGMENTS,	V					80	CC
					STRONG HC ODOR							
	31											
	32											
	33						110	7				
	34											
	35		SAND	GY-TN	SAME, WELL GRADED,	V					30	CC
	36				STRONG HC ODOR		118	8				
	37											
			SAND	GY-TN	M-C, GRAVELLY							
	38											
	39				T.D. AT 38'-9" B.G.S.							

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A3MW01

Sheet 1 of 2

Date(s) Drilled	10/22/13 and 11/20/13	Logged By	A. Heitger	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	45.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 32.0' bgs ATD and 27.3' btoc on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						NO RECOVERY - Began Sampling at 23' BGS		
			Air Knife	0	N/A				
	5								4-inch SCH 40 PVC Riser
	10								3/8-inch Bentonite Chips
	15		DP-1	0	N/A				Filter Sand
	20								4-inch SCH 40 PVC 0.020-inch Slotted Screen

URS

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A3MW01

Sheet 2 of 2

Elevation, feet	Depth, feet	SAMPLES: Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	25		DP-5	41	44.8		Medium dense, moist, dark gray and light brown layered, fine to coarse SAND (SW) with black hydrocarbon staining		
							becomes medium to coarse grained		
					166				
					1749				
							without hydrocarbon staining		Filter Sand
	30		DP-6	40	1522				
							with alternating layers of dark gray hydrocarbon staining		
					1744			▽	
					1508		Dense, wet, dark brown, fine to medium SAND (SP) with gray hydrocarbon staining		
							with hydrocarbon sheen on groundwater and trace black hydrocarbon staining on sample liner		
					1409				
	35		DP-7	49			with 0.5 to 1.0 inch layers of light brown coarse sand		
					1405				4-inch SCH 40 PVC 0.020-inch Slotted Screen
					1566		with black hydrocarbon staining		
					1688				
	40		DP-8	58					
					1511				
			AUGER	0	N/A				
	45						End of Boring at 45´ bgs.		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A3MW02

Sheet 1 of 3

Date(s) Drilled	10/22/13 and 11/22/13	Logged By	A. Heitger	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	53.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 33.0' bgs ATD and 29.8' btoc on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRASS / TOPSOIL Medium dense, moist to dry, brown, fine to coarse SAND (SW)		
			Air Knife	0	N/A		Dense, moist, gray, silty CLAY (CL) with sand		
	5								4-inch SCH 40 PVC Riser
							Not Sampled - Began Sampling at 23' bgs		
	10								3/8-inch Bentonite Chips
	15		DP-1	0	N/A				Filter Sand
	20								4-inch SCH 40 PVC 0.020-inch Slotted Screen

URS

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A3MW02

Sheet 2 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
					17.0		Medium dense, dry, orange brown and gray, fine to medium SAND (SP)		
	25		DP-2	44	31.5		Medium dense, dry, brown and gray, medium to coarse SAND (SW) ←2-inch wet coarse sand layer with gray silt ←3/4-inch layer of moist, brown, fine silty SAND		
					10.7		Medium dense, dry, orange brown, fine to medium SAND (SP)		
	30		DP-3	40	1108				←Filter Sand
					1665		←4-inch layer of moist, brown, coarse SAND with fine rounded gravel		
							←approximate groundwater depth Not Sampled between 33 and 48' bgs		
	35								←4-inch SCH 40 PVC 0.020-inch Slotted Screen
	40		DP-4	0	N/A				
	45								
			DP-5	47	1284		Dense, wet, dark brown, fine to medium SAND (SP) with trace hydrocarbon sheen		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A3MW02

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES: Type	SAMPLES: Number	SAMPLES: Recovery, inches	SAMPLES: Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	50		DP-5	47	892		with coarse sand and trace fine rounded gravel		
					1097		Dense, wet, dark brown and gray, fine silty SAND (SM) with hydrocarbon staining		
							End of Boring at 53' bgs.		
	55								
	60								
	65								
	70								
	75								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW01

Sheet 1 of 3

Date(s) Drilled	10/22/13 and 11/25/13	Logged By	A. Heitger	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	50.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 35.0' bgs ATD and 30.4' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRAVEL SURFACE		
							Dense, dry, brown, SILT and GRAVEL, with cobbles, asphalt and concrete debris [FILL]		
							Medium dense, moist, dark brown and dark gray, fine to coarse silty SAND (SM)		
							← perched water		
			Air Knife	0	N/A				
							Stiff, moist, gray, sandy silty CLAY (CL)		← 4-inch SCH 40 PVC Riser
	5								
							Not Sampled - Began Sampling at 23' BGS		← 3/8-inch Bentonite Chips
	10								
	15		DP-1	0	N/A				← Filter Sand
									← 4-inch SCH 40 PVC 0.020-inch Slotted Screen

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BGP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

URS

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW01

Sheet 2 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
							Not Sampled - Began Sampling at 23' BGS		
	20		DP-1	0	N/A				Filter Sand
					0.0		Medium dense, moist, dark brown and gray, fine to medium SAND (SP) 1/2-inch orange brown, coarse SAND layer		
	25		DP-2	40	0.0		Medium dense, dry, orange brown and brown layered, fine to coarse SAND (SW)		
					0.0				
	30		DP-3	42	>3000				
					>3000		Dense, dry, gray with brown layers, fine SAND (SP)		4-inch SCH 40 PVC 0.020-inch Slotted Screen
					>3000		becomes medium dense to loose, orange brown and gray, fine to medium grained		
	35		DP-4	50	>3000		becomes dense, wet, with trace coarse sand		
					>3000		Dense, wet, orange brown and gray layered, fine to coarse SAND (SW)		
			DP-5	0	N/A		Not Sampled - Continued Sampling at 43' BGS		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW01

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	40		DP-5	0	N/A		Not Sampled - Continued Sampling at 43' BGS		Filter Sand
	45		DP-6	29	>3000		Dense, wet, gray, fine to medium SAND (SP) with hydrocarbon sheen on groundwater		4-inch SCH 40 PVC 0.020-inch Slotted Screen
					>3000				
					>3000				
			AUGER	0	N/A		Not Sampled		
	50						End of Boring at 50' bgs.		
	55								
	60								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW02

Sheet 1 of 3

Date(s) Drilled	10/22/13 and 11/26/13	Logged By	A. Heitger	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	53.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 29.0' bgs ATD and 34.0' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRASS / TOPSOIL		
							Medium dense, moist, dark brown, fine to coarse silty SAND (SM) trace cobbles		
			Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	5						← perched groundwater		3/8-inch Bentonite Chips
							Stiff, moist, gray, lean CLAY (CL)		
	10		DP-1	0	N/A				Material Description between 7 and 28 feet bgs logged from auger cuttings
									Filter Sand
	15						Dense, moist, dark brown, fine to medium SAND (SP)		
									4-inch SCH 40 PVC 0.020-inch Slotted Screen
	20								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW02

Sheet 2 of 3

Elevation, feet	Depth, feet	SAMPLES: Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	20		DP-1	0	N/A				Filter Sand
	25								
			DP-2	44	0.0		becomes wet, with coarse sand	▽	
	30				0.0				
					0.0		Dense, wet, brownish gray, fine to coarse SAND (SW) with fine rounded gravel		
					0.0		becomes medium to coarse grained		
							becomes gray		
			DP-3	44	0.0		Dense, wet, gray, fine to medium SAND (SP)		
	35				0.0				
					0.0		2-inch layer of dark gray fine SAND		
							Not Sampled - Continued Sampling at 48' BGS		4-inch SCH 40 PVC 0.020-inch Slotted Screen
	40		DP-4	0	N/A				

Report: GEOPROBE_FT_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW02

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
							Not Sampled - Continued Sampling at 48' BGS		
	45		DP-4	0	N/A				Filter Sand
					200		Dense, wet, gray, fine to medium SAND (SP)		4-inch SCH 40 PVC 0.020-inch Slotted Screen
	50		DP-5	60	210				
					1830		hard, layered dark gray and brown (tar / asphalt consistency)		Native Material
							End of Boring at 53' bgs.		
	55								
	60								
	65								

Report: GEOP_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS_LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery **Project Location: Wood River, IL** **Project Number: 13816540.104080**	**Log of Monitoring Well A6MW03/ A6BH100** Sheet 1 of 3

Date(s) Drilled	10/22/13 and 10/30/13	Logged By	A. Heitger / C. Landaverde	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	58.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 25.0' bgs ATD and 34.5' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRAVEL SURFACE		
							Dense, moist, dark gray and brown, fine to coarse SAND and GRAVEL [FILL]		
			Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	5						Stiff, moist, gray, CLAY and GRAVEL [FILL]		
			DP-1	0	N/A				
					117		Stiff, moist, dark gray, lean CLAY (CL)		3/8-inch Bentonite Chips
	10		DP-2	50	82.3		becomes gray with brown mottling		
					75.4		with medium to coarse sand		
					20.3		Medium stiff, moist, brown and gray, sandy CLAY (CL)		Filter Sand
	15		DP-3	44	6.7		sand content increases Medium dense, moist, brown, fine to medium SAND (SP)		
					10.7		Medium dense, dry, brown, fine to coarse SAND (SW)		
	20		DP-4	42	22.7				4-inch SCH 40 PVC 0.020-inch Slotted Screen
					118				

Report: GEOP_FT_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW03/ A6BH100

Sheet 2 of 3

Elevation, feet / Depth, feet	SAMPLES: Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
25		DP-5	45	300		becomes moist, with weathered gasoline odor		
				284		becomes dense, wet, brown and gray		
				Soil Core 26.5-28.0'		Dense, wet, pale brown and brown layered, fine to medium SAND (SP)		
30		DP-6	46	Soil Core 28.0-30.5'		becomes brown		Filter Sand
				Soil Core 30.5-33.0'		with gravel 3-inch layer of black hydrocarbon staining		
35		DP-7	52	Soil Core 33.0-35.5'		Dense, wet, brown, fine to coarse SAND (SW)		
				Soil Core 35.5-38.0'		with trace gravel		
40		DP-8	47	Soil Core 38.0-40.5'		Dense, wet, brown layered, fine to medium SAND (SP)		
				Soil Core 40.5-43.0'		Dense, wet, yellowish brown, fine to coarse SAND (SW) with trace gravel		
45		DP-9	47	Soil Core 43.0-46.0'		Dense, wet, brown, fine to medium SAND (SP) with trace gravel		4-inch SCH 40 PVC 0.020-inch Slotted Screen
				292		1/2-inch black oil saturated layer		
		DP-10	44	310		Dense, wet, brown and gray, fine to coarse SAND, trace fine to coarse gravel		

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BIGP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A6MW03/ A6BH100

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	50		DP-10	44	301		1/2-inch layer of fine angular gravel		Filter Sand
							1/2-inch layer of fine angular gravel		
					296		Dense, wet, gray, fine SAND (SP)		
							with fine angular gravel		
							becomes dark gray, with gravel		4-inch SCH 40 PVC 0.020-inch Slotted Screen
	55		DP-11	36	Soil Core 53.0-55.5				
							saturated with brown oil		
					Soil Core 55.5-58.0				Native Material
							End of Boring at 58' bgs.		
	60								
	65								
	70								
	75								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW02

Sheet 1 of 3

Date(s) Drilled	10/28/13 and 11/18/13 -11/19/13	Logged By	A. Heitger / S. Bates	Checked By	M. Schmidt
Drilling Method	Air Knife / Direct Push / Hollow Stem Auger	Drill Bit Size/Type	3.5" OD Dual Tube and 6.25" HSA	Total Depth of Borehole	53.0 feet
Drill Rig Type	Vacmaster 4000 / Geoprobe 8040 DT	Drilling Contractor	Roberts Environmental	Surface Elevation	
Groundwater Level and Date Measured	Approximately 30.0' bgs ATD and 26.7' bgs on 12/16/13	Sampling Method(s)	1.85" x 60" Dual Tube	TOC Elevation	
Boring Location	Refer to Site Plan	Well Completion	Refer to Well Detail		

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	0						GRASS / TOPSOIL Not Sampled - Began Sampling at 23' BGS		
	5		Air Knife	0	N/A				4-inch SCH 40 PVC Riser
	10								3/8-inch Bentonite Chips
	15		DP-1	0	N/A				Filter Sand
	20								4-inch SCH 40 PVC 0.020-inch Slotted Screen

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Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW02

Sheet 2 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	20		DP-1	0	N/A		Not Sampled - Began Sampling at 23' BGS		
			DP-2	41	117		Medium dense, moist, gray, fine SAND (SP)		
	25				2171				Filter Sand
					2317				
			DP-3	44	1160		becomes dense and wet	▽	
	30				1519				
			DP-4	49	1592				
	35				1523				
					2000				
							Not Sampled - Continued Sampling at 43' BGS		4-inch SCH 40 PVC 0.020-inch Slotted Screen
	40		DP-5	0	N/A				

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS LOGS 2013.GPJ; 12/20/2013

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Project: Feasibility Study - Former Amoco Refinery
Project Location: Wood River, IL
Project Number: 13816540.104080

Log of Monitoring Well A8MW02

Sheet 3 of 3

Elevation, feet	Depth, feet	SAMPLES Type	Number	Recovery, inches	Headspace, ppm	Graphic Log	MATERIAL DESCRIPTION	Well Details	FIELD NOTES AND WELL DETAILS
	45		DP-6	47	716		Dense, wet, gray, fine SAND (SP)		
					659				
					1073				
	50		DP-7	46	1299				Native Material
					1293				
							End of Boring at 53' bgs.		
	55								
	60								
	65								

Report: GEOPROBE_LINER_WELL; File: K:\PROJECTS\BP-WOODRIVER\13816540\DOCS\LOGS\BORING LOGS\FS_LOGS 2013.GPJ; 12/20/2013

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Log of Boring: A9BH05 **Project:** BP Area9 Investigation **Project No:** 25364083.2MP20
Client: BP **Reviewed By:** George Varela
Location: Wood River, IL **Completion Depth (ft):**
Logged By: Mark Wallace **Surface Elevation (ft):** 431.23
Date Started: 10/10/2002 **Boring Diameter (in):** 2
Date Finished: **Groundwater Depth (ft):** 33.28 (1/16/03)
Sheet: 1 of 3

Subsurface Profile				Sample Information						Remarks
Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	
428.33	-2									
	-1									
	0		Ground Surface							
0.00			***SILT (ML), FILL*** Medium, moist, brown, low plasticity					0.1		
	1									
			Silty CLAY (CH) Stiff, moist, brown, high plasticity	1	Geo	36/		4.7		
	2				-P	36		33.0		A90210BH05-01 at 2-3 ft (1120 hrs)
	3									
424.13								128		
4.20	4									A(0210BH05-02 at 4-5 ft (1145 hrs)
422.93			***SILT (ML)*** Medium stiff, moist, grayish green, low plasticity			48/		1901		
5.40	5									
			4 inch lens of clay, high plasticity	2	Geo	48		1523		
	6				-P			1282		
421.33										
7.00	7		Becomes wet							
			CLAY (CH) Very stiff, moist, grayish green, high plasticity					63.1		
	8					48/		51.4		
419.22										
9.11	9		***Sandy CLAY (CL)*** Stiff, moist, brown, low plasticity	3	Geo	48		271		
	10				-P			254		
417.53										
10.80	11		***CLAY (CH)*** Stiff, moist, brown/gray, high plasticity					369		
416.43										
11.90	12									

Sand Filter

URS

122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

Drilling Company: R.E.D.I.
Driller: B. Mudd
Drilling Equipment: GEO-CAT
Drilling Method: GeoProbe

Drill Bit Size/Type: 2-inches
Borehole Backfill: Granular Bentonite
Type of sampler: 4-inch Macrosampler
Hammer weight/drop: N/A

Log of Boring: A9BH05 **Project:** BP Area9 Investigation **Project No:** 25364083.2MP20 **Sheet** 2 of 3

Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	Remarks
	13					48/		385		
				4	Geo	48		179		
	14				-P			460		
413	15									
15			***SILT (ML)*** **Soft to Medium Stiff, wet, green, low plasticity**					934		
	16					48/		572		
	17			5	Geo	48		116		
	18				-P			271		
410										
19	19		***Silty CLAY (CL)*** **Stiff, moist, grayish green, low plasticity**					183		
	20					48/		217		
407										
21	21		***CLAY (CH)*** **Stiff, moist, greenish gray, high plasticity**	6	Geo	48		95.7		
	22				-P			93.1		
	23		**Becomes red**					18.9	Top of Filter Elev.	
	24					20/		11.0	Screen	
	25			7	Geo	48				
	26				-P					
401										
27	27									

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Suite 1920
Chicago, IL 60603

Log of Boring: A9BH05 **Project:** BP Area9 Investigation **Project No:** 25364083.2MP20 **Sheet** 3 of 3

Elevation	Depth	Graphic	Description	Sample Number	Sample Type	Recovery (feet)	Blow Count	Sample PID (PPM)	Well Construction	Remarks
	28		Same as above					460		
				8	Geo	36/		540		
399	29									
29			***SAND (SP)***							
			Loose, wet, gray, fine grained		-P	36		375		
	30				Geo	24/		180		
	31			9	-P	24		360		
	32				Geo	22/		325		
	33			10	-P	24		479		
	34				Geo	20/		536		
	35			11	-P	24		383		
	36				Geo	20/		695		
	37			12	-P	24		784		
	38				Geo	22/		1124		
	39			13	-P	24		1999		
388	40								Bottom of Screen	
40			End of Borehole							
	41									
	42									

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122 South Michigan Avenue
Suite 1920
Chicago, IL 60603

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CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING R032

SHEET 1 OF 3

Project: BP Wood River		Project No.: 25366706.0073505				
Location: Wood River, IL		Elevation: 428.4 ft msl		Coordinates (N,E): 795614.1, 2314989.7		
Drilling Company: R.E.D.I.		Date Started: 03/12/08		Date Finished: 03/12/08		
Drilling Equipment: VTR AMS 9700		Refusal Depth (ft bgs): 0.0	Rock Depth (ft bgs): 0.0	Completion Depth (ft bgs): 40.0		
Drilling Method: Hollow Stem Auger		Water Level (ft bgs)			Number of Samples	
Drill Bit Type/Diameter: 9 in.		First Encount.: 35.5	At Completion: None	Well Installed? Yes	Dist.: 0	Undist.: 10	Core: 0
Sampler Type/Diameter: 4' Macrosampler / 1.5" Diameter		Driller: Pat Seymour		Field Logger: Mark Wallace		
Boring Location Description: Wood River, IL		Reviewed by: LV				

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
428		(TOPSOIL).						0 - 5 ft Excavated with an air knife to 5 feet
		Stiff, dark gray, **SILTY CLAY**, (CL), moist.	2					
426								
			4					
424								
		Stiff, gray, **SILTY CLAY**, (CL-CH), moist, high plasticity.		2.5	NA			
422			6					
		Stiff, brown, **SILTY CLAY**, (CL), moist, low plasticity.						
420			8	3.5	NA			
418			10					
416			12	2.3	NA			

URS-CHICAGO RFC... URS-CHICAGO.GDT 4/29/08

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING R032

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	428.4 ft msl	795614.1, 2314989.7

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
414		Stiff, brown, **SILTY CLAY**, (CL), moist, low plasticity, Becomes medium.						
		Becomes soft.						
		Loose, brown, **SILT**, (ML), trace clay, moist, low plasticity.	16	4.0	NA			
412								
			18					
410								
			20	4.0	NA			
408		Becomes wet.						
		Becomes grayish brown.	22					
406		Becomes dense.						
		Loose, gray, **SANDY SILT**, (ML), moist.	24	2.5	NA			
404		Stiff, gray, **CLAY**, (CH), moist, high plasticity.						
		Stiff, gray, **CLAY**, (CL), moist, low plasticity.	26					
402								
			28	3.5	NA			
400								
			30					
398		Stiff, gray, **SILTY CLAY**, (CL), moist, low plasticity.						

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LOG OF BORING R032

SHEET 3 OF 3

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	428.4 ft msl	795614.1, 2314989.7

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Stiff, dark red, **CLAY**, (CH), trace silt, moist, high plasticity.						
396		Loose, gray, **CLAYEY SILT**, (ML), trace sand, moist.	32	2.5	NA			
394		Loose, gray, fine **SAND**, (SP), wet.	34					
		Medium, gray, **CLAY**, (CH), moist, high plasticity.		0.3	NA			
		Loose, light gray, fine to medium **SAND**, (SP), wet.	36	4.0	NA			
392								
			38					38 ft The Hollow Stem Auger was drilled to 38 feet, Geoprobe samples were taken to 40 feet
390								
			40					

Illinois Environmental Protection Agency

Well Completion Report

R000462

Site Number: 1191155009 County: Madison

Site Name: BP Wood River Well #: R032

State Plane Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: ____

Surveyed by: Crawford, Murphy & Tilly, Inc. IL Registration #: ____

Drilling Contractor: Roberts Environmental Drilling, Inc. Driller: J. Cox

Consulting Firm: URS Corporation Geologist: Mark Wallace

Drilling Method: Hollow Stem Auger Drilling Fluid (Type): None

Logged By: Mark Wallace Date Started: 3/12/08 Date Finished: 3/12/08

Report Form Completed By: Mark Wallace Date: 3/27/08

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Grout

Installation Method: Free Fall

Setting Time: Overnight

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Free Fall

Setting Time: 30 Minutes

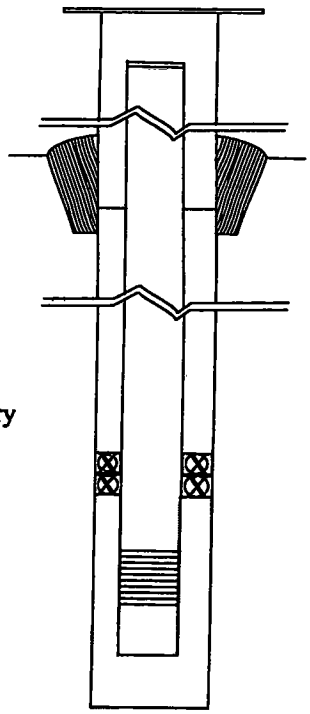
Type of Sand Pack: Filter Sand

Grain Size: 10 (Sieve Size)

Installation Method: Free Fall

Type of Backfill Material: None (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
____	0	Top of Protective Casing
427.99	0.40	Top of Riser Pipe
428.35	0	Ground Surface
428.00	+0.35	Top of Annular Sealant
399.85	28.14	Static Water Level (After Completion)
403.85	24.50	Top of Seal
401.85	26.50	Top of Sand Pack
399.56	28.79	Top of Screen
389.80	38.55	Bottom of Screen
389.44	38.91	Bottom of Well
389.44	38.91	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9"
ID of Riser Pipe (inches)	2"
Protective Casing Length (feet)	Flushmount
Riser Pipe Length (feet)	28.39
Bottom of Screen to End Cap (feet)	0.36
Screen Length (1st slot to last slot) (feet)	9.76
Total Length of Casing (feet)	38.51
Screen Slot Size **	1.0

**Hand-Slotted Well Screens are Unacceptable

URS

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LOG OF BORING R034

SHEET 1 OF 3

Project: BP Wood River			Project No.: 25366706.0073505			
Location: Wood River, IL			Elevation: 428.3 ft msl		Coordinates (N,E): 795182.2, 2315314.0	
Drilling Company: R.E.D.I.			Date Started: 09/25/07		Date Finished: 09/25/07	
Drilling Equipment: Truck Mounted Drill Rig			Refusal Depth (ft bgs): 0.0	Rock Depth (ft bgs): 0.0	Completion Depth (ft bgs): 35.0	
Drilling Method: Hollow Stem Auger			Water Level (ft bgs)		Number of Samples	
Drill Bit Type/Diameter: 8 in.			First Encount.:	At Completion: None	Well Installed? No	Dist.: 15 / Undist.: 0 / Core: 0
Sampler Type/Diameter: 2" Split Spoon			Driller: Brian Schilling		Field Logger: Leslie Blake	
Boring Location Description: Wood River, IL			Reviewed by: LV			

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
428		Medium dense, brown, **POORLY GRADED SAND**, (SP).						0 - 4.5 ft Air knifed first 4.5 feet of boring
426			2					
424			4					
		Soft, brown, **SILTY CLAY**, (CL), moist, medium plasticity.		0.4	NA	0.0		
422			6					
		Medium stiff, brownish gray, **CLAY**, (CL), moist, medium plasticity.		1.8	NA	2.0		
420			8					
				1.9	NA	0.3		
418			10					
		Stiff, brownish gray, **CLAY**, (CL), moist, medium plasticity.		2.0	NA	0.1		
416			12					
		Becoming medium stiff.		2.0	NA	0.0		

URS-CHICAGO RFC/ URS-CHICAGO.GDT 7/2/08

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LOG OF BORING R034

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	428.3 ft msl	795182.2, 2315314.0

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
414								
		Becoming soft.		1.9	NA	0.0		
412			16					
		Soft, light brown, **CLAY**, (CL), moist, medium plasticity.		1.8	NA	0.0		
410			18					
		Very soft, light brown, **CLAY**, (CL), medium plastictiy, wet at 18.5 feet.		2.0	NA	0.0		
408			20					
				0.5	NA	0.0		
406			22					
		Soft, grayish brown, **CLAY**, (CL), wet, medium plasticity.		2.0	NA	0.0		
		Medium dense, grayish brown, **POORLY GRADED SAND** (SP), wet.	24					
404				2.0	NA	0.0		
		Medium dense, grayish brown, **POORLY GRADED SAND** (SP), wet.						
		Soft, gray, **CLAY**, (CL), wet, medium plasticity.	26					
402				2.0	NA	0.0		
		Soft, gray, **CLAY**, (CL), moist, medium plasticity.						
		Soft, light brown, **SILTY SAND** (SM), moist.	28					
400				1.5	NA	0.0		
		Very soft, grayish brown, **SILTY CLAY**, (CL), moist, medium plastictiy, wet at 29 feet.						
			30					
398				1.3	NA			

URS-CHICAGO RFC/... URS-CHICAGO.GDT 7/2/08

URS

CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
R034

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	428.3 ft msl	795182.2, 2315314.0

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
396		Soft, gray, **SILTY CLAY**, (CL), wet, medium plasticity.	32			0.0		
394		Very soft, grayish brown, **SILTY CLAY**, (CL), saturated, medium plasticity.	34	1.7	NA	0.0		35 ft End of Boring

URS-CHICAGO RFCA URS-CHICAGO.GDT 7/2/08

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191155009 County: Madison

Site Name: BP Wood River Well #: R034

Site Plane Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: ____

Surveyed by: Crawford, Murphy & Tilly, Inc. IL Registration #: ____

Drilling Contractor: Roberts Environmental Drilling, Inc. Driller: Brian Schilling

Consulting Firm: URS Corporation Geologist: Leslie Blake

Drilling Method: Hollow Stem Auger Drilling Fluid (Type): N/A

Logged By: Leslie Blake Date Started: 9/25/07 Date Finished: 9/25/07

Report Form Completed By: Leslie Blake Date: 11/13/07

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Slurry

Installation Method: Gravity

Setting Time: N/A

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Gravity

Setting Time: N/A

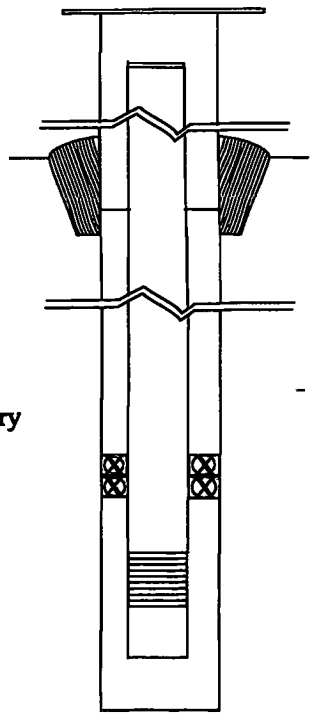
Type of Sand Pack: Filter Sil

Grain Size: N/A (Sieve Size)

Installation Method: Gravity

Type of Backfill Material: N/A (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
____	____	Top of Protective Casing
428.27	-0.52	Top of Riser Pipe
428.79	0	Ground Surface
____	0	Top of Annular Sealant
____	NM	Static Water Level (After Completion)
413.79	15	Top of Seal
405.79	23	Top of Sand Pack
403.79	25	Top of Screen
393.79	35	Bottom of Screen
393.79	35	Bottom of Well
393.79	35	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	8
ID of Riser Pipe (inches)	2
Protective Casing Length (feet)	
Riser Pipe Length (feet)	25.52
Bottom of Screen to End Cap (feet)	0.24
Screen Length (1st slot to last slot) (feet)	10
Total Length of Casing (feet)	35.52
Screen Slot Size **	0.01"

**Hand-Slotted Well Screens are Unacceptable

URS

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LOG OF BORING R035

SHEET 1 OF 3

Project: BP Wood River		Project No.: 25366706.0073505				
Location: Wood River, IL		Elevation: 427.6 ft msl		Coordinates (N,E): 794686.6, 2315590.3		
Drilling Company: R.E.D.I.		Date Started: 03/11/08		Date Finished: 03/11/08		
Drilling Equipment: VTR AMS 9700		Refusal Depth (ft bgs): 0.0	Rock Depth (ft bgs): 0.0	Completion Depth (ft bgs): 35.0		
Drilling Method: Hollow Stem Auger		Water Level (ft bgs)			Number of Samples	
Drill Bit Type/Diameter: 9 in.		First Encount.: 28.2	At Completion: None	Well Installed? Yes	Dist.: 0	Undist.: 8	Core: 0
Sampler Type/Diameter: 4' Macrosampler / 1.5" Diameter		Driller: Pat Seymour		Field Logger: Mark Wallace		
Boring Location Description: Wood River, IL		Reviewed by: LV				

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
		Medium dense, black, **SILTY SAND**, (SP), moist.						0 - 5 ft Excavated with an air knife to 5 feet
426		Becomes clayey.	2					
		Stiff, brown, **CLAY**, (CL), moist, low plasticity.						
424			4					
				2.5	NA			
422			6					
		Becomes silty.						
420			8	3.0	NA			
		Trace silt.						
418		Trace silt (CL).	10					
416		Iron stains.						
		Medium, brown, **CLAYEY SILT**, (ML), moist, low plasticity.	12	3.3	NA			
		Becomes soft.						
414								

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LOG OF BORING
R035
SHEET 2 OF 3

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	427.6 ft msl	794686.6, 2315590.3

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
412		Becomes medium.	16	3.8	NA			
		Becomes soft, trace clay.						
410			18					
408		Stiff, brown, **SILTY CLAY**, (CL), moist, low plasticity.	20	2.0	NA			
		Stiff, brown, **SILTY CLAY**, (CL), trace fine black sand, moist, low plasticity.						
406			22					
404			24	1.7	NA			
		Stiff, gray, **CLAY**, (CH), moist, high plasticity.						
402		Trace sand.	26					
		Becomes sandy clay.						
400		Loose, brown, fine **SAND**, (SP), moist.	28 ▽	2.8	NA			
		Becomes dark gray, wet.						
398			30					
		Loose, brown, medium **SAND**, (SP), wet.						

URS-CHICAGO RFC... URS-CHICAGO.GDT 4/29/08

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CONSULTING ENGINEERS, GEOLOGISTS AND ENVIRONMENTAL SCIENTISTS

LOG OF BORING
R035
SHEET 3 OF 3

Project:	Project No.:	
BP Wood River	25366706.0073505	
Location:	**Elevation:**	**Coordinates (N,E):**
Wood River, IL	427.6 ft msl	794686.6, 2315590.3

ELEV	Graphic	DESCRIPTION	DEPTH	SAMPLES Rec (ft)	SAMPLES Pocket Pen (TSF)	PID Direct (ppm)	PID Head space (ppm)	REMARKS
396		Trace multi-color sand.						
		Trace coarse sand.	32	3.0	NA			
394		Becomes fine.	34					35 ft End of Boring

R000470

Illinois Environmental Protection Agency — Well Completion Report

Site Number: 1191155009 County: Madison

Site Name: BP Wood River Well #: R035

State ane Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: ____

Surveyed by: Crawford, Murphy & Tilly, Inc. IL Registration #: ____

Drilling Contractor: Roberts Environmental Drilling, Inc. Driller: Pat Seymour

Consulting Firm: URS Corporation Geologist: Mark Wallace

Drilling Method: Hollow Stem Auger Drilling Fluid (Type): None

Logged By: Mark Wallace Date Started: 3/12/08 Date Finished: 3/12/08

Report Form Completed By: Mark Wallace Date: 3/27/08

ANNULAR SPACE DETAILS

Type of Surface Seal: Concrete

Type of Annular Sealant: Bentonite Grout

Installation Method: Free Fall

Setting Time: Overnight

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One)

Installation Method: Free Fall

Setting Time: 30 Minutes

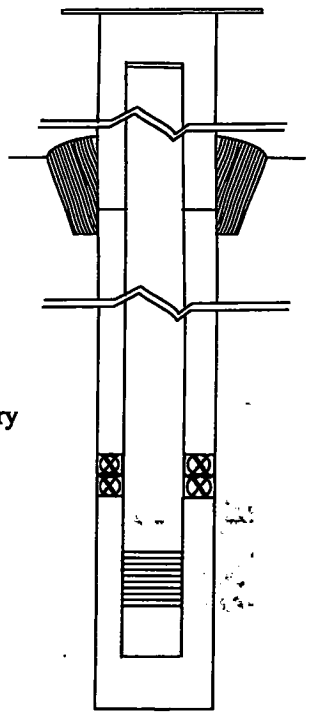
Type of Sand Pack: Filter Sand

Grain Size: 10 (Sieve Size)

Installation Method: Free Fall

Type of Backfill Material: None (if applicable)

Installation Method: N/A



Elevations (MSL)*	Depths (BGS)	(.01ft.)
____	0	Top of Protective Casing
427.26	0.35	Top of Riser Pipe
427.55	0	Ground Surface
427.20	+0.35	Top of Annular Sealant
398.61	28.65	Static Water Level (After Completion)
406.55	21.00	Top of Seal
404.55	23.00	Top of Sand Pack
402.44	25.11	Top of Screen
392.66	34.89	Bottom of Screen
392.32	35.23	Bottom of Well
392.55	35.00	Bottom of Borehole

* Referenced to a National Geodetic Datum

WELL CONSTRUCTION MATERIAL

(Choose one type of material for each area)

Protective Casing	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASURMENTS

Diameter of Borehole (inches)	9"
ID of Riser Pipe (inches)	2"
Protective Casing Length (feet)	Flushmount
Riser Pipe Length (feet)	24.76
Bottom of Screen to End Cap (feet)	0.34
Screen Length (1st slot to last slot) (feet)	9.78
Total Length of Casing (feet)	34.88
Screen Slot Size **	1.0

**Hand-Slotted Well Screens are Unacceptable

Appendix D

Slug Test Data Summary

Attachment A
Water Level Measurement SOP

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 1 of 7

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6.0 EXHIBITS

7.0 QUALITY ASSURANCE RECORDS

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 2 of 7

NOTE: THIS SOP IS A GENERAL DOCUMENT. SITE-SPECIFIC CONDITIONS MAY WARRANT CHANGES IN PROCEDURES AND APPLICATIONS. FIELD STAFF SHALL DOCUMENT ACTUAL PROCEDURES IN THE APPROPRIATE FIELD LOGBOOK.

1.0 PURPOSE

This procedure provides detailed information related to the methods for recording water levels in monitoring wells and surface water locations. Accurate water level measurements are required for the determination of groundwater gradient and temporal water level trends.

1.1 Equipment List

- _ Organic Vapor Meter (OVM)
- _ Interface Meter
- _ Water Level Indicator
- _ Inner Gloves
- _ Alconox
- _ Distilled Water
- _ Methanol
- _ Brushes
- _ Spray Bottles
- _ Paper Towels
- _ Log Book
- _ Keys to Locks
- _ Bolt Cutters
- _ Socket Wrenches
- _ Screw Driver

2.0 DEFINITIONS AND ABBREVIATIONS

Not Applicable

3.0 RESPONSIBILITIES

Project Manager - is responsible for approving any deviations from this procedure prior to conduction the measurements. In addition, the Project Manager (or designee) is responsible for reviewing all field data generated during the water level measurements.

Field Coordinator - is responsible for ensuring that the procedures implemented in the

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 3 of 7

field are consistent with those presented in this procedure.

4.0 PROCEDURES

Refer to the Project Specific Sampling and Analysis Plan for project-specific requirements. Section 6, Exhibits, outlines several standard devices and special techniques required for their use. Field personnel shall refer to the appropriate exhibit for procedures on taking water level measurements with the specified type of equipment.

Decontaminate the measuring device according to SOP No. 3.5, Equipment Decontamination.

Calibrate the instrument (if required) according to SOP No. 3.4, Equipment Calibration, Operation, and Maintenance.

Measure water levels in monitoring wells in order of increasing contaminant level, where levels of contamination can be determined. Any well containing immiscible liquids will be monitored last.

Unlock and remove the well cap.

Identify datum—usually a mark or notch on top of the well casing.

Lower the device into the well. Record the depth to water from the datum to the nearest 0.01 foot according to the procedures outlined in Section 6, Exhibits, for the type of equipment being used. Repeat the measurement process until two consecutive water level determinations are within 0.01 foot.

Note: An averaged product density for petroleum hydrocarbons (LNAPL) is 0.8.

Replace and lock the well cap.

Decontaminate the measuring equipment after use in each well according to SOP No. 3.6, Equipment Decontamination.

5.0 REFERENCES

SOP No. 1.1, General Field Operations
SOP No. 3.4, Equipment Calibration, Operation, and Maintenance
SOP No. 3.5, Equipment Decontamination

6.0 EXHIBITS

2.4-1 Pneumatic Piezometers
2.4-2 Electric Sounder/Meter
2.4-3 Procedures for Immiscible Fluids

7.0 QUALITY ASSURANCE RECORDS

Quality assurance records shall consist of field logbook notes related to water level measurements. Field personnel will provide copies of the field notes to the Project Manager who will place in the final evidence file for the project. The office administrative assistant shall maintain the copies of the field records.

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 5 of 7

EXHIBIT 2.4-1

PNEUMATIC PIEZOMETERS

The pressure transducer, data logger, and computer software packages will be installed and configured following SOP No. 3.5, Equipment Calibration, Operation, and Maintenance, and the manufacturer's instructions. The transducer(s) must be set below the lowest anticipated drawdown water level but must not be submerged beyond the specified depth range (2.31 feet/psi).

psi	Maximum Submergence (ft)
1	2.3
5	16
10	23
20	46
30	69
50	115
100	231

Set the transducer to the appropriate depth; set the data logger to record at the time interval specified in the project plans. Depending on the application, water level readings can be made on an arithmetic or logarithmic scale. Initiate reading manually or set for automatic start. For long-term monitoring, secure data logger and protect from the weather.

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 6 of 7

EXHIBIT 2.4-2

ELECTRIC SOUNDER

Electric water level probes are usually equipped with a signal light, alarm, or both. Lower the probe into the well until the signal alarm is activated. This will occur when the probe touches the water.

Raise the probe slowly out of the water until the alarm stops.

Lower the probe very slowly until the tone sounds again.

Read the calibrated tape at the well reference datum when the probe is properly located at the water surface. Read the depth to water from the probe cable to the nearest 0.01 foot. Take a second reading to confirm the original measurement.

URS	WATER LEVEL MEASUREMENT	SOP No.: 2.4 Revision No.: 1 Date: 02/2007 Chicago Office Page 7 of 7

EXHIBIT 2.4-3

PROCEDURES FOR IMMISCIBLE FLUIDS IN WELLS

If immiscible product layers are to be detected, the field personnel shall employ an interface probe capable of detecting thin layers of product. The manufacturer's instructions should be followed because different probes vary in operating procedures.

Many brands require that the probe be fully submerged through the product layer into the water. Depth to water should be measured first, followed by depth to product as the probe is moved upward in the well.

The depth to the product/water is read directly off the graduated tape when the appropriate signal light or buzzer is activated and should be recorded onto the data sheet or log book. The difference between the measured product/water depth and the height of the measuring datum from the ground surface is the actual depth. The difference in depth of the top of the water and the top of the product is the apparent product thickness.

This same process is applied to free product that is denser than water and sinks to form a product stratum over a lower permeability sediment layer. In this situation, the instrument will first indicate the presence of water and then the presence of product as the probe is lowered through the product layer.

URS	LANDFILL AND TEST PIT DOCUMENTATION AND SAMPLING	SOP No.: 2.3 Revision No.: 1 Date: 02/2007 Chicago Office Page 1 of 12

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1.1 Equipment List

2.0 DEFINITIONS AND ABBREVIATIONS

3.0 RESPONSIBILITIES

4.0 PROCEDURES

4.1 Daily Site Operation
4.2 Field Documentation
4.3 Sampling Organization
4.4 Preparation
4.5 Excavation
4.6 Organic Vapors
4.7 Follow up
4.8 Gas Cylinder Contents Determination
4.9 Sampling
4.10 Analyses
4.11 Disposal

5.0 REFERENCES

6.0 EXHIBITS

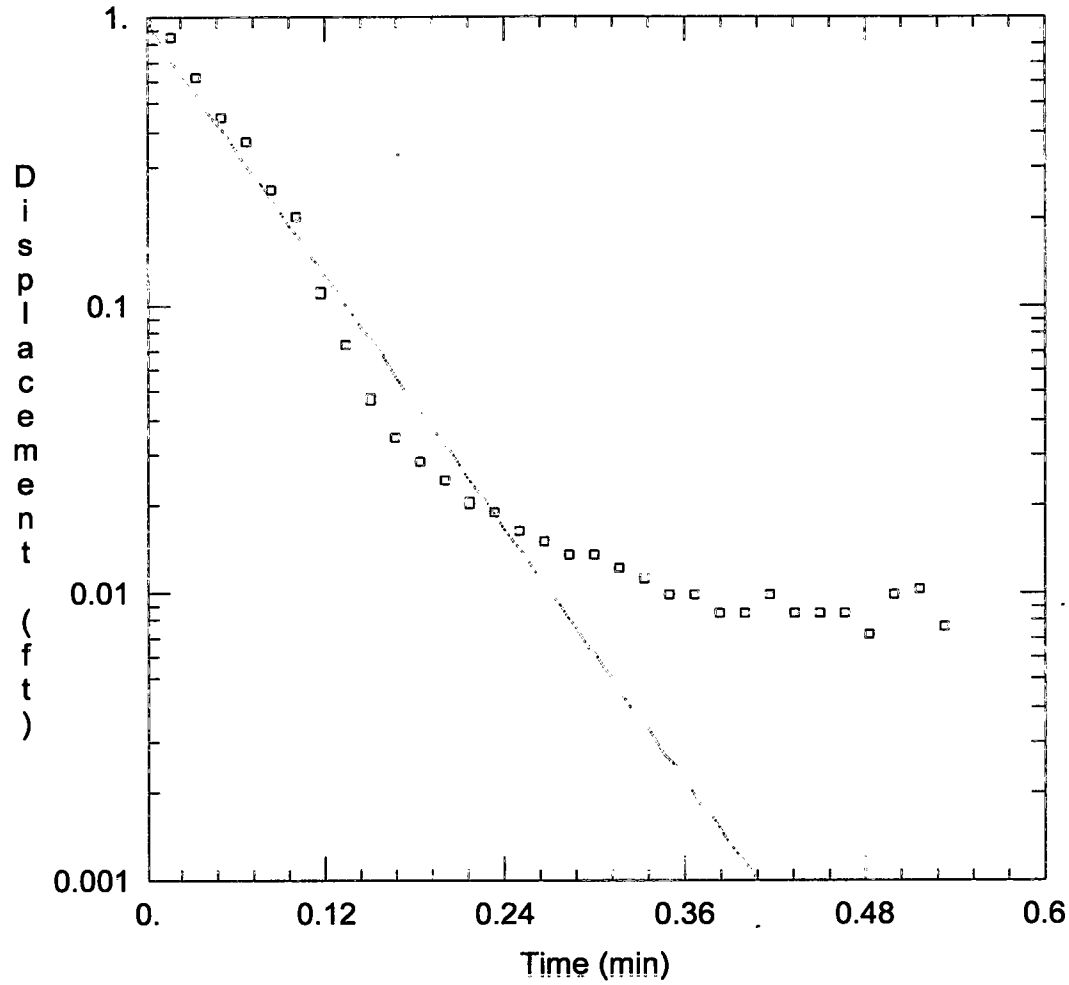
7.0 QUALITY ASSURANCE RECORDS

Attachment B
Slug Test Data Summary

Slug Test Data Summary

Well ID	Location	Date Tested	Displacement	Recovery	Hydraulic Conductivity
A9NW01D	Korea Tank Farm (Area 9)	October 2022	1.0 ft	7.2 seconds to reach 0.1 ft	54.93 ft/day
A9NW01S	Korea Tank Farm (Area 9)	October 2022	2.5 ft	14.4 seconds to reach 1.0 ft 50.4 seconds to reach 0.1 ft	14.59 ft/day
A9NW03D	Korea Tank Farm (Area 9)	October 2022	1.0 ft	8.4 seconds to reach 0.1 ft	57.88 ft/day
A9NW03S	Korea Tank Farm (Area 9)	October 2022	1.0 ft	25.2 seconds to reach 0.1 ft	25.93 ft/day
A9NW04D	Korea Tank Farm (Area 9)	October 2022	0.5 ft	7.2 seconds to reach 0.1 ft	39.67 ft/day
A9NW04S	Korea Tank Farm (Area 9)	October 2022	2.5 ft	42 seconds to reach 1.0 ft 185 seconds to reach 0.1 ft	4.66 ft/day
A9NW05D	Korea Tank Farm (Area 9)	October 2022	1.0 ft	6.5 seconds to reach 0.1 ft	73.19 ft/day
A9NW05S	Korea Tank Farm (Area 9)	October 2022	1.5 ft	72 seconds to reach 0.1 ft	14.48 ft/day
A9NW06D	Korea Tank Farm (Area 9)	October 2022	0.75 ft	7.2 seconds to reach 0.1 ft	33.59 ft/day
G030	Area 9	October 2022	0.87 ft	12 seconds to reach 0.1 ft	30.76 ft/day
G078	Area 9	October 2022	2.6 ft	28.8 seconds to reach 1.0 ft 125 seconds to reach 0.1 ft	1.94 ft/day
MC2-MW2	SWMU7 east of Parcel E	September 2023	1.0 ft	84 seconds to reach 0.1 ft	2.53 ft/day
G104	SWMU7 east of Parcel E	February 2024	0.4 ft	40 seconds to reach 0.1 ft	4.21 ft/day

ft = feet



WELL TEST ANALYSIS

Data Set: C:\...\A9NW01D.aqt
Date: 04/19/24 Time: 07:51:25

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW01D
Test Date: 10/7/2022

AQUIFER DATA

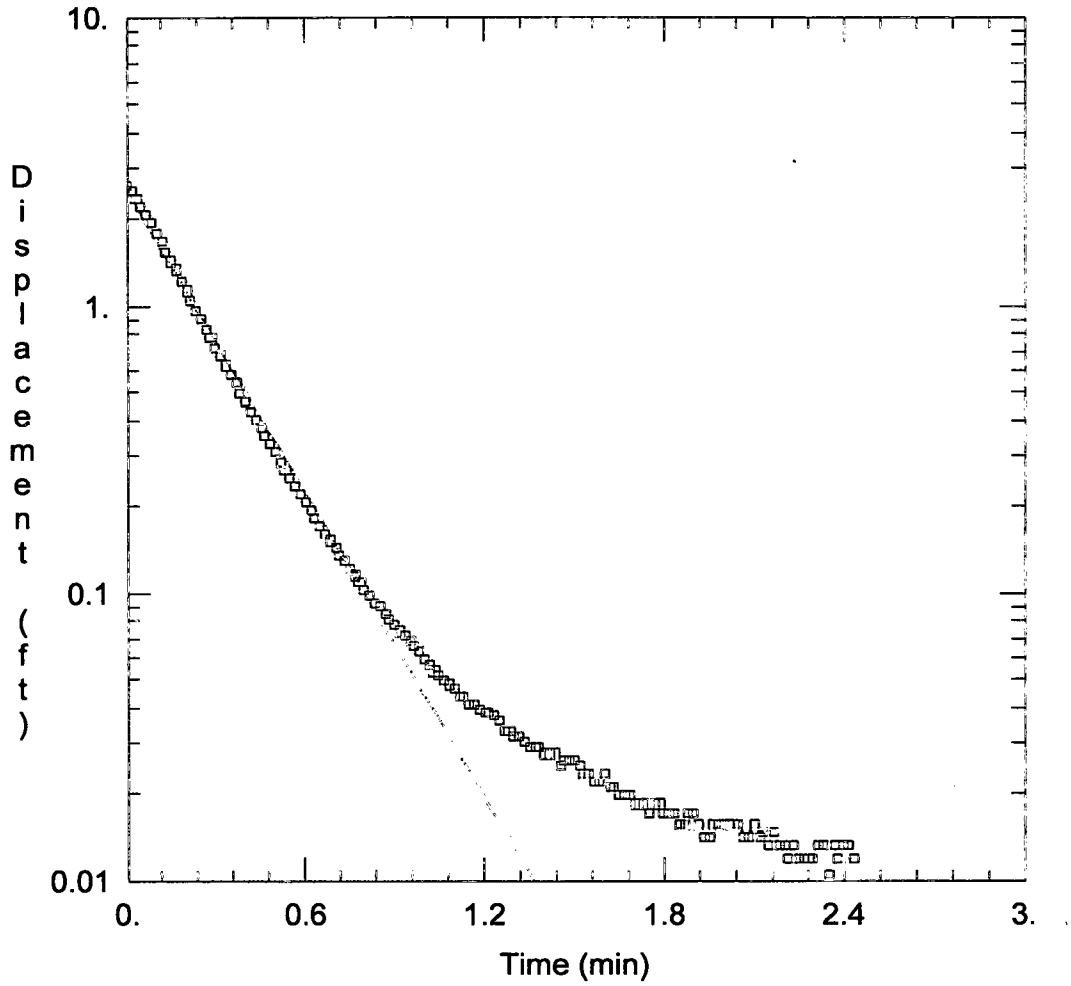
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW01D)

Initial Displacement: 0.9673 ft Static Water Column Height: 21.17 ft
Total Well Penetration Depth: 21.17 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 54.93 ft/day y0 = 0.9453 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW01S.aqt
Date: 04/19/24 Time: 07:52:36

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW01S
Test Date: 10/7/2022

AQUIFER DATA

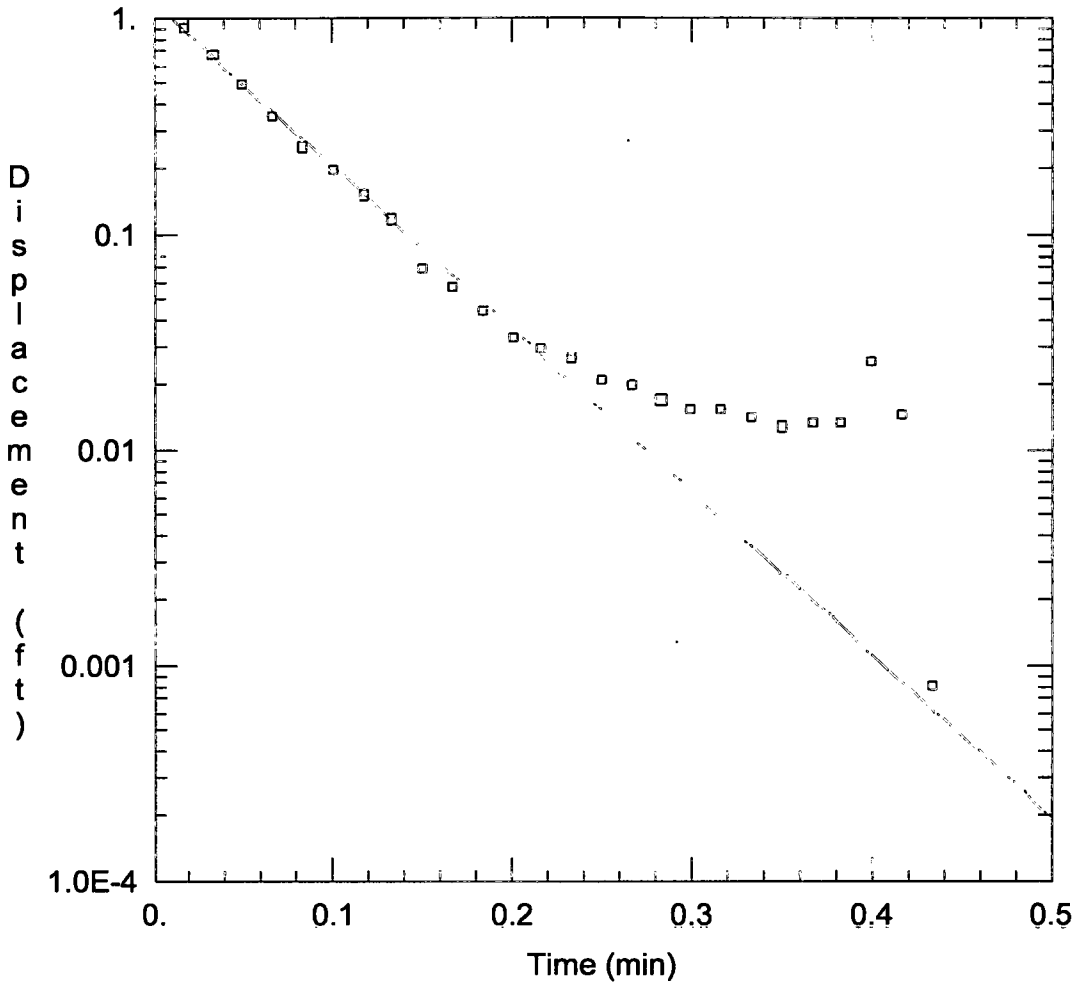
Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW01S)

Initial Displacement: 2.62 ft
Total Well Penetration Depth: 10.95 ft
Casing Radius: 0.083 ft
Static Water Column Height: 10.95 ft
Screen Length: 5. ft
Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 14.59 ft/day
y0 = 2.542 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW03D.aqt
Date: 04/19/24 Time: 08:06:51

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW03D
Test Date: 10/7/2022

AQUIFER DATA

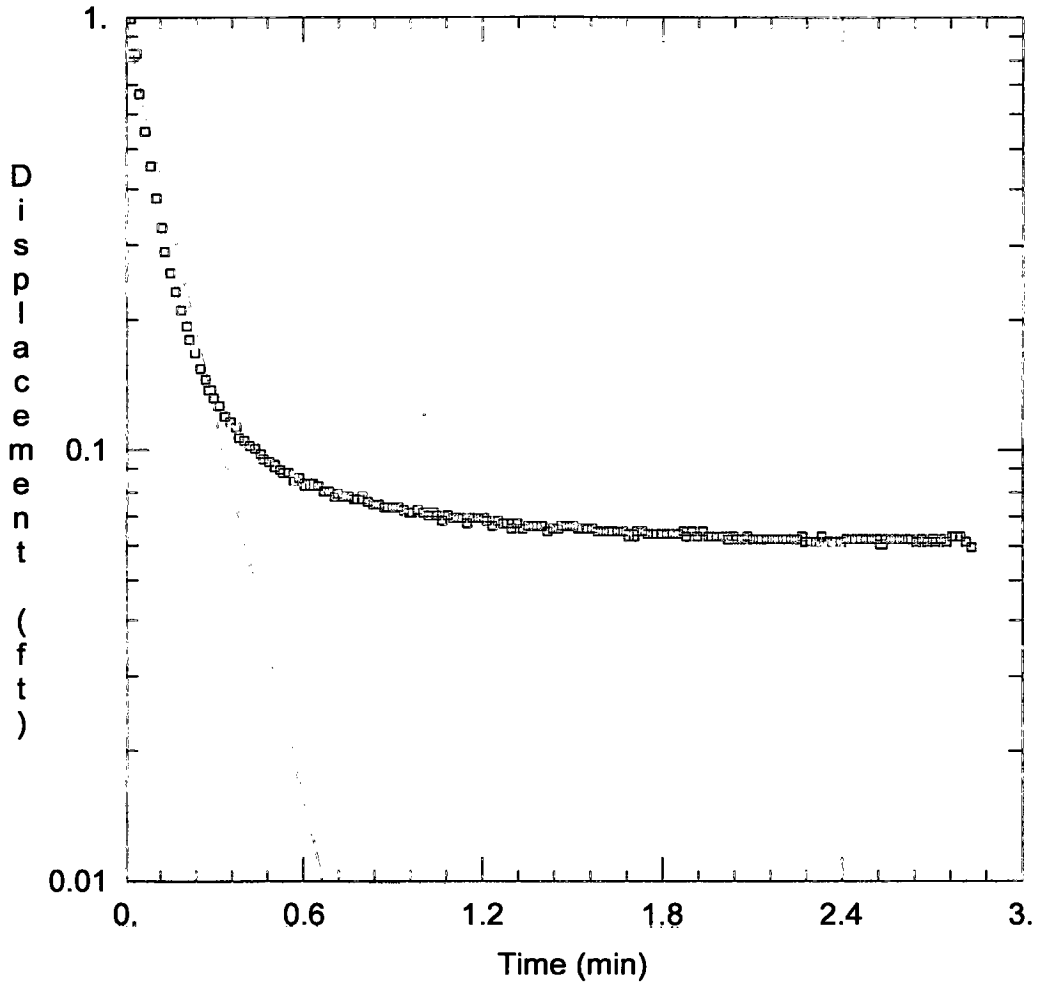
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW03D)

Initial Displacement: 1.225 ft Static Water Column Height: 23.85 ft
Total Well Penetration Depth: 23.85 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 57.88 ft/day y0 = 1.18 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW03S.aqt
Date: 04/19/24 Time: 08:10:25

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW03S
Test Date: 10/7/2022

AQUIFER DATA

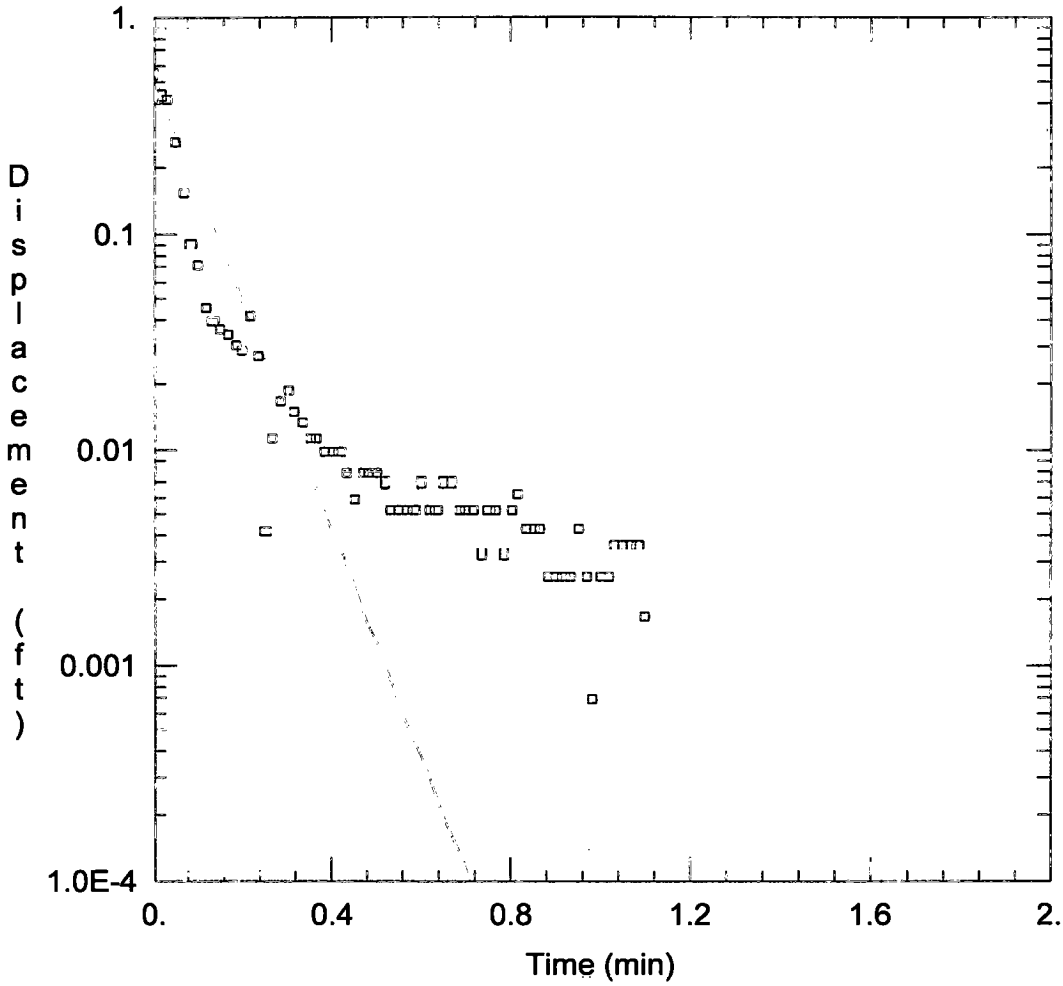
Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW03S)

Initial Displacement: 0.9992 ft Static Water Column Height: 13.82 ft
Total Well Penetration Depth: 13.82 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 25.93 ft/day y0 = 0.9633 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW04D.aqt
Date: 04/19/24 Time: 08:11:53

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW04D
Test Date: 10/7/2022

AQUIFER DATA

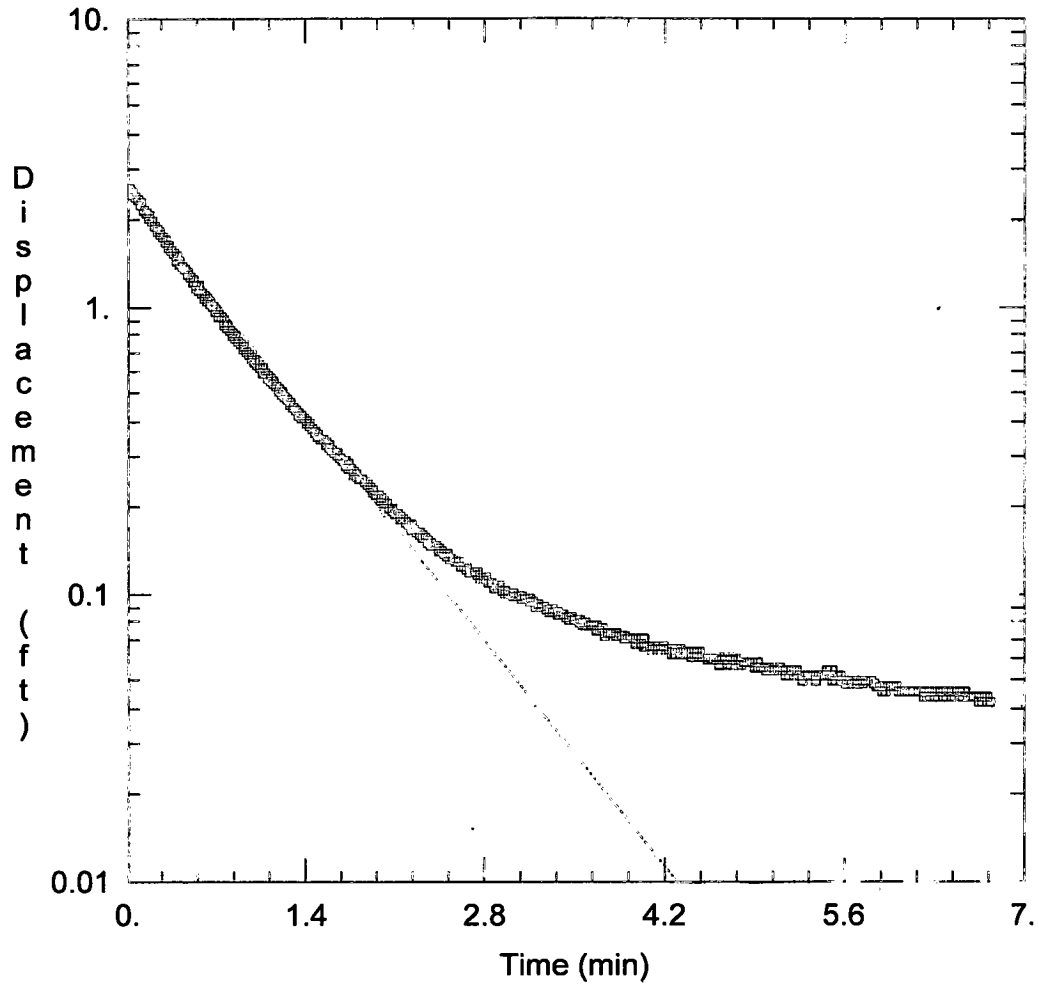
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW04D)

Initial Displacement: 0.5492 ft Static Water Column Height: 21.23 ft
Total Well Penetration Depth: 21.23 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 39.67 ft/day y0 = 0.5375 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW04S-rep.aqt
Date: 04/19/24 Time: 08:13:22

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW04S
Test Date: 10/7/2022

AQUIFER DATA

Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

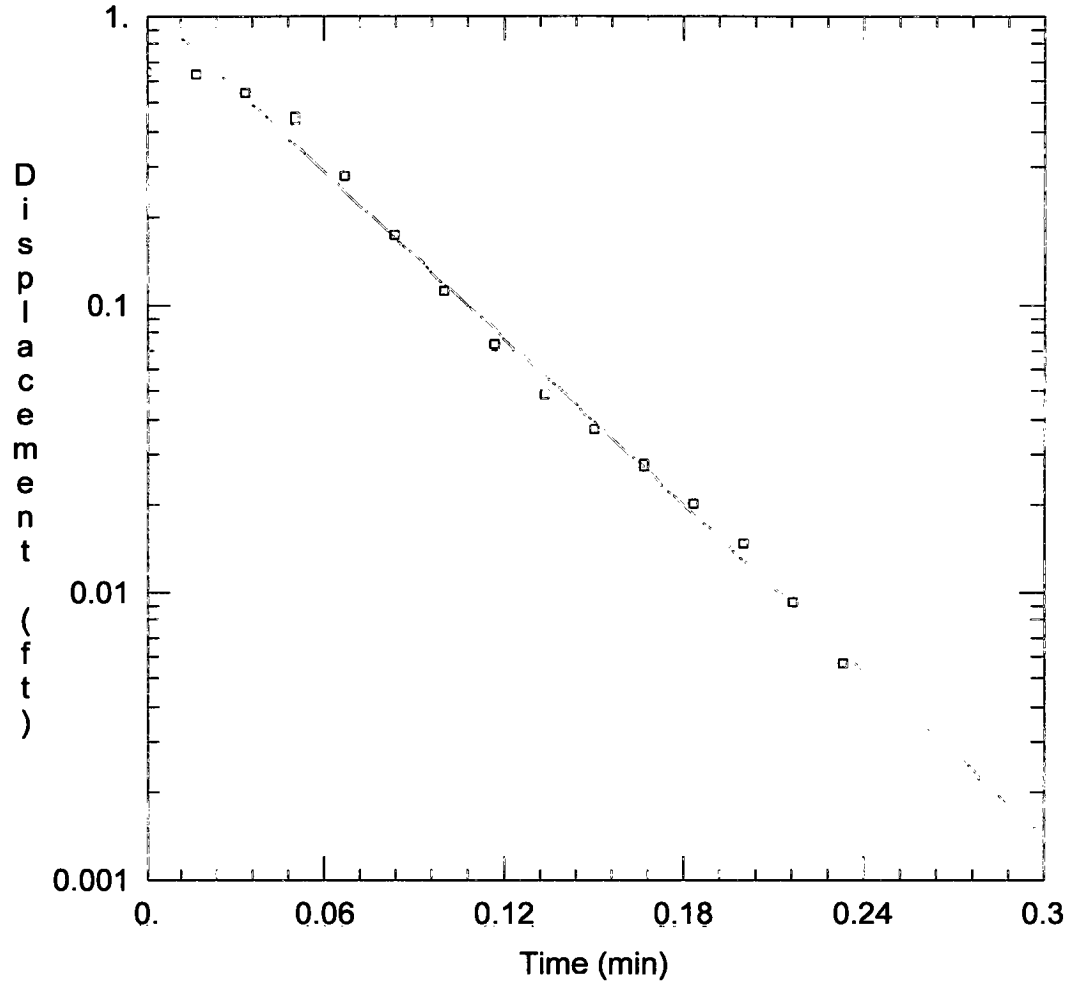
WELL DATA (A9NW04S)

Initial Displacement: 2.597 ft Static Water Column Height: 11.03 ft
Total Well Penetration Depth: 11.03 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 4.656 ft/day y0 = 2.562 ft

REVISION DATE: 07/29/2024



WELL TEST ANALYSIS

Data Set: C:\...\A9NW05D.aqt
Date: 04/19/24 Time: 08:16:08

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW05D
Test Date: 10/7/2022

AQUIFER DATA

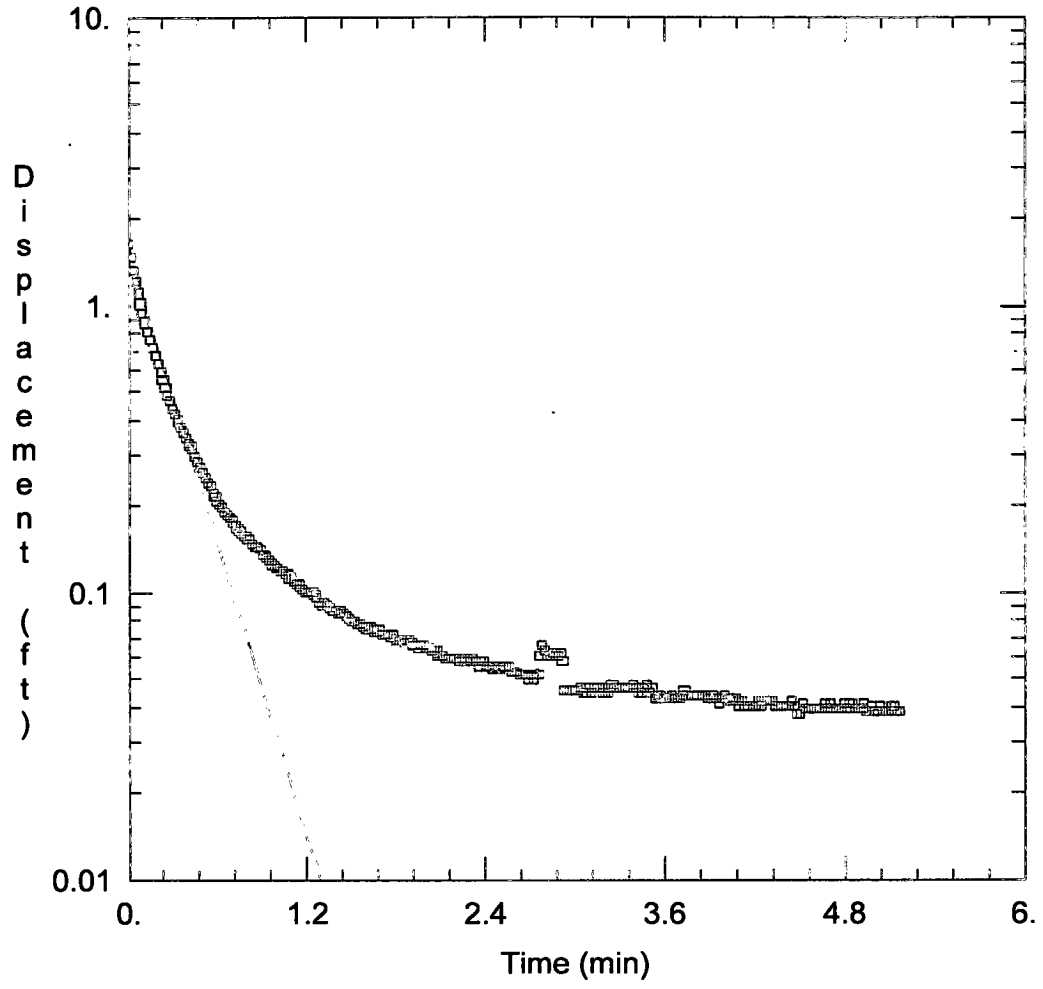
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW05D)

Initial Displacement: 0.6487 ft Static Water Column Height: 22.75 ft
Total Well Penetration Depth: 22.75 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 73.19 ft/day y0 = 1.088 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW05S.aqt
Date: 04/19/24 Time: 08:17:36

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW05S
Test Date: 10/10/2022

AQUIFER DATA

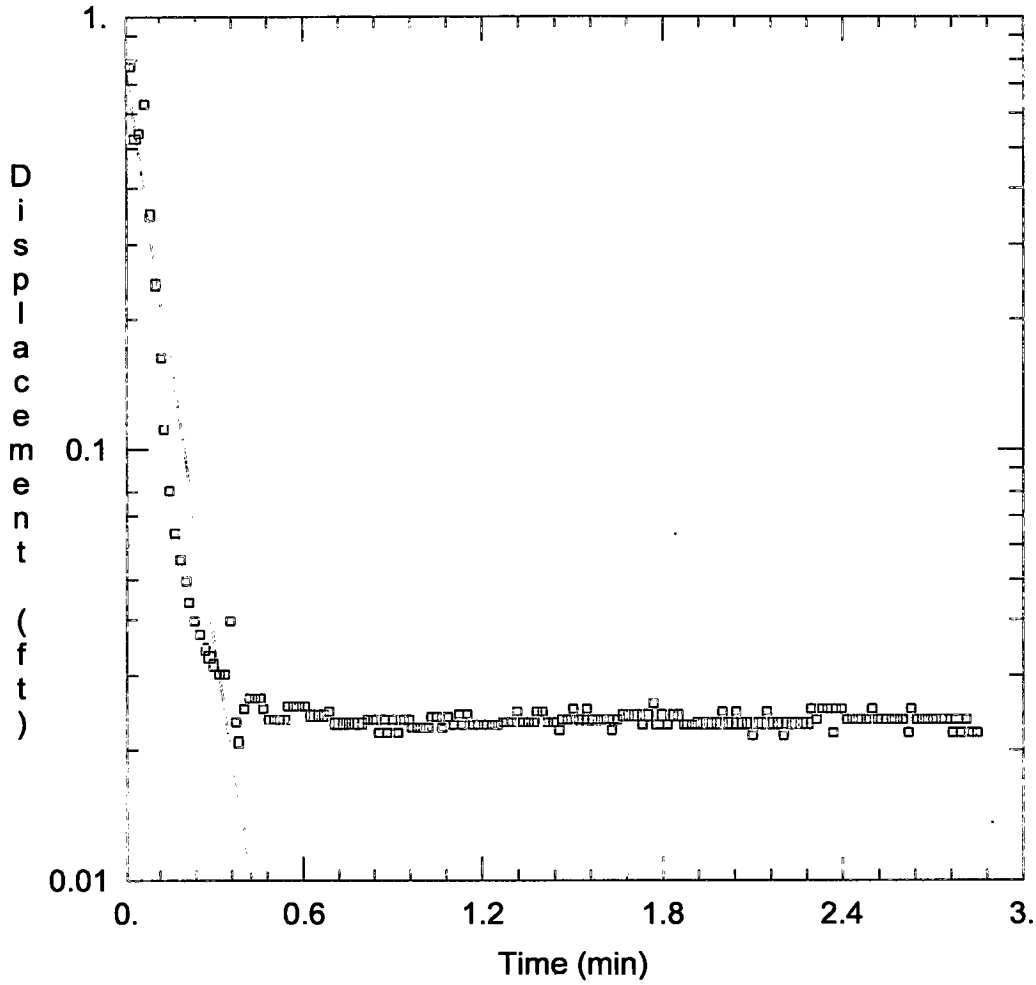
Saturated Thickness: 9. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW05S)

Initial Displacement: 1.647 ft Static Water Column Height: 12.28 ft
Total Well Penetration Depth: 12.28 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 14.48 ft/day y0 = 1.591 ft



WELL TEST ANALYSIS

Data Set: C:\...\A9NW06D.aqt
Date: 04/19/24 Time: 08:18:44

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: A9NW06D
Test Date: 10/7/2022

AQUIFER DATA

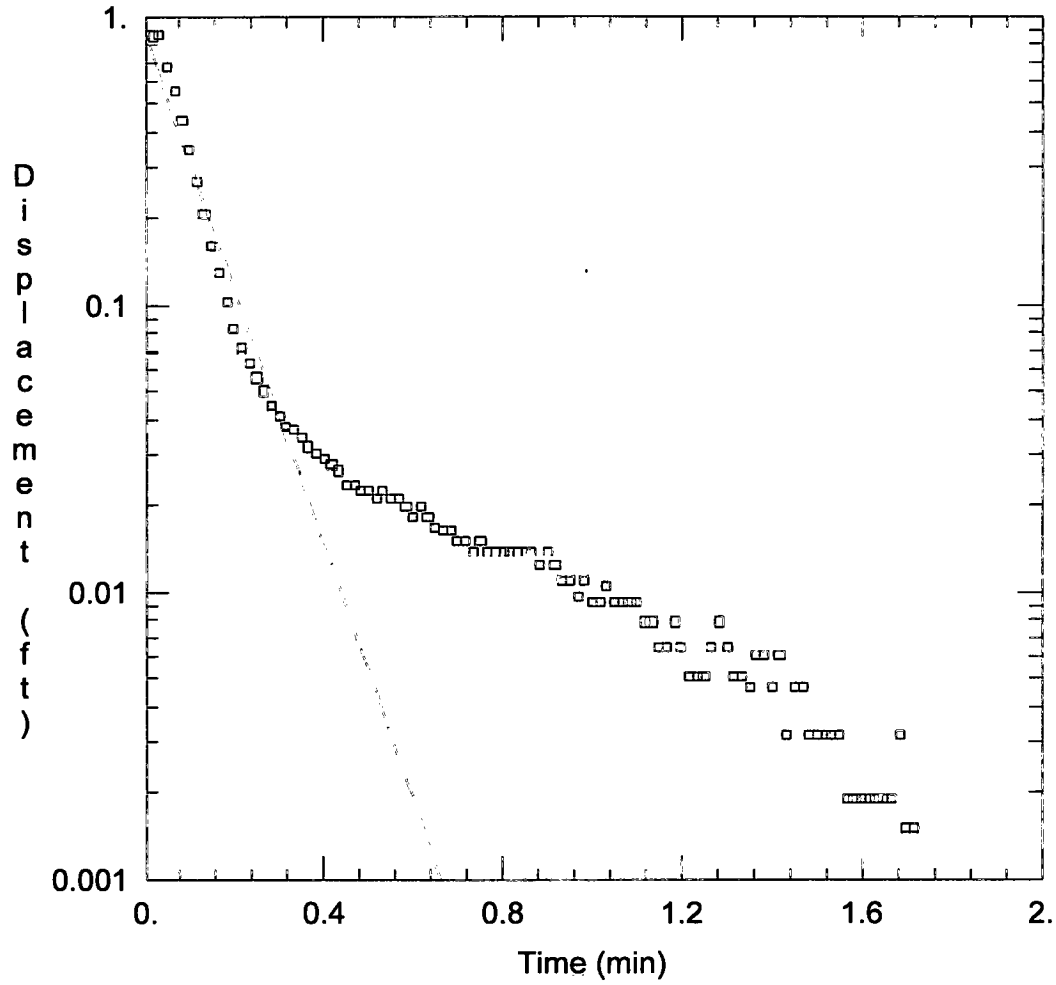
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (A9NW06D)

Initial Displacement: 0.7638 ft Static Water Column Height: 21.78 ft
Total Well Penetration Depth: 21.78 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 33.59 ft/day y0 = 0.7521 ft



WELL TEST ANALYSIS

Data Set: C:\...\G030-slugtest.aqt
Date: 04/19/24 Time: 08:19:52

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: G030
Test Date: 10/10/2022

AQUIFER DATA

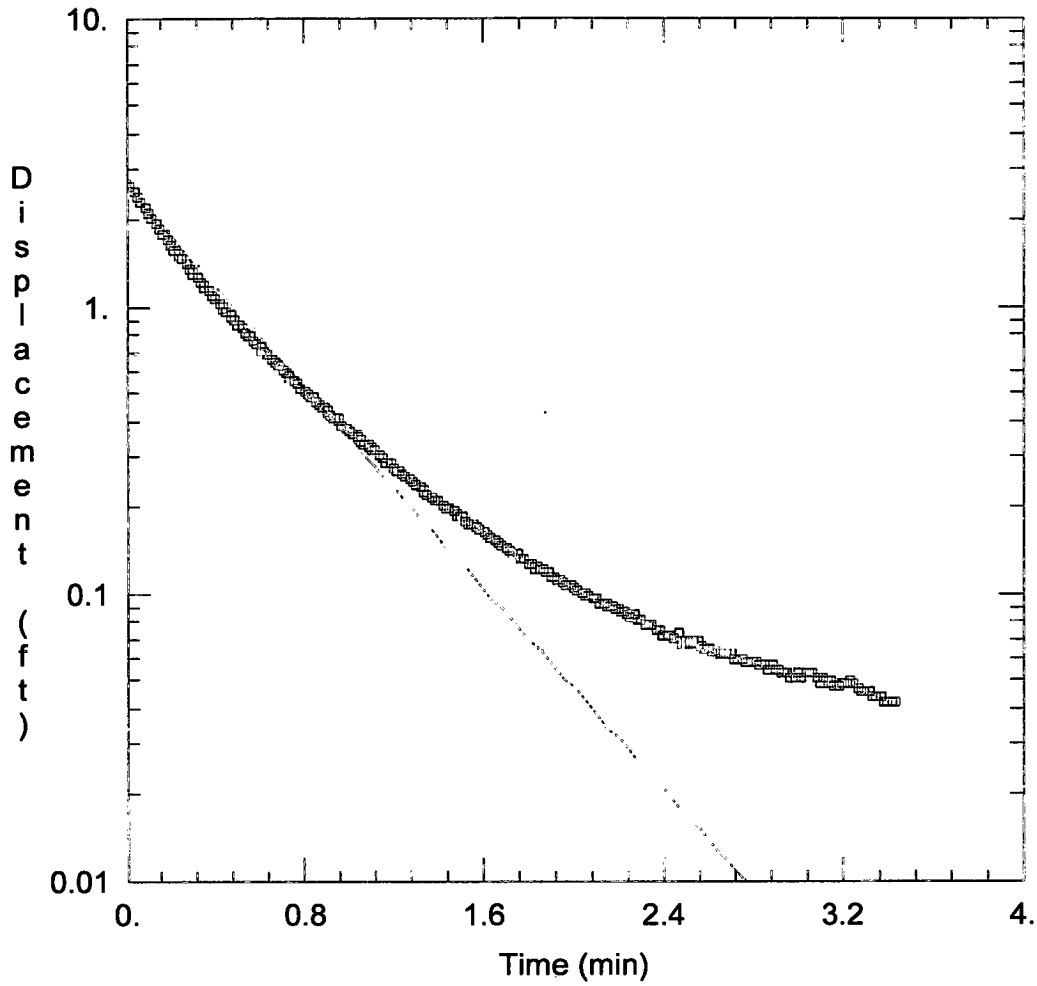
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G030)

Initial Displacement: 0.8772 ft Static Water Column Height: 12.17 ft
Total Well Penetration Depth: 12.17 ft Screen Length: 5. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 30.76 ft/day y0 = 0.8697 ft



WELL TEST ANALYSIS

Data Set: C:\...\G078-slugtest.aqt
Date: 04/19/24 Time: 08:21:19

PROJECT INFORMATION

Company: Sovcon
Project: KTF
Location: Wood River
Test Well: G078
Test Date: 10/10/2022

AQUIFER DATA

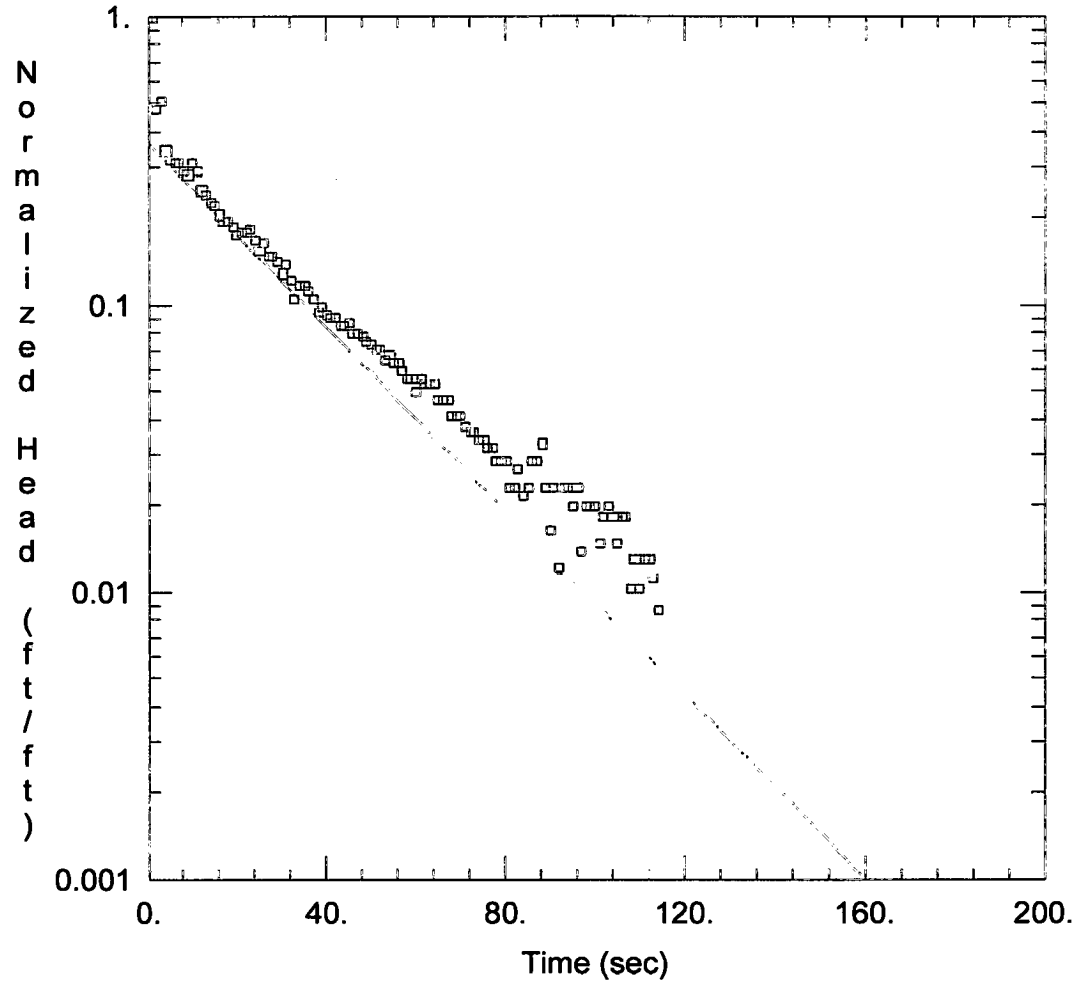
Saturated Thickness: 40. ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (G078)

Initial Displacement: 2.67 ft Static Water Column Height: 12.67 ft
Total Well Penetration Depth: 20. ft Screen Length: 20. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice
K = 1.938 ft/day y0 = 2.63 ft



WELL TEST ANALYSIS

Data Set:
Date: 02/12/24 Time: 15:03:25

PROJECT INFORMATION

Company: Sovereign Consulting, Inc.
Client: bp
Project: BP050
Location: Wood River
Test Well: G104
Test Date: 02/12/24

AQUIFER DATA

Saturated Thickness: 90. ft Anisotropy Ratio (Kz/Kr): 1.

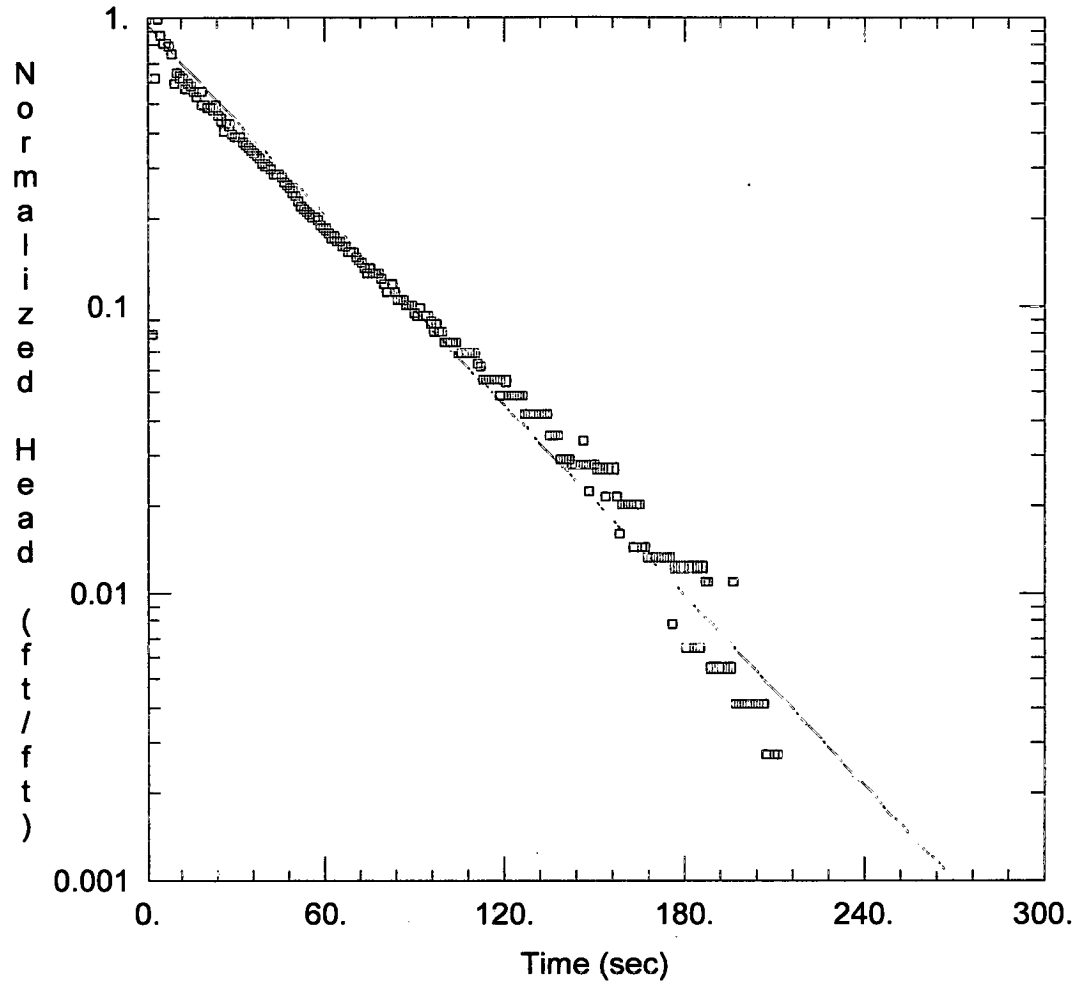
WELL DATA (G104)

Initial Displacement: 1.155 ft
Total Well Penetration Depth: 36. ft
Casing Radius: 0.08333 ft
Static Water Column Height: 10. ft
Screen Length: 10. ft
Well Radius: 0.08333 ft

SOLUTION

Aquifer Model: Confined
Solution Method: Bouwer-Rice
K = 4.208 ft/dav
v0 = 0.422 ft

REVISION DATE: 07/29/2024



SLUG-IN

Data Set: E:\!Wood River\LNAPL\MC2-MW02 slug-in.aqt
Date: 09/05/23 Time: 10:25:22

PROJECT INFORMATION

Company: Sovereign Consulting, Inc.
Client: bp
Project: BP050
Location: Wood River
Test Well: MC2-MW02
Test Date: 8/29/23

AQUIFER DATA

Saturated Thickness: 14.04 ft Anisotropy Ratio (Kz/Kr): 1.

WELL DATA (MC2-MW02)

Initial Displacement: 1.01 ft Static Water Column Height: 12.61 ft
Total Well Penetration Depth: 44.43 ft Screen Length: 15. ft
Casing Radius: 0.083 ft Well Radius: 0.083 ft

SOLUTION

Aquifer Model: Confined Solution Method: Bouwer-Rice

K = 2.534 ft/day y0 = 0.0504 ft

Barometric Pressure Summary

Location	Date	Minimum Pressure (psi)	Maximum Pressure (psi)	Daily Average (psi)	Daily Average (feet)
Site Barometric Pressure	October 2021	14.15	14.54	0.013	0.03
	November 2021	14.30	14.64	0.012	0.03
	December 2021	14.19	14.59	0.013	0.03
	August 2023	14.39	14.62	0.007	0.02
	September 2023	14.44	14.62	0.006	0.01
	October 2023	14.35	14.68	0.010	0.02
	November 2023	14.34	14.75	0.014	0.03
	December 2023	14.34	14.87	0.017	0.04

psi = pounds per square inch

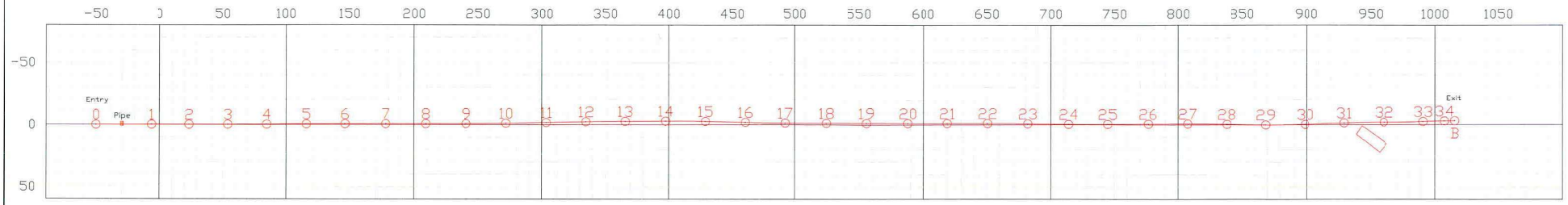
REVISION DATE: 07/29/2024

EXHIBIT C-2

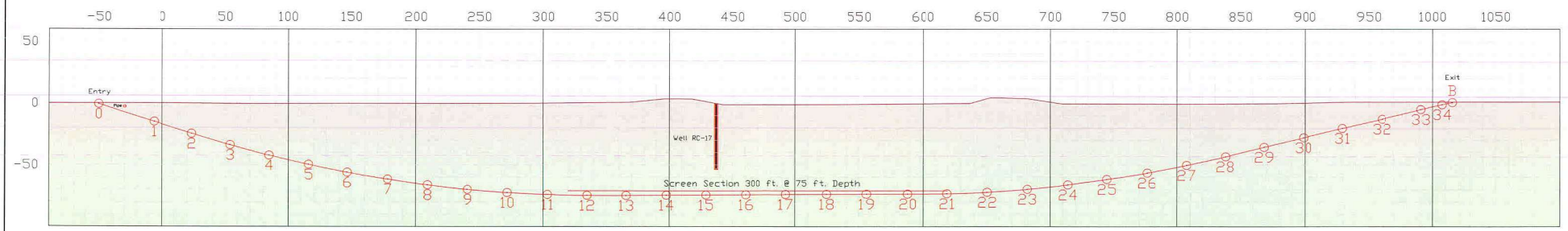
COD Well System Information

REVISION DATE: 07/29/2024

PLAN



PROFILE



Sharewell HDD
Downhole Products & Services

Sharewell HDD
21315 W. Hardy Rd.
Houston, TX 77073

ELLINGSON DTD

Drilling Contractor:	ELLINGSON DTD
Drilling Contractor Job Number:	2351142
Pipeline Owner:	BP
Pipeline Type:	MITIGATION PIPELINE
Pipeline Size:	12" - 10" - 12" STEEL

Job:	Start Date:	End Date:
BP Former Refinery-HW01	3-23-2023	3-28-2023

True Pipe Length (MD)	Horizontal Distance
1082.36'	1065.39'

Entry/Exit

Entry: Away: -50.00' Angle: 18.90° Elev: -0.70'

Exit: Away: 1015.39' Angle:12.40° Elev: .55'

Specs:

Design Radius: 1000'	Reamed To:	Guidance Type: MGS
Minimum Radius: 800'	Jet/Motor: Jet	Location: Wood River, IL.

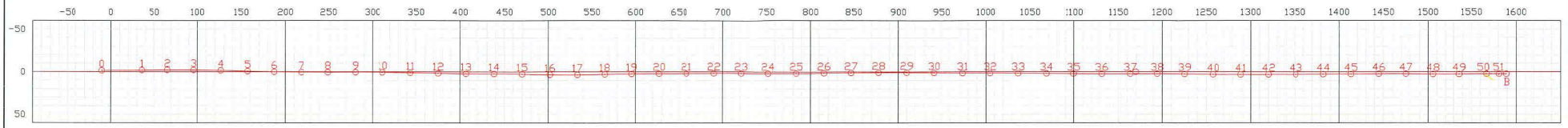
Sharewell Job Number:	23-051
Field Technician:	Roy Walters
Designed By:	Kim Carrier
Checked By:	J. Darrell Jones
Approved By:	Richard Bond

Legend
As-Drilled
Topo
Water

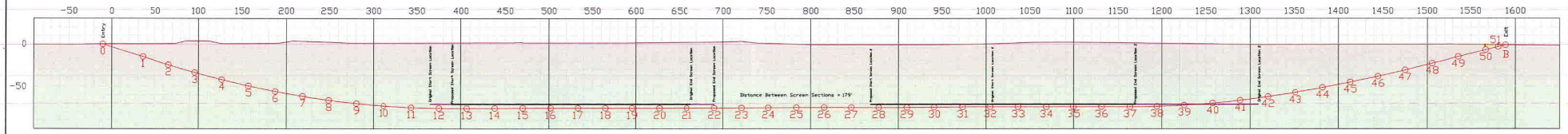
R000498

REVISION DATE: 07/29/2024

PLAN



PROFILE



Sharewell HDD
Downhole Products & Services

Sharewell HDD
21315 W. Hardy Rd.
Houston, TX 77073

ELLINGSON DTD

Drilling Contractor:	ELLINGSON DTD
Drilling Contractor Job Number:	235001142
Pipeline Owner:	BP
Pipeline Type:	MITIGATION PIPELINE
Pipeline Size:	12" - 10" - 12" STEEL
Job:	**BP Former Refinery HW02**
Start Date:	4-5-2023
End Date:	4-8-2023

True Pipe Length (MD)	**Horizontal Distance**
1615.86'	1599.07'

Entry/Exit

Entry: Away: -10.17' Angle: 18.00° Elev: -0.24'

Exit: Away: 1588.90' Angle: 14.23° Elev: -1.41'

Specs:

Design Radius: 1000'	Bit Size: 11-5/8"	Guidance Type: MGS	
Minimum Radius: 900'	Jet/Motor: Jet	Location: Wood River, IL	

Sharewell Job Number:	**23-051-A**
Field Technician:	Darrell Jones
Designed By:	Kim Carrier
Checked By:	J. Darrell Jones
Approved By:	Richard Bond

Legend
- As-Drilled
- Topo
- Water

R000499

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

PERSONNEL

G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(0-13) Clay and silty clay									
432.1			1							
431.1			2							
430.1			3							
429.1			4							
428.1			5							
427.1			6							
426.1			7							
425.1			8							
424.1			9							

Illinois Environmental Protection Agency — Field Boring Log

Page 2 of 12

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

PERSONNEL

G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(0-13) Clay and silty clay*(continued)*									
422.1			11							
421.1			12							
420.1			13							
	(13-18.5) Cinders, clay mix									
419.1			14							
418.1			15							
417.1			16							
416.1			17							
415.1			18							
	(18.5-20) Silty sand, grey at top and brown at bottom									
414.1			19							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet
	(20-25) Silty sand, brown; fine to coarse trace gravel 1/4" mixed		
412.1			21
411.1	▽		22
410.1			23
409.1			24
408.1			25
	(25-30) silty sand, brown; fine to coarse, some gravel 1/2" mixed		
407.1			26
406.1			27
405.1			28
404.1			29

SAMPLES						PERSONNEL
SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	G - M. Cauthon D - R. Isaacson H - C. Boren H - C. Mazdra
						REMARKS

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in.) | PENETROMETER | N VALUES (BLOW COUNTS) | PID READING (ppm)

PERSONNEL: G - M. Cauthon; D - R. Isaacson; H - C. Boren; H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet
	(30-35) silty sand, dark brown to grey; fine to coarse trace gravel 1/4" mixed		
402.1			31
401.1			32
400.1			33
399.1			34
398.1			35
	(35-80) silty sand, dark brown to grey, fine to coarse; some gravel 1/4" mixed		
397.1			36
396.1			37
395.1			38
394.1			39

REMARKS

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

PERSONNEL
G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(35-80) silty sand, dark brown to grey, fine to coarse; some gravel 1/4" mixed *(continued)*									
392.1			41							
391.1			42							
390.1			43							
389.1			44							
388.1			45							
387.1			46							
386.1			47							
385.1			48							
384.1			49							

Illinois Environmental Protection Agency — Field Boring Log

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Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 ' 55.464 " Longitude 90 ° 5 ' 28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in.) | PENETROMETER | N VALUES (BLOW COUNTS) | PID READING (ppm)

PERSONNEL
G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	(35-80) silty sand, dark brown to grey, fine to coarse; some gravel 1/4" mixed *(continued)*			
382.1			51	
381.1			52	
380.1			53	
379.1			54	
378.1			55	
377.1			56	
376.1			57	
375.1			58	
374.1			59	

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(35-80) silty sand, dark brown to grey, fine to coarse; some gravel 1/4" mixed *(continued)*									
372.1			61							
371.1			62							
370.1			63							
369.1			64							
368.1			65							
367.1			66							
366.1			67							
365.1			68							
364.1			69							

PERSONNEL

G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

PERSONNEL
G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLES: SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(35-80) silty sand, dark brown to grey, fine to coarse; some gravel 1/4" mixed *(continued)*									
362.1			71							
361.1			72							
360.1			73							
359.1			74							
358.1			75							
357.1			76							
356.1			77							
355.1			78							
354.1			79							

Illinois Environmental Protection Agency — Field Boring Log

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Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in.) | PENETROMETER | N VALUES (BLOW COUNTS) | PID READING (ppm)

PERSONNEL
G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet
	(80-85) sand, medium to coarse grain; silt/clay little at top, none at bottom		
352.1			81
351.1			82
350.1			83
349.1			84
348.1	(85-100) Sand, medium coarse, trace gravel, gray and brown		85
347.1			86
346.1			87
345.1			88
344.1			89

REMARKS

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES

SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)

PERSONNEL

G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet
	(85-100) Sand, medium coarse, trace gravel, gray and brown *(continued)*		91
342.1			92
341.1			93
340.1			94
339.1			95
338.1			96
337.1			97
336.1			98
335.1			99
334.1			

REMARKS

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES

PERSONNEL

G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	SAMPLE NO.	SAMPLE TYPE	SAMPLE RECOVERY (in.)	PENETROMETER	N VALUES (BLOW COUNTS)	PID READING (ppm)	REMARKS
	(100-118) Sand, medium coarse, brown									
332.1			101							
331.1			102							
330.1			103							
329.1			104							
328.1			105							
327.1			106							
326.1			107							
325.1			108							
324.1			109							

Illinois Environmental Protection Agency — Field Boring Log

Site File No. 1191155009 County Madison Boring No. VW01 Monitor Well No. VW01

Site File Name BP Wood River - Riverfront Property Surface Elevation 433.1 Completion Depth 118.0

Fed. ID. No. ILD980700967 Auger Depth Rotary Depth 118

Quadrangle Wood River Sec. 28 T. 5W R. 9W Date: Start 4/26/23 Finish 5/2/23

UTM (or State Plane) Coord. N.(Y) 794556.7 E.(X) 2318066.0

Latitude 38 ° 50 '55.464 " Longitude 90 ° 5 '28.464 "

Boring Location VW01

Drilling Equipment Mud Rotary

SAMPLES: SAMPLE NO. | SAMPLE TYPE | SAMPLE RECOVERY (in.) | PENETROMETER | N VALUES (BLOW COUNTS) | PID READING (ppm)

PERSONNEL
G - M. Cauthon
D - R. Isaacson
H - C. Boren
H - C. Mazdra

Elev.	DESCRIPTION OF MATERIALS	Graphic Log	Depth in feet	REMARKS
	(100-118) Sand, medium coarse, brown *(continued)*			
322.1			111	
321.1			112	
320.1			113	
319.1			114	
318.1			115	
317.1			116	
316.1			117	
315.1			118	

REVISION DATE: 07/29/2024

Illinois Environmental Protection Agency — **Well Completion Report**

Site Number: 1191150001 County: Madison

Site Name: BP Wood River - Main Plant Property Well #: VW01

[redacted]ate
[redacted]ane Coordinate: X 2318066 Y 794556.7 (or) Latitude: 38° 50' 55.464" Longitude: 90° 5' 28.464" Borehole #: VW01

Surveyed by: CMT IL Registration #:

Drilling Contractor: Layne Christensen Co Driller: Robert Isaacson (Layne)

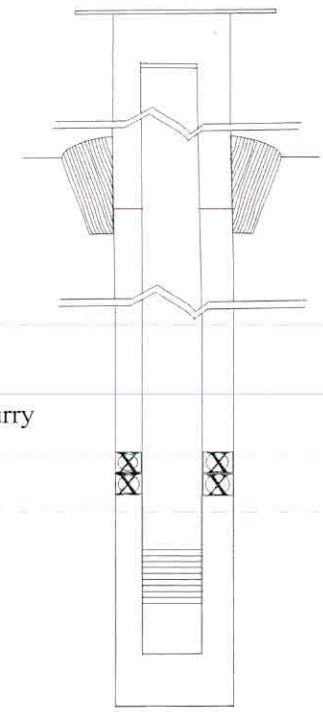
Consulting Firm: Sovereign Consulting, Inc. Geologist: Matthew Cauthon (Sovereign)

Drilling Method: Mud Rotary Drilling Fluid (Type): Quick Gel Bentonite

Logged By: Matthew Cauthon (Sovereign) Date Started: 04/26/2023 Date Finished: 05/02/2023

Report Form Completed By: Matthew Cauthon (Sovereign) Date: 01/09/2023

ANNULAR SPACE DETAILS



Type of Surface Seal: natural formation (within pump house)

Type of Annular Sealant: cement

Installation Method: tremie

Setting Time: 24 hours

Type of Bentonite Seal - - Granular, Pellet, Slurry (Choose One) ✘

Installation Method: tremie

Setting Time: 24 hours

Type of Sand Pack: Silica Sand

Grain Size: 12-20 (Sieve Size)

Installation Method: gravity

Type of Backfill Material: n/a (if applicable)

Installation Method: n/a

	Elevations (MSL)*	Depths (BGS)	(.01ft.)
		0	Top of Protective Casing
		3	Top of Riser Pipe
		0	Ground Surface
		24.5"	Top of Annular Sealant
		22'	Static Water Level (After Completion)
		52'	Top of Seal
		64'	Top of Sand Pack
		75'	Top of Screen
		115'	Bottom of Screen
		115'	Bottom of Well
		116'	Bottom of Borehole

* Referenced to a National Geodetic Datum

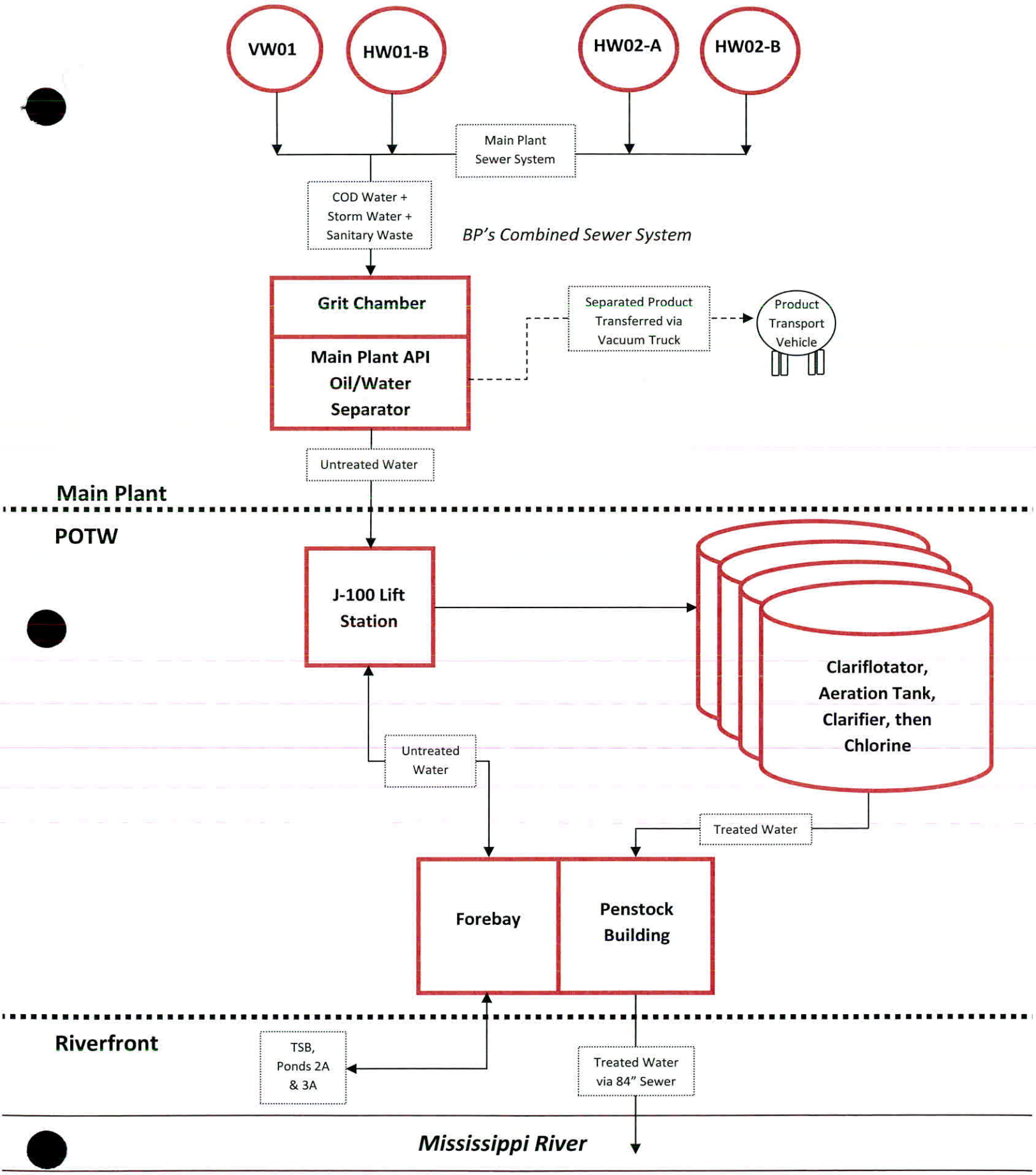
WELL CONSTRUCTION MATERIAL
(Choose one type of material for each area)

[redacted]ctive Casing	SS304, SS316, PTFE, PVC, or Other ✘
[redacted] Pipe Above W.T.	SS304, SS316, PTFE, PVC, or Other ✘
Riser Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other ✘
Screen	SS304, SS316, PTFE, PVC, or Other ✘

CASING MEASURMENTS

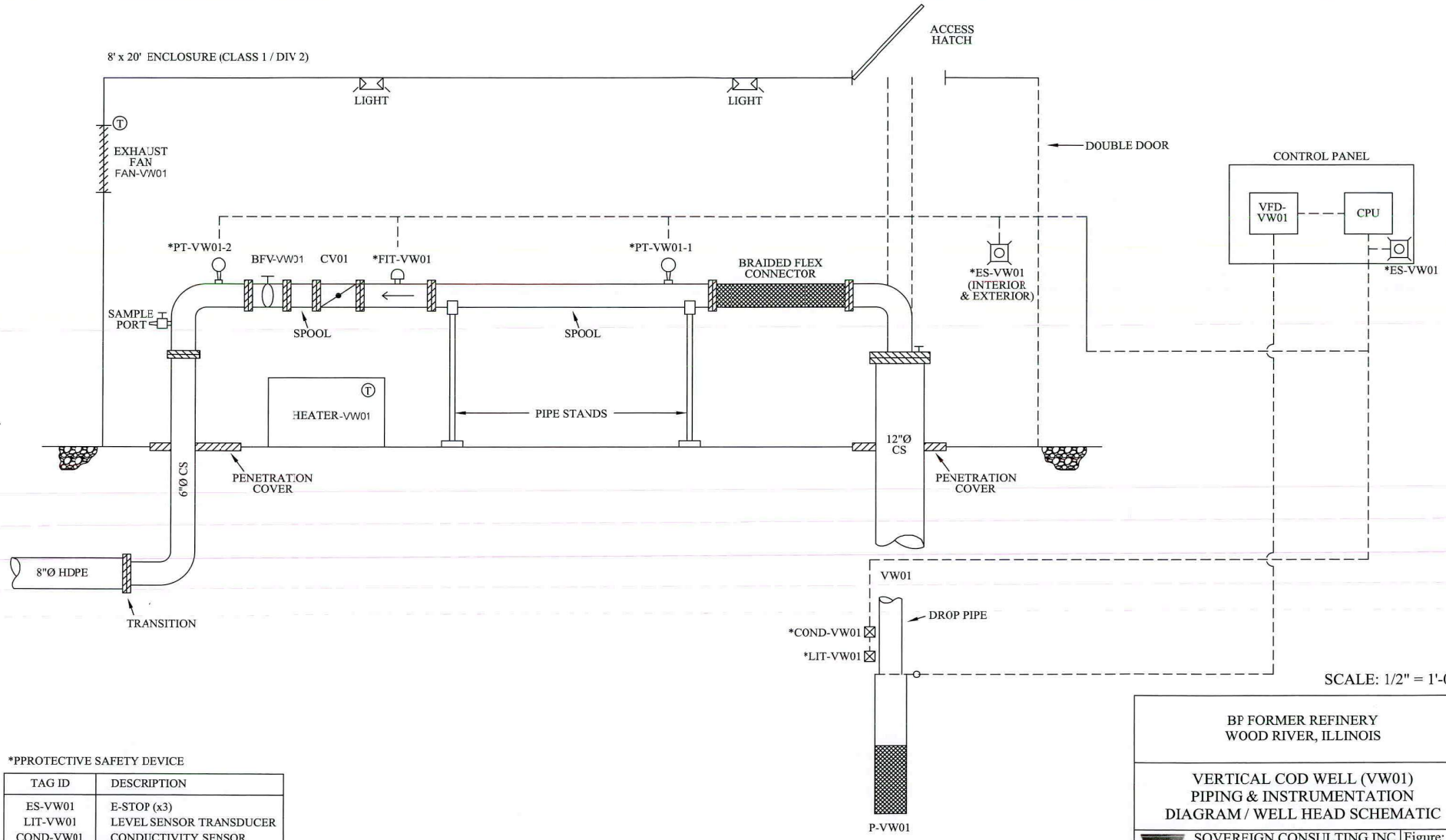
Diameter of Borehole (inches)	18
ID of Riser Pipe (inches)	12
Protective Casing Length (feet)	N/A
Riser Pipe Length (feet)	75
Bottom of Screen to End Cap (feet)	0
Screen Length (1st slot to last slot) (feet)	40
Total Length of Casing (feet)	115
Screen Slot Size **	40

**Hand-Slotted Well Screens are Unacceptable



Cone of Depression Wells Process Flow Diagram

REVISION DATE: 07/29/2024



SCALE: 1/2" = 1'-0"

*PPROTECTIVE SAFETY DEVICE

TAG ID	DESCRIPTION
ES-VW01	E-STOP (x3)
LIT-VW01	LEVEL SENSOR TRANSDUCER
COND-VW01	CONDUCTIVITY SENSOR
FIT-VW01	FLOW METER / TOTALIZER
PT-VW01-1	PRESSURE TRANSMITTER
PT-VW01-2	PRESSURE TRANSMITTER

Fire Extinguisher Located outside each pumphouse enclosure.

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

VERTICAL COD WELL (VW01)
PIPING & INSTRUMENTATION
DIAGRAM / WELL HEAD SCHEMATIC

SOVEREIGN CONSULTING INC.
100 Dobbs Lane, Suite 212
Cherry Hill, NJ 08034
Ph:(856) 325-2099 Fax:(856) 429-7444
www.sovcon.com

Figure: 1

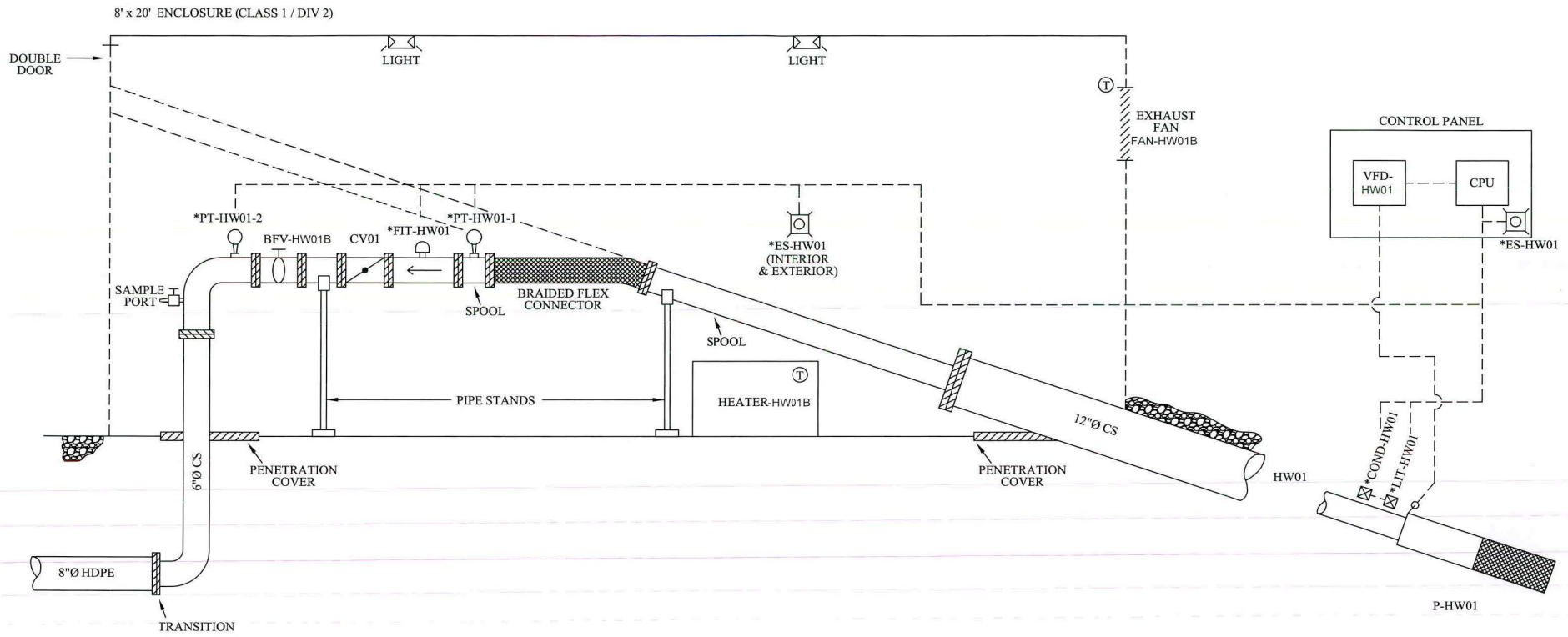
CREATED BY : NRK
DATE: 07/30/2023

REVISED BY : AMM
DATE: 10/24/2023

Version Final as of February 2024

R000514

REVISION DATE: 07/29/2024



SCALE: 1/2" = 1'-0"

*PPROTECTIVE SAFETY DEVICE

TAG ID	DESCRIPTION
ES-HW01	E-STOP (x3)
LIT-HW01	LEVEL SENSOR TRANSDUCER
COND-HW01	CONDUCTIVITY SENSOR
FIT-HW01	FLOW METER / TOTALIZER
PT-HW01-1	PRESSURE TRANSMITTER
PT-HW01-2	PRESSURE TRANSMITTER

Fire Extinguisher Located cutside each pumphouse enclosure.

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

HORIZONTAL COD WELL (HW01-B)
PIPING & INSTRUMENTATION
DIAGRAM / WELL HEAD SCHEMATIC

SOVEREIGN CONSULTING INC.
100 Dobbs Lane, Suite 212
Cherry Hill, NJ 08034
Ph:(856) 325-2099 Fax:(856) 429-7444
www.sovcon.com

Figure: 2

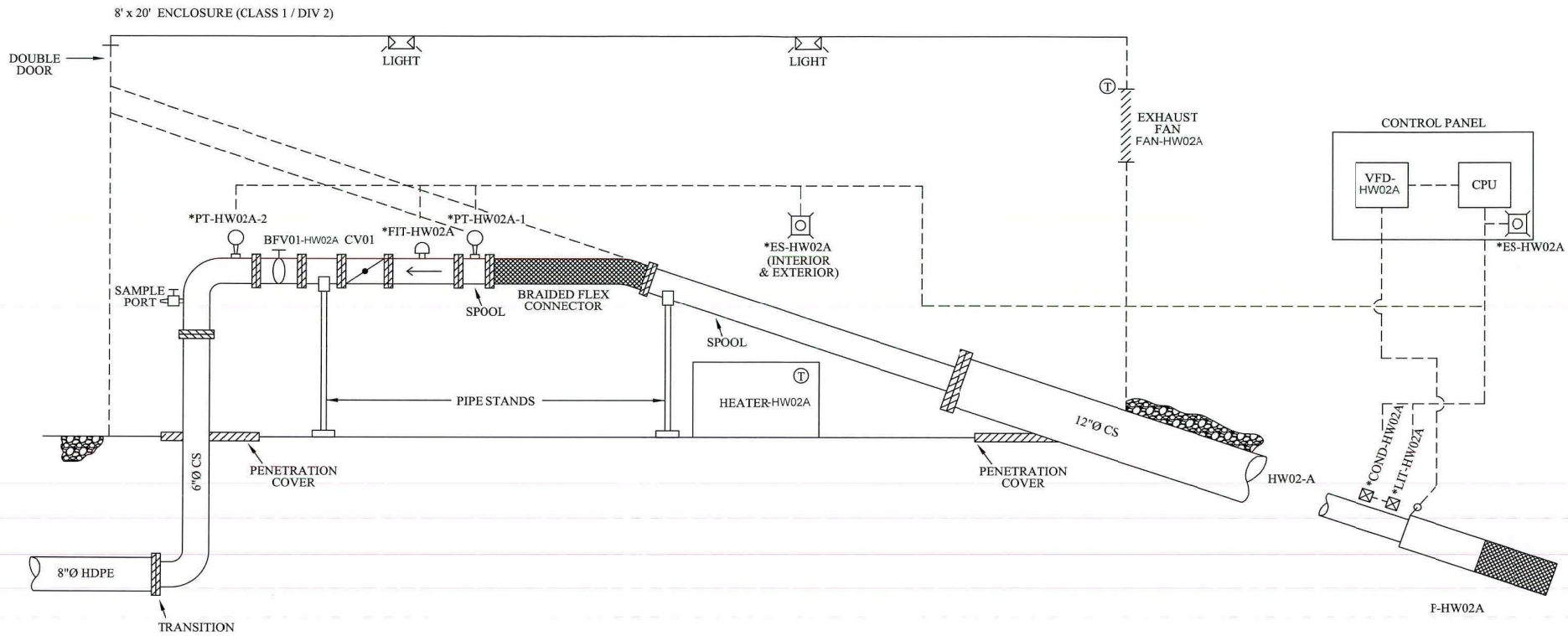
CREATED BY : NRK
DATE: 07/30/2023

REVISED BY : AMM
DATE: 10/24/2023

Version Final as of February 2024

R000515

REVISION DATE: 07/29/2024



SCALE: 1/2" = 1'-0"

*PPROTECTIVE SAFETY DEVICE

TAG ID	DESCRIPTION
ES-HW02A	E-STOP (x3)
LIT-HW02A	LEVEL SENSOR TRANSDUCER
COND-HW02A	CONDUCTIVITY SENSOR
FIT-HW02A	FLOW METER / TOTALIZER
PT-HW02A-1	PRESSURE TRANSMITTER
PT-HW02A-2	PRESSURE TRANSMITTER

Fire Extinguisher Located outside each pumphouse enclosure.

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

HORIZONTAL COD WELL (HW02-A)
PIPING & INSTRUMENTATION
DIAGRAM / WELL HEAD SCHEMATIC

SOVEREIGN CONSULTING INC.
100 Dobbs Lane, Suite 212
Cherry Hill, NJ 08034
Ph:(856) 325-2099 Fax:(856) 429-7444
www.sovcon.com

Figure: 3

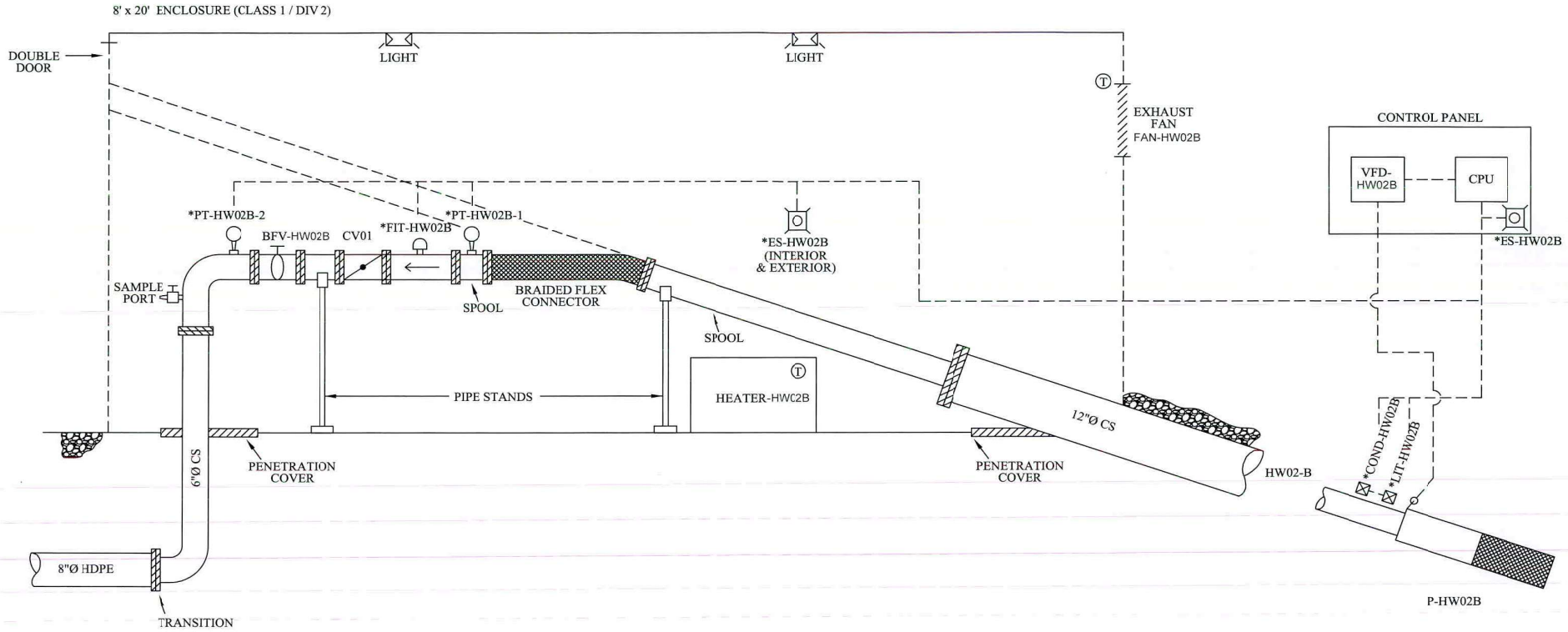
CREATED BY : NRK
DATE: 07/30/2023

REVISED BY : AMM
DATE: 10/24/2023

Version Final as of February 2024

R000516

REVISION DATE: 07/29/2024



SCALE: 1/2" = 1'-0"

*PPROTECTIVE SAFETY DEVICE

TAG ID	DESCRIPTION
ES-HW02E	E-STOP (x3)
LIT-HW02B	LEVEL SENSOR TRANSDUCER
COND-HW02B	CONDUCTIVITY SENSOR
FIT-HW02B	FLOW METER / TOTALIZER
PT-HW02B-1	PRESSURE TRANSMITTER
PT-HW02B-2	PRESSURE TRANSMITTER

Fire Extinguisher Located outside each pumphouse enclosure.

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

HORIZONTAL COD WELL (HW02-B)
PIPING & INSTRUMENTATION
DIAGRAM / WELL HEAD SCHEMATIC

SOVEREIGN CONSULTING INC.
100 Dobbs Lane, Suite 212
Cherry Hill, NJ 08034
Ph:(856) 325-2099 Fax:(856) 429-7444
www.sovcon.com

Figure: 4

CREATED BY : NRK
DATE: 07/30/2023

REVISED BY : AMM
DATE: 10/24/2023

Version Final as of February 2024

R000517

REVISION DATE: 07/29/2024

EXHIBIT C-3

Statistical Evaluations Main Plant GMZ

Evaluation Methodology

The statistical method to evaluate analyte trends at the Main Plant Groundwater Monitoring Zone (GMZ) Boundary Monitoring Wells will be Mann-Kendall (MK). The MK test is specified in the current Main Plant [redacted]ermit as part of the *Class 1* Permit Modification Request* dated April 21, 2009, and has been utilized since [redacted]linois EPA approval in the letter dated July 8, 2009. Commercially-available computer software Sanitas™ Statistical Software Version 10 (Sanitas) or the most current version of the software will be used. If licenses or access changes in the future or it is determined that another statistical program suite is preferable, then the alternative statistical program suite will be comparable in ability and utility to Sanitas.

The MK test is a nonparametric test for zero slope of the linear regression of time ordered data versus time (Gilbert, 1987). Nonparametric methods require no assumptions regarding the underlying statistical distribution of the data. Accordingly, the MK test neither requires a specific statistical distribution of the data, nor is the test sensitive to the sampling interval over which the monitoring data are collected. The outcome of the procedure depends on the ranking of individual data points and not the overall magnitude of the data points. Therefore, the MK test can be used for data sets that include irregular sampling intervals, data below the detection limit, and trace or missing data. The approach is particularly advantageous in cases where outliers in the data could produce biased estimates using parametric trend analysis (GSI, 2012). The USEPA *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (Unified Guidance) issued in March 2009 recommends using the MK trend test to measure the extent and nature of an apparent concentration increase under these circumstances.

There are three required statistical metrics for the MK test to determine the trend and include the Mann-Kendall statistic (MK S), confidence factor (CF), and coefficient of variation (COV). The MK S is an integer value of the sum of differences between all sampling events (Event 1 is compared to all subsequent events, followed by Event 2, to Event k^{th}) where an increase is assigned +1 and a decrease is assigned -1. If the sum is positive, it indicates an increasing trend and negative indicates a decreasing trend. The CF determines the strength of the [redacted]end direction as determined by the MK S value. The CF is a proof for rejecting the null hypothesis (H_0) of no [redacted]end against the alternative hypotheses (H_A) of an increasing trend (if $S>0$) or a decreasing trend (if $S<0$).

Trends will be determined for data sets using no more than 20 data points which will consist of 10 years of data. The 10-year data span will consist of the current 5 years of data evaluated as part of the GMZ re-evaluation and the previous 5 years of data. The previous 5 years of data is included to better ensure that trends are accurately representative of contaminant concentration fluctuation within the UMA and to help reduce any bias through outliers (left-hand or right-hand values). The steps below outline the methodology and settings of the Sanitas for the MK test.

1. Handling of non-detect and estimated results.
    a. The handling of non-detects (ND) and estimated results (J flagged) is dictated by best practices from the Unified Guidance (USEPA, 2009) and built into Sanitas. In the case of NDs, the substitution method will be used where the ND (also denoted with a laboratory flag of < or U) value will be replaced by the reporting limit (RL) unless the percentage of NDs is less than 15% in which case the ND will be replaced by half of the RL. This substitution method is designed to limit bias of the mean of datasets with a majority of detectable results which could result in a skewed trend analysis. For datasets with more than 15% ND values, trend analyses will estimate to the RL as the confidence tails off.
    b. For estimated (J flag) values, no substitution will be completed; the estimated value provided by the analytical laboratory will be utilized.
2. Alpha (i.e., the significance level, also known as the confidence level or Type I error) will be set at 0.05 which corresponds to 95% confidence.
3. Data limit will be set to 20.
4. Any setting or assumption not discussed above will use default settings or assumptions included as part of the Sanitas programming; Sanitas programming was designed to conform to requirements of the Unified Guidance (USEPA, 2009).

The wells and analytes to be evaluated are summarized in the following table.

Revision Date: 07/29/2024

Listing of GMZ Wells and Hazardous Constituent Parameters
Statistically Evaluated via Mann-Kenndal Methodology
BP Main Plant - Wood River, Illinois

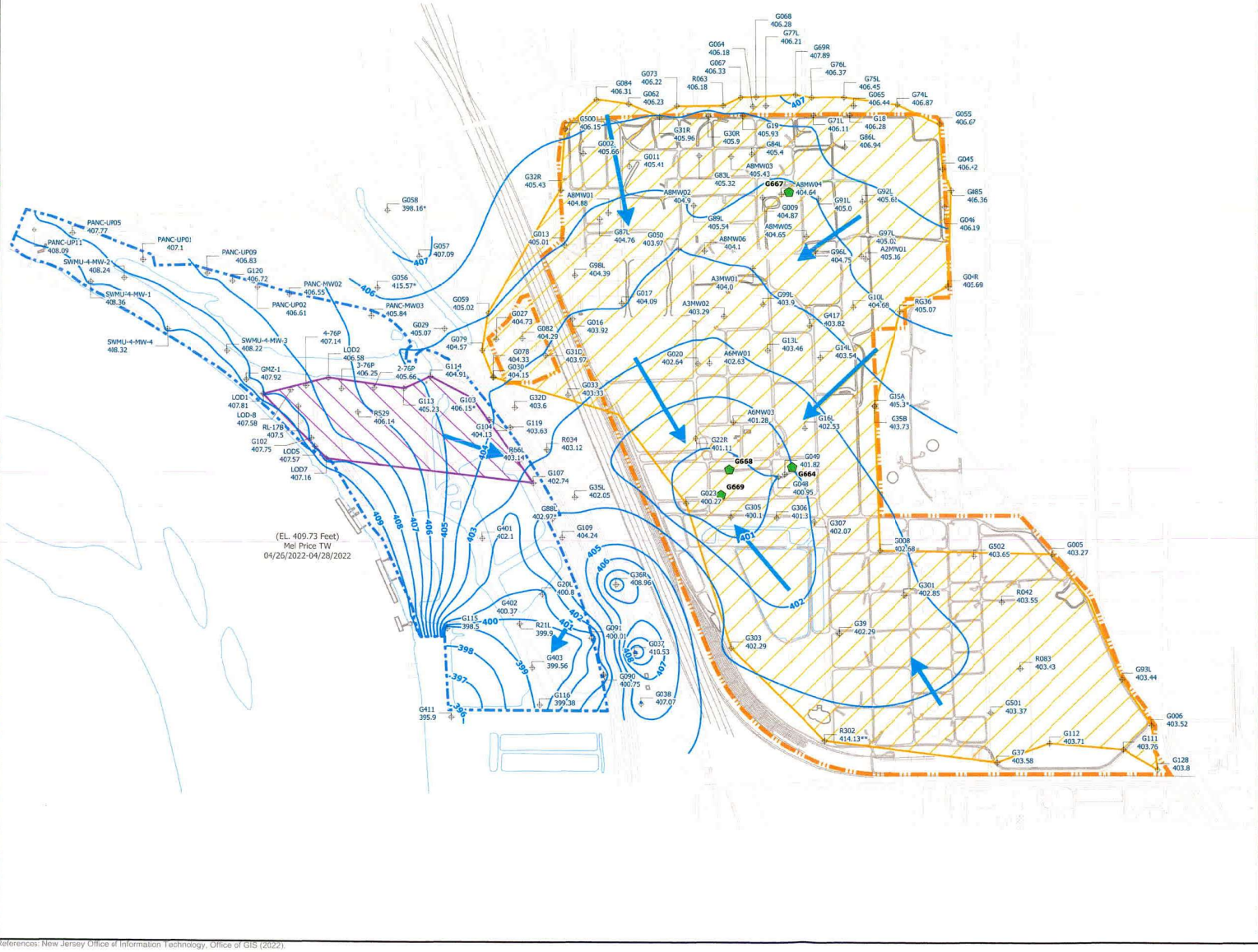
Monitoring Wells (IEPA Well ID / BP Well ID)			
G005 / B-5D	R063 / G-23R	G32R / H32R	G91 / M-1D
G006 / B-6	G067 / G-27	G35A / G35A	G92 / M-2D
G008 / B-8D	G068 / G-28	G35B / G35B	G93L / M-3D
G021 / C-11	G073 / G-33	G37 / H-37	H31B / H-31B
G023 / C-13	G079 / G-39	G5B / G-5B	RG36 / H36R
G04R / B-4R	G084 / G-32R	G500 / G500	R302 / R302
G045 / G-5	G085 / G-26R	G69R / G-29R	G303 / RP-3D
G055 / G-15	G111 / SWMU12-MW02	G74L / G-34	GXXX / G08A
G059 / G-19	G112 / SWMU12-GH1	G75L / G-35	GXXX / R067
G062 / G-22	G128 / G128	G76L / G-36	GXXX / R068

Chemical Parameters		
Parameter Group	**Parameter**	
Metals, Total	Antimony	Lead
	Arsenic	Nickel
	Barium	Selenium
	Chromium	
Semi-volatile Organic Compounds (SVOCs)	2,4-Dimethylphenol	Bis(2-ethylhexyl)phthalate
	4-Methylphenol (p-cresol)	Chrysene
	Benzo(a)anthracene	Dibenzo(a,h)anthracene
	Benzo(a)pyrene	Naphthalene
	Benzo(b)fluoranthene	Phenol
	Benzo(k)fluoranthene	
Volatile Organic Compounds (VOCs)	1,2-Dichloroethane	Toluene
	1,3-Dichlorobenzene	Xylenes (Total)
	Benzene	Methyl Tertiary-Butyl Ether (MTBE)
	Chloroform	Styrene
	Ethylbenzene	

REVISION DATE: 08/28/2024

EXHIBIT C-4

Potentiometric Surface Maps for COD Well System Performance Comparison



Uppermost Aquifer Well

Active Cone of Depression Well

Inferred Groundwater Flow Direction

Inferred Groundwater Elevation Contours
Contour Interval

Main Plant GMZ

Riverfront GMZ

Main Plant Property Boundary

Riverfront Property Boundary

**Legacy COD Well System Pumping Rate:
1,400 gallons per minute**

Notes:
* Ground water elevation was excluded from the contour interpretation due to anomalous water levels.
** R302 was excluded from the contour interpretation due to lithology within the screened interval.

N
W E
S

0 500 1,000 2,000

1 INCH = 1,000 FEET

UPPERMOST AQUIFER
POTENTIOMETRIC SURFACE MAP
PERMIT NETWORK
APRIL 26-28, 2022

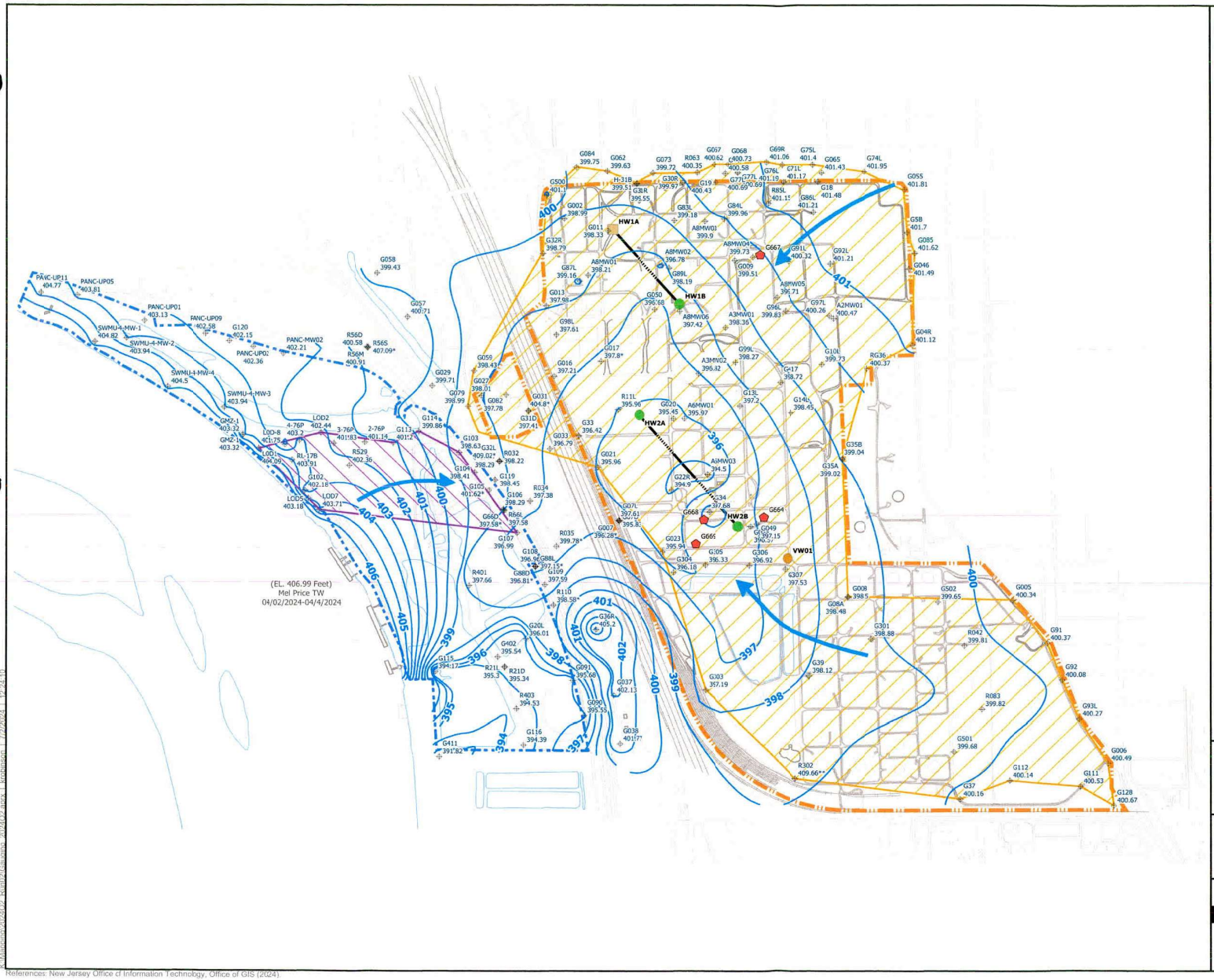
BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE:
1

References: New Jersey Office of Information Technology, Office of GIS (2022).

R000522



Uppermost Aquifer Well

Inactive Cone of Depression Well

Active Replacement Cone of Depression Well

Replacement Cone of Depression Well Pending Commissioning

COD Well Access Point

Horizontal Well Casing

Horizontal Well Screen

Inferred Groundwater Flow Direction

Inferred Groundwater Elevation Contours
Contour Interval

Main Plant GMZ

Riverfront GMZ

Main Plant Property Boundary

Riverfront Property Boundary

Notes:
* Ground water elevation was excluded from the contour interpretation due to anomalous water levels.
** R302 was excluded from the contour interpretation due to lithology within the screened interval.

**New COD Well System Pumping Rate:
1,200 gallons per minute**

N
W E
S

0 500 1,000 2,000

1 INCH = 1,000 FEET

UPPERMOST AQUIFER POTENTIOMETRIC SURFACE MAP STANDARD NETWORK APRIL 2-4, 2024

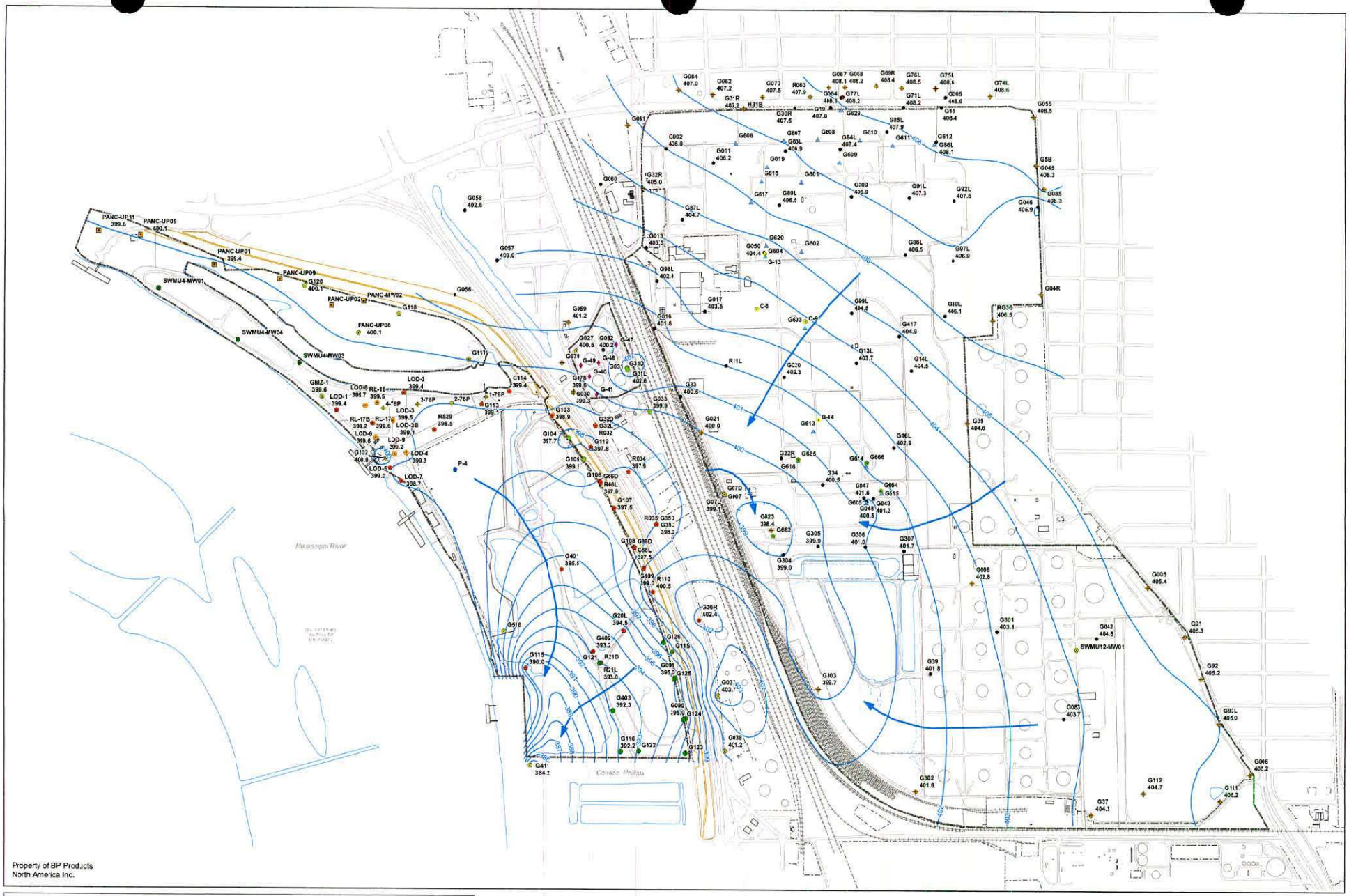
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE: 2

References: New Jersey Office of Information Technology, Office of GIS (2024).

R000523



Legend

- Gradient Control Well (Cone of Depression Well)
- Main Plant South Flare Pit Well
- Main Plant GMZ Boundary Well
- Main Plant Hydrocarbon Recovery System Well
- Main Plant Observation Monitoring Well
- Main Plant RFI Well
- Main Plant Well
- Riverfront Closed Disposal Facility Well
- Riverfront Gradient Control Monitoring Well
- Riverfront Light Oils Dock Well
- Riverfront Permitted Non-hazardous Waste Landfill Well
- Riverfront RFI Well
- Riverfront Annual Observation Monitoring Well
- Riverfront Semi-Annual Observation Monitoring Well
- Former Channel Seep Area Well
- Korea Tank Farm Well
- Parcel A- North Channel Tract Area Well
- BP Property Boundary
- Groundwater Equipotential Line
- Depression
- Groundwater Flow Direction
- G14L 402.9 — Groundwater Elevation of 402.9 Feet MSL Recorded at Well G14L

Legacy COD Well System Pumping Rate: 1,200 gallons per minute

Notes:

1. Wells G-5B, H-31B, G031, G07D, G108, G108, G31D, G35D, G66D, G88D, R03Z, R03S, R21D, G007 and G32D were excluded from the groundwater interpolation as they are part of a cluster of wells, and only one of the cluster wells is included in the interpolation.
2. Water elevations from wells G11S, G121, G122 are not included in the interpolation as they do not monitor the uppermost aquifer.
3. Water elevations from HRS wells G861 to G620 and G629 are not included in the interpolation as they are active pumping wells.
4. Water elevations from CCD wells G662, G664, G665, and G666 are not included in the interpolation as they are active pumping wells.
5. Water elevations from the PNWL wells G123, G124, G125 and G126 are not included in the interpolation as they are screened above the uppermost aquifer.
6. Non-permitted wells 1-76P,2-76P, 3-76P, 4-76P, G-13, G-40, G-41, G-47, G-48, G49, PANC-MW02, PANC-UP02, PANC-UP09, and SWMU12-MW01 are not included in the interpolation.
7. Wells G117 and G516 have been abandoned. BP will submit a permit modification to remove these wells from the permit.
8. Water elevation from Wells G379, G301, G056 were excluded from the groundwater interpolation because they contain inconsistent water elevations relative to adjacent wells.
9. Wells G060 and G061 were not accessible as they are not on BP property.
10. Well G118 was not accessible as it was surrounded by water.
11. The well designations for Main Plant GMZ and Main Plant Observation Wells are updated as per the March 4, 2011 permit.
12. Wells G028, G058, G063, G485, G425, G838, G915, G83 are removed from the permit list as they were removed from the permit dated March 4, 2011.

N

0 600 1,200 Feet

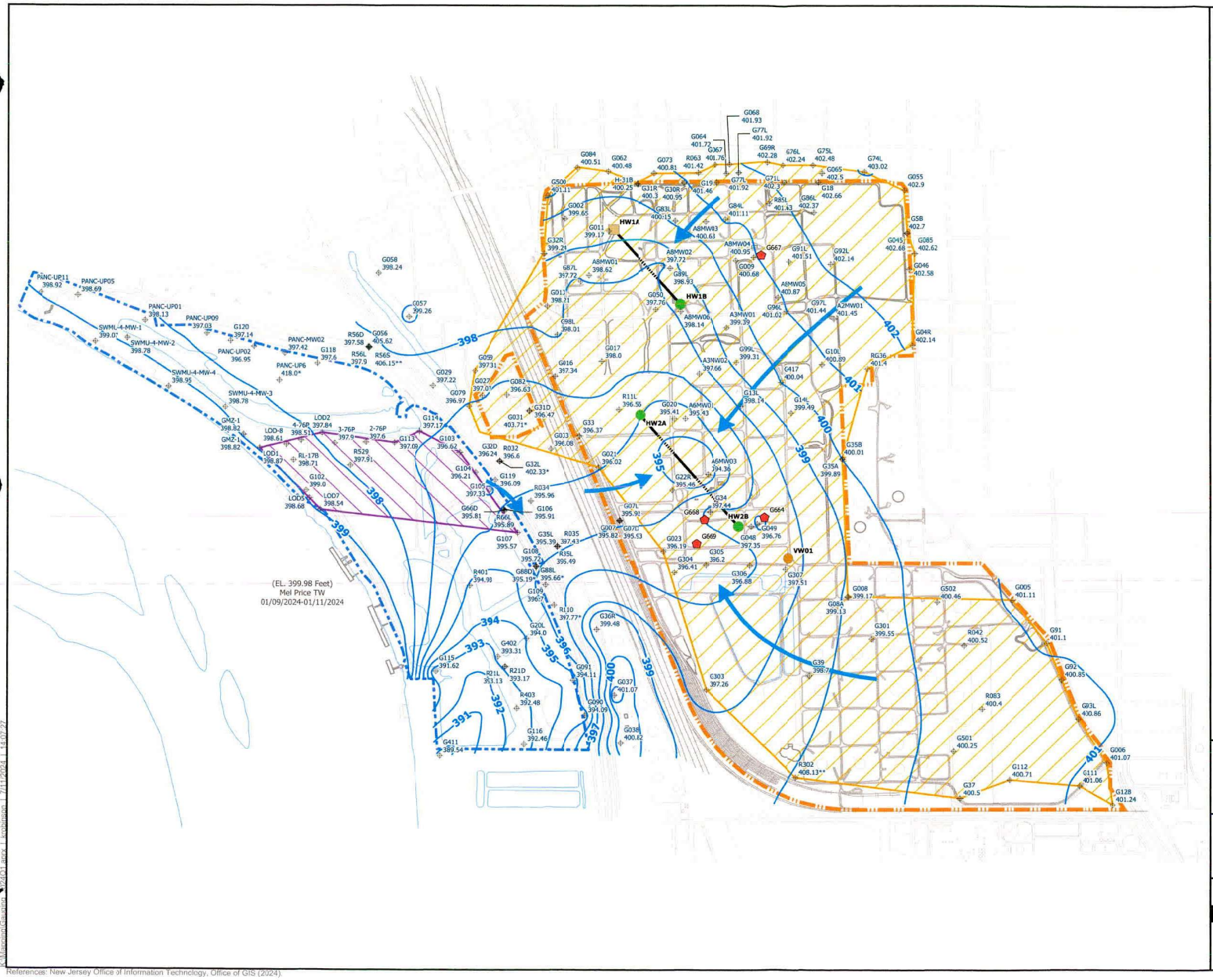
1 inch = 600 feet

URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60603

Uppermost Aquifer Potentiometric Surface Map January 2012 BP Main Plant Property Wood River, Illinois

DESIGN	SJ	CHKD	DS	PROJECT NO.	FIG NO.
DRAWN	JAG/PDC	DATE	7/10/2012	25368554	3

R000524



References: New Jersey Office of Information Technology, Office of GIS (2024).

- Uppermost Aquifer Well
- Inactive Cone of Depression Well
- Active Replacement Cone of Depression Well
- Replacement Cone of Depression Well Pending Commissioning
- COD Well Access Point
- Horizontal Well Casing
- Horizontal Well Screen
- Inferred Groundwater Flow Direction
- Inferred Groundwater Elevation Contours Contour Interval
- Main Plant GMZ
- Riverfront GMZ
- Main Plant Property Boundary
- Riverfront Property Boundary

Notes:

* Groundwater elevation was excluded from the contour interpretation due to anomalous water levels.

** R302 was excluded from the contour interpretation due to lithology within the screened interval.

New COD Well System Pumping Rate: 1,400 gallons per minute

N
W E
S

0 500 1,000 2,000

1 INCH = 1,000 FEET

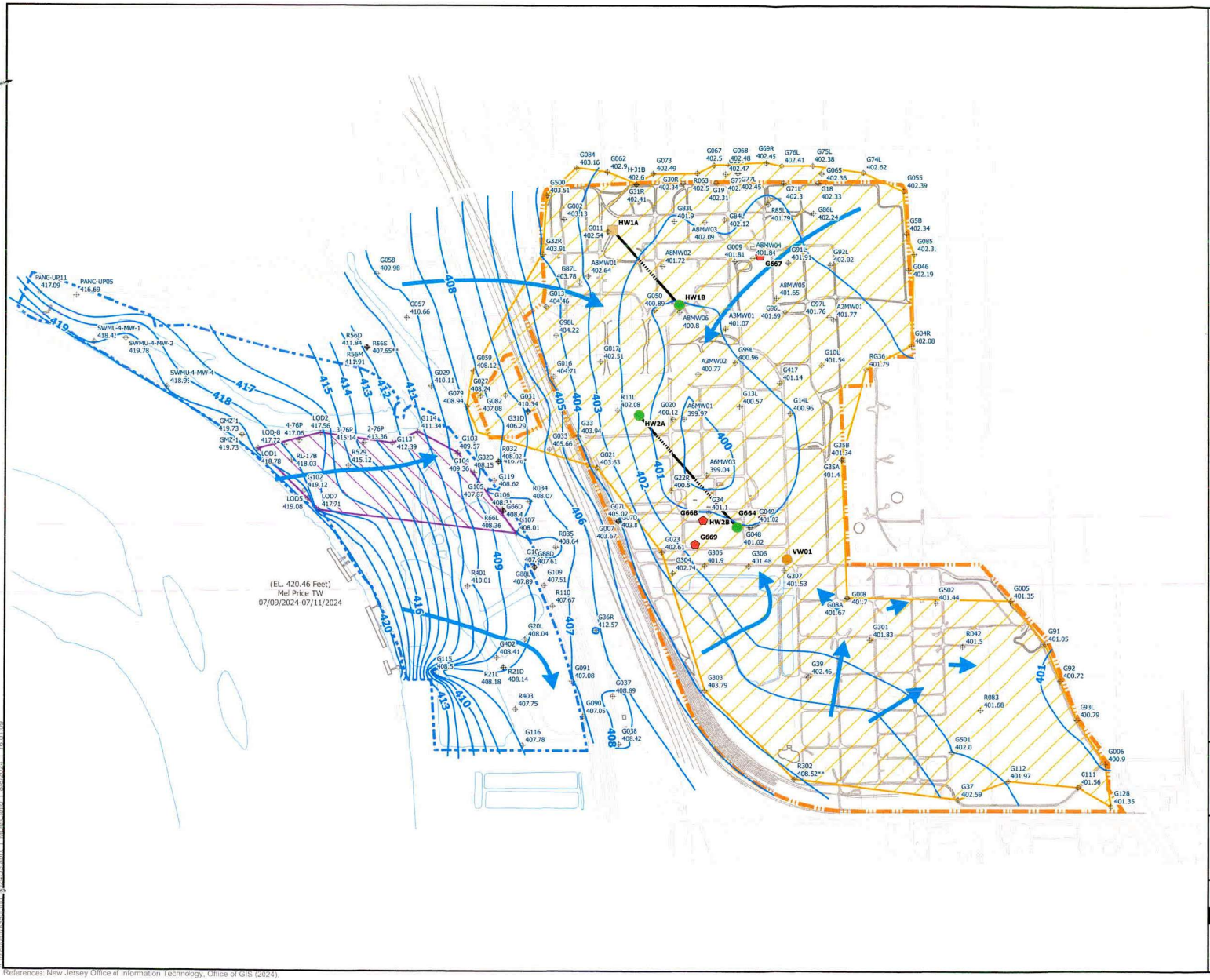
UPPERMOST AQUIFER
POTENTIOMETRIC SURFACE MAP
STANDARD NETWORK
JANUARY 9-11, 2024

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE: 4

R000525



Uppermost Aquifer Well

Inactive Cone of Depression Well

Active Replacement Cone of Depression Well

Replacement Cone of Depression Well Pending Commissioning

COD Well Access Point

Horizontal Well Casing

Horizontal Well Screen

Inferred Groundwater Flow Direction

Inferred Groundwater Elevation Contours
Contour Interval

Main Plant GMZ

Riverfront GMZ

Main Plant Property Boundary

Riverfront Property Boundary

Notes:

* Ground water elevation was excluded from the contour interpretation due to anomalous water levels.

** R302 was excluded from the contour interpretation due to lithology within the screened interval.

**New COD Well System Pumping Rate:
1,600 gallons per minute**

N
W E
S

0 500 1,000 2,000

1 INCH = 1,000 FEET

UPPERMOST AQUIFER POTENTIOMETRIC SURFACE MAP STANDARD NETWORK JULY 9-10, 2024

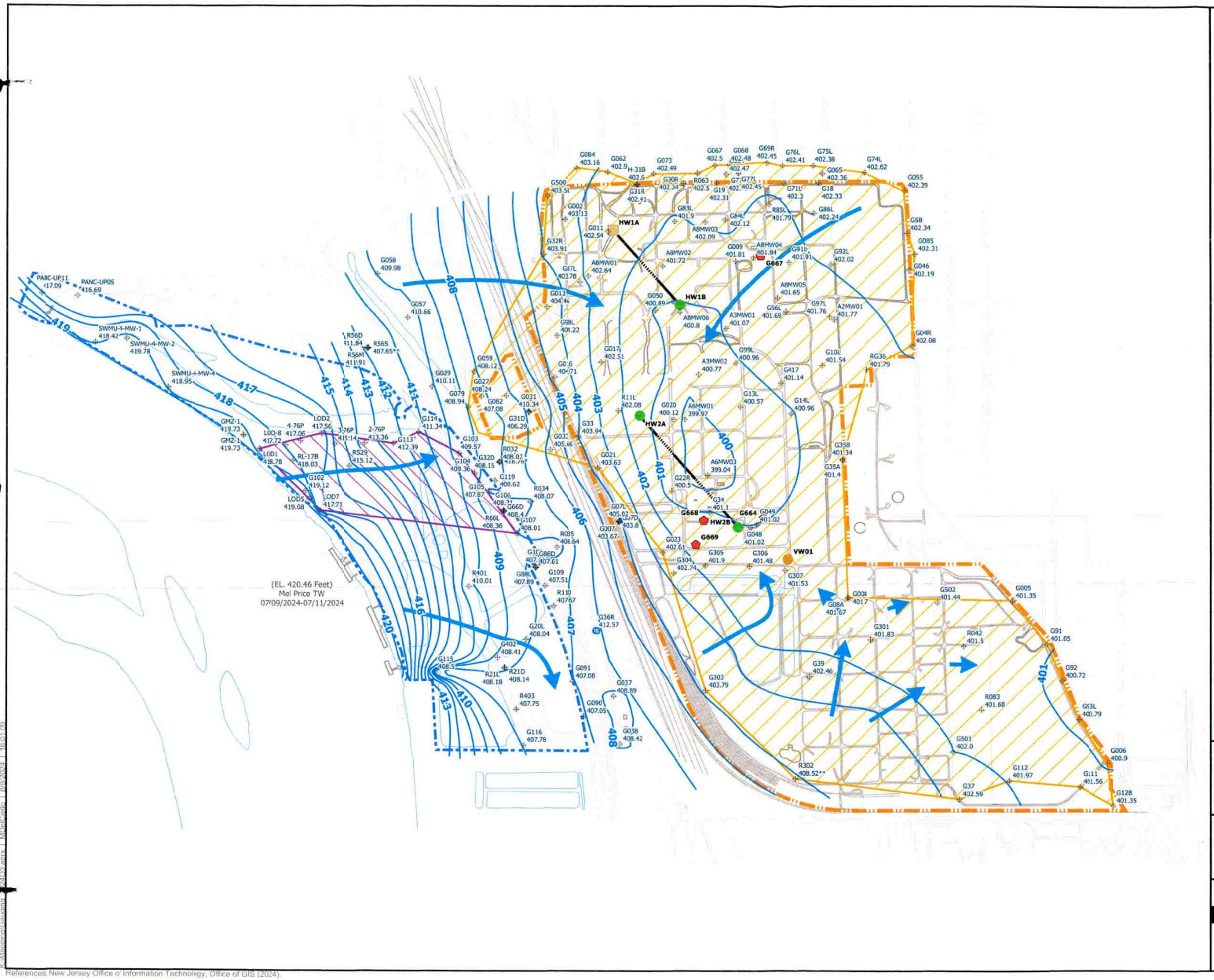
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE: 6

References: New Jersey Office of Information Technology, Office of GIS (2024).

R000526



Uppermost Aquifer Well

Inactive Cone of Depression Well

Active Replacement Cone of Depression Well

Replacement Cone of Depression Well Pending Commissioning

CCD Well Access Point

Horizontal Well Casing

Horizontal Well Screen

Inferred Groundwater Flow Direction

Inferred Groundwater Elevation Contours Contour Interval

Main Plant GMZ

Riverfront GMZ

Main Plant Property Boundary

Riverfront Property Boundary

Notes:

* Ground water elevation was excluded from the contour interpretation due to anomalous water levels.

** R302 was excluded from the contour interpretation due to lithology within the screened interval.

New COD Well System Pumping Rate: 1,600 gallons per minute

N W E S

0 500 1,000 2,000

1 INCH = 1,000 FEET

UPPERMOST AQUIFER POTENTIOMETRIC SURFACE MAP STANDARD NETWORK JULY 9-10, 2024

BP FORMER REFINERY
WOOD RIVER, ILLINOIS

SOVEREIGN CONSULTING Inc.
111-A North Gold Drive
Robbinsville, New Jersey 08691
(609) 259-8200 (609) 259-8288 (fax)

FIGURE: 6

References New Jersey Office of Information Technology, Office of GIS (2024).

R000527

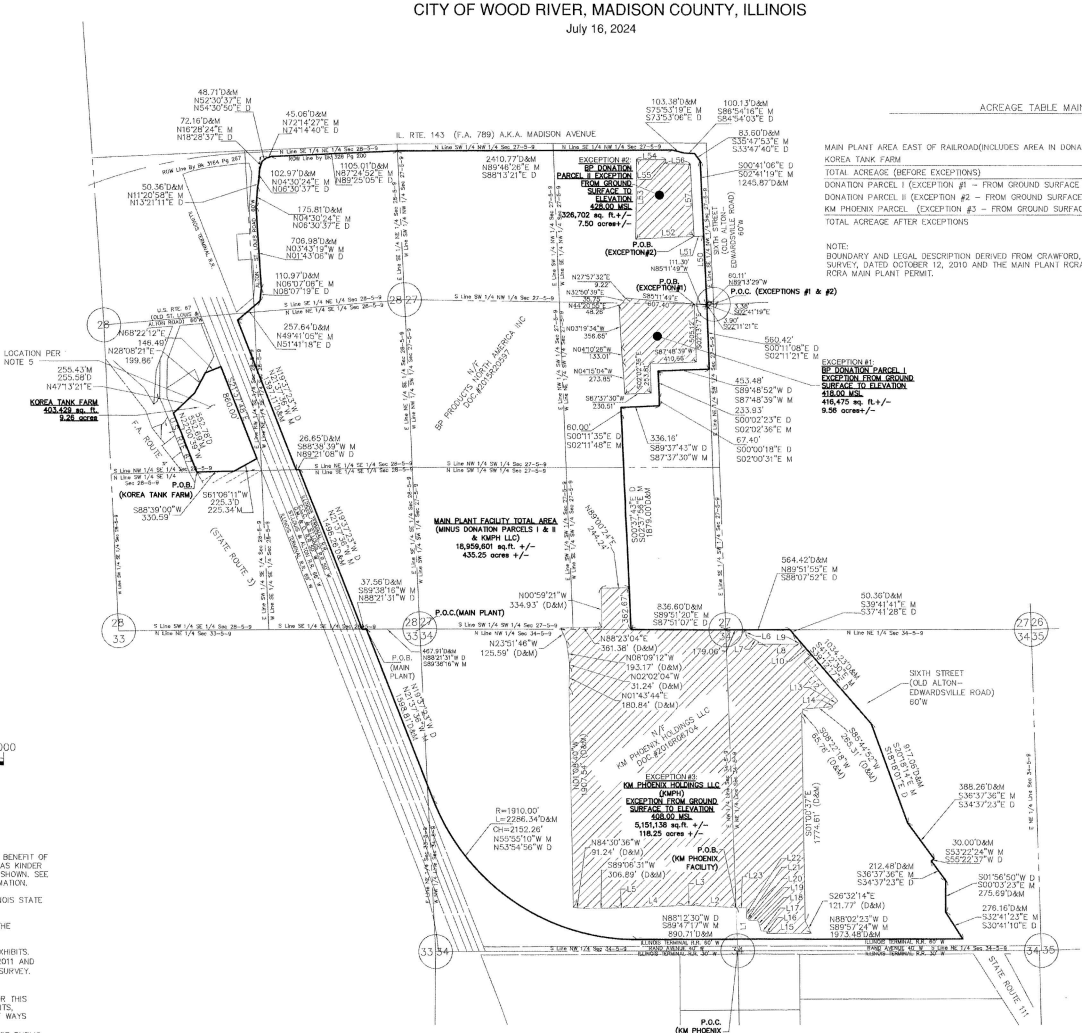
REVISION DATE: 07/29/2024

EXHIBIT: B.P. AMOCO MAIN PLANT AND KOREA TANK FARM WITH DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION

BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS

July 16, 2024

2024 DIVISION OF RECORDS MANAGEMENT
AUG 14 2024
REVIEWER: SAS



ACREAGE TABLE MAIN PLANT FACILITY

MAIN PLANT AREA EAST OF RAILROAD(INCLUDES AREA IN DONATION PARCELS AND KMPH)	561.30 ACRES	(24,450,487 SQ.FT.)
KOREA TANK FARM	9.26 ACRES	(403,429 SQ.FT.)
TOTAL ACREAGE (BEFORE EXCEPTIONS)	570.56 ACRES	(24,853,916 SQ.FT.)
DONATION PARCEL I (EXCEPTION #1 – FROM GROUND SURFACE TO ELEV. 418.00 MSL)	9.56 ACRES	(416,475 SQ.FT.)
DONATION PARCEL II (EXCEPTION #2 – FROM GROUND SURFACE TO ELEV. 428.00 MSL)	7.50 ACRES	(326,702 SQ.FT.)
KM PHOENIX PARCEL (EXCEPTION #3 – FROM GROUND SURFACE TO ELEV. 408.00 MSL)	118.25 ACRES	(5,151,138 SQ.FT.)
TOTAL ACREAGE AFTER EXCEPTIONS	435.25 ACRES	(18,959,601 SQ.FT.)

NOTE:
BOUNDARY AND LEGAL DESCRIPTION DERIVED FROM CRAWFORD, MURPHY & TILLY, INC. ALTA/ACSM LAND TITLE SURVEY, DATED OCTOBER 12, 2010 AND THE MAIN PLANT RCRA PART B FACILITY BOUNDARY PER THE MARCH 4, 2011 RCRA MAIN PLANT PERMIT.

Police Station Donation Parcel II Line Table

Line #	Length	Direction
L50	595.41'	N02° 41' 19"W
L51	84.05'	S87° 18' 50"W
L52	515.95'	S87° 18' 50"W
L53	688.58'	N00° 31' 55"E
L54	254.98'	N89° 46' 35"E
L55	36.32'	S02° 59' 38"E
L56	218.92'	S88° 59' 38"E
L57	626.13'	S03° 02' 32"E

KM Phoenix Holdings LLC Line Table

Line #	Length	Direction
L1	375.41'	N02° 11' 34"W
L2	375.56'	N87° 25' 28"W
L3	85.67'	S89° 38' 05"W
L4	536.04'	S87° 55' 17"W
L5	39.04'	S88° 35' 37"W
L6	42.87'	S02° 11' 23"W
L7	171.54'	S81° 19' 54"E
L8	309.34'	N89° 46' 53"E
L9	26.12'	N47° 11' 44"E
L10	157.19'	S41° 12' 30"E
L11	90.82'	S50° 44' 49"W
L12	447.19'	S41° 23' 46"E
L13	58.18'	S48° 18' 24"W
L14	11.02'	S02° 33' 01"W
L15	389.76'	S89° 57' 24"W
L16	18.34'	N00° 04' 26"W
L17	49.77'	N87° 29' 48"W
L18	96.06'	N17° 42' 17"W
L19	81.93'	S89° 57' 51"W
L20	16.52'	N00° 53' 03"E
L21	19.88'	N85° 26' 39"W
L22	90.09'	N92° 32' 56"E
L23	94.65'	N87° 00' 57"W

GRAPHIC SCALE: 1 IN. = 500 FT.

D&M DENOTES DEED AND MEASURED

MISCELLANEOUS NOTES:

1. SEE LEGAL DESCRIPTIONS ON SHEET 2
2. INGRESS/EGRESS EASEMENTS FOR THE BENEFIT OF DONATION PARCELS I AND II AS WELL AS KINDER MORGAN PHOENIX HOLDINGS, LLC NOT SHOWN. SEE RECORD DOCUMENTS FOR MORE INFORMATION.
3. BASIS OF MEASURED BEARINGS IS ILLINOIS STATE PLANE– WEST ZONE.
4. FIELD SURVEYS NOT COMPLETED FOR THE PREPARATION OF THIS EXHIBIT.
5. EXHIBIT PREPARED BASED ON PRIOR EXHIBITS, DATED 7/6/2011 AND REVISED 9/15/2011 AND 3/8/2012. THIS IS NOT A BOUNDARY SURVEY.
6. NO TITLE SEARCH AND/OR TITLE WORK/COMMITMENT WERE PROVIDED FOR THIS EXHIBIT WHICH MAY DISCLOSE EASEMENTS, RESERVATIONS, AGREEMENTS, RIGHT OF WAYS AND/OR OTHER SIMILAR MATTERS AND ENCUMBRANCES. SURVEYOR'S SEARCH OF PUBLIC RECORDS FOR THE PREPARATION OF THIS EXHIBIT DOES NOT CONSTITUTE A TITLE SEARCH AND/OR TITLE WORK/COMMITMENT.
7. THIS EXHIBIT DOES NOT CONFORM TO THE ILLINOIS MINIMUM STANDARDS FOR A BOUNDARY SURVEY.

Path: M:\Surveying\240071.00_BP\MP\Legal\DataCollection\Survey\240071.00_Survey.dwg
Date: Wednesday, July 17, 2024 4:08:15 PM

CMT

CONSULTANTS

MICHAEL E. MITZEUN 035-0629 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS SPRINGFIELD, ILLINOIS

EXPIRES 11/30/2024

I, THE UNDERSIGNED PROFESSIONAL ILLINOIS LAND SURVEYOR, DO HEREBY CERTIFY THAT THIS EXHIBIT HAS BEEN PREPARED UNDER MY SUPERVISION AND IS A TRUE REPRESENTATION OF PRIOR SURVEYS BY OTHERS.

Michael E. Mitzeun

MY LICENSE EXPIRES 11/30/2024

MADISON COUNTY
WOOD RIVER, ILLINOIS

MARK	DATE	DESCRIPTION

PROJECT NO: 240071.00
CAD DWG FILE: 240071.00_SURVEY.DWG
DESIGNED BY:
DRAWN BY: JRS
CHECKED BY: MEM
APPROVED BY: MEM
COPYRIGHT: CRAWFORD, MURPHY & TILLY, INC. 2018

SHEET TITLE

SHEET 1 OF 2

R000528

EXHIBIT: B.P. AMOCO MAIN PLANT AND KOREA TANK FARM WITH DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS

July 16, 2024

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 14 2024
REVIEWER: SAB

A TRACT OF LAND (MAIN PLANT)
Part of Sections 27, 28, 33 and 34 of Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois and being more particularly described as follows:

Commencing at the corner common to said Sections 27, 28, 33 and 34; thence westerly along the Section line between Sections 28 and 33 on an assumed bearing of North 88 degrees 21 minutes 31 seconds West a distance of 467.91 feet to the point of intersection with the northeasterly line of the 110 foot wide Illinois Terminal Railroad, said point also being the POINT OF BEGINNING of the parcel herein described; thence continuing North 88 degrees 21 minutes 31 seconds West along said section line between Sections 28 and 33 a distance of 37.56 feet to the point of intersection with the northeasterly line of the 75 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 75 foot wide Illinois Terminal Railroad a distance of 1,496.26 feet to the point of intersection with the northerly line of the South half of the Southeast Quarter of said Section 28; thence North 89 degrees 21 minutes 08 seconds West along said northerly line of the South half of the Southeast Quarter of Section 28 a distance of 26.65 feet to the point of intersection with the northeasterly line of the 50 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 50 foot wide Illinois Terminal Railroad, a distance of 1,397.11 feet to the point of intersection with the southeasterly line of the 60 foot wide Alton-St. Louis Road; thence North 51 degrees 41 minutes 18 seconds East along said southeasterly line of the 60 foot wide Alton-St. Louis Road a distance of 257.64 feet to a point; thence North 08 degrees 07 minutes 19 seconds East and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 110.97 feet to a point; thence North 01 degrees 43 minutes 06 seconds West and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 706.98 feet to a point; thence North 06 degrees 30 minutes 37 seconds East and continuing along said easterly line of the 60 foot wide Alton-St. Louis Road a distance of 175.81 feet to a point; thence North 13 degrees 21 minutes 11 seconds East and continuing along the easterly line of the transitional width Alton-St. Louis Road, wherein the width of said Alton-St. Louis Road transitions from 60 feet wide to 66 feet wide, a distance of 50.36 feet to a point in the easterly line of the 66 foot wide Alton-St. Louis Road; thence North 06 degrees 30 minutes 37 seconds East along the easterly line ofthe 66 foot wide Alton-St. Louis Road a distance of 102.97 feet to a point in the southeasterly line of F.A. Route 789, marked Illinois Route 143 and Madison Avenue; thence North 18 degrees 28 minutes 37 seconds East along said southeasterly line of F.A. Route 789 a distance of 72.16 feet to a point; thence North 54 degrees 30 minutes 50 seconds East and continuing along said southeasterly line of F.A. Route 789 a distance of 48.71 feet to a point; thence North 74 degrees 14 minutes 40 seconds East along said southeasterly line of F.A. Route 789 a distance of 45.06 feet to a point in the southerly line of said F.A. Route 789, said point also being 60.00 feet southerly of the northerly line of the Southeast Quarter of the Northeast Quarter of said Section 28; thence North 89 degrees 25 minutes 05 seconds East along said southerly line of F.A. Route 789, said southerly line of F.A. Route 789 being 60.00 feet southerly of and parallel to said northerly line of the Southeast Quarter of the Northeast Quarter of Section 28, a distance of 1,105.01 feet to a point; thence South 88 degrees 13 minutes 21 seconds East and continuing along said southerly line of F.A. Route 789, said continuation of the southerly line of F.A. Route 789 being 60.00 feet southerly of the northerly line of the Southwest Quarter of the Northwest Quarter of said Section 27 and the Southeast Quarter of the Northwest Quarter of said Section 27, a distance of 2,410.77 feet to a point; thence South 73 degrees 53 minutes 06 seconds East and continuing along the southerly and southwesterly line of F.A. Route 789 a distance of 103.38 feet to a point, thence South 84 degrees 54 minutes 03 seconds East and continuing along said southwesterly line of F.A.. Route 789 a distance of 100.13 feet to a point; thence South 33 degrees 47 minutes 40 seconds East and continuing along said southwesterly line of F.A. Route 789 a distance of 83.60 feet to the point of intersection with the westerly line of the 60 foot wide Sixth Street, also known as the Alton-Edwardsville Road, said point also being 60.00 feet westerly of the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27; thence South 00 degrees 41 minutes 06 seconds East along said westerly line of the 60 foot wide Alton- Edwardsville Road, said westerly line of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27, a distance of 1,245.87 feet to a point; thence South 00 degrees 11 minutes 08 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road, said continuation of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the Southwest Quarter of said Section 27, a distance of 560.42 feet to a point; thence South 89 degrees 48 minutes 52 seconds West a distance of 453.48 feet to a point; thence South 00 degrees 02 minutes 23 seconds East a distance of 233.93 feet to a point; thence South 00 degrees 00 minutes 18 seconds East a distance of 67.40 feet to a point; thence South 89 degrees 37 minutes 43 seconds West a distance of 336.16 feet to a point; thence South 00 degrees 11 minutes 35 seconds East a distance of 60.00 feet to a point; thence South 00 degrees 37 minutes 43 seconds East a distance of 1,879.00 feet to the point of intersection with the northerly line of the Northwest Quarter of the aforesaid Section 34; thence South 87 degrees 51 minutes 07 seconds East along said northerly line of the Northwest Quarter of Section 34 a distance of 836.60 feet to the northeasterly corner of said Northwest Quarter, said point also being the northwesterly corner of the Northeast quarter of the aforesaid Section 34; thence South 88 degrees 07 minutes 52 seconds East along the northerly line of said Northeast Quarter of Section 34 a distance of 564.42 feet to the point of intersection with the westerly line of the aforesaid 60 foot wide Alton Edwardsville Road; thence South 37 degrees 41 minutes 28 seconds East along said Westerly line of the 60 foot Alton-Edwardsville Road a distance of 50.36 feet to a point; thence South 39 degrees 12 minutes 17 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 1,034.23 feet to a point; thence South 18 degrees 18 minutes 01 seconds East and continuing along said westerly line of the 60 foot wide Alton- Edwardsville Road a distance of 917.06 feet to a point; thence South 34 degrees 37 minutes 23 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 388.26 feet to the point of intersection with the northwesterly line of F.A. Route 132, marked Illinois Route 111; thence South 55 degrees 22 minutes 37 seconds West along said northwesterly line of F.A. Route 132 a distance of 30.00 feet to a point; thence South 34 degrees 37 minutes 23 seconds East along the southwesterly line of said F.A. Route 132 a distance of 212.48 feet to a point; thence South 01 degree 56 minutes 50 seconds West and continuing along said southwesterly line of F.A. Route 132 a distance of 275.69 feet to a point; thence South 30 degrees 41 minutes 10 seconds East and continuing along said southwesterly line of F.A. Route 132 a distance of 276.16 feet to the point of intersection with the northerly line of the 60 foot wide Illinois Terminal Railroad; thence North 88 degrees 02 minutes 23 seconds West along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 1,973.48 feet to a point; thence North 88 degrees 12 minutes 30 seconds West and continuing along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 890.71 feet to the point of curvature of the northerly and northeasterly line of the variable width Illinois Terminal Railroad; thence continuing along said northerly and northeasterly line of the variable width Illinois Terminal Railroad to the point of tangency with the aforesaid northeasterly line of the 110 foot wide Illinois Terminal Railroad, said northerly and northeasterly line of the variable width Illinois Terminal Railroad being a curve to the right having a radius of 1,910.00 feet and an arc length of 2,286.34 feet; thence North 19 degrees 37 minutes 23 seconds West and continuing along sad northeasterly line of the 110 foot wide Illinois Terminal Railroad a distance of 1,598.81 feet to the POINT OF BEGINNING, containing 560.40 acres or 24,410,816 square feet.

ALSO A TRACT OF LAND (THE KOREA TANK FARM)
Part of the Southeast Quarter of Section 28 of Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois and being more particularly described as follows:

Beginning at the intersection of the south line of the Northwest Quarter of the Southeast Quarter of said Section 28 with the existing easterly right of way line of U.S. Route 67 (Old St. Louis & Alton Road); thence North 22 degrees 00 minutes 39 seconds West, along said existing easterly right of way line, a distance of 552.69 feet to a southeasterly line of a tract of land as described in Deed Book 3092, Page 2096 of Madison County Records; thence North 47 degrees 13 minutes 21 seconds East, along said southeasterly line, a distance of 255.43 feet; thence North 28 degrees 08 minutes 21 seconds East, continuing along a southeasterly line of said Deed Book 3092, Page 2096 and along the southeasterly line of a tract of land as described in deed Book 321, Page 2101 of Madison County Records, a distance of 199.86 feet; thence North 68 degrees 22 minutes 12 seconds East, 146.49 feet to the existing southwesterly right of way line of the Illinois Terminal Railroad; thence South 21 degrees 37 minutes 48 seconds East, along said existing southwesterly right of way line, a distance of 860.00 feet to a northwesterly line of a tract of land as described in Deed Book 3043, Page 2195 of Madison County Records; thence South 61 degrees 06 minutes 11 seconds West, along said northwesterly line, a distance of 225.34 feet to a northerly line of said tract, being the south line of the Northwest Quarter of the Southeast Quarter of said Section 28; thence South 88 degrees 39 minutes 00 seconds West, along said south line, a distance of 330.59 feet to the POINT OF BEGINNING, containing 9.26 acres or 403,429 sq. ft.

EXCEPTION #1 (BP DONATION PARCEL I-STORM WATER DETENTION BASIN)
Tract of land from Ground Surface to Elevation 418.00 MSL situated in the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

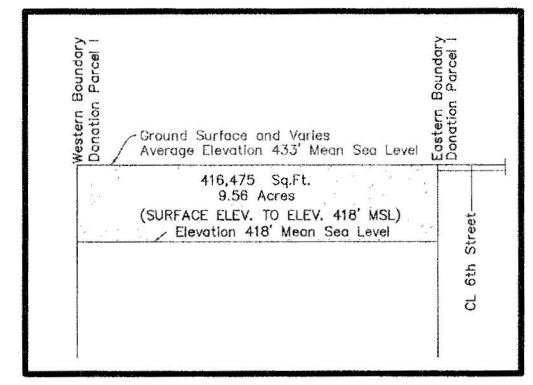
Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the POINT OF BEGINNING; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East, 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the POINT OF BEGINNING, containing 9.56 acres or 416,475 square feet.

EXCEPTION #2 (BP DONATION PARCEL II -POLICE STATION)
Tract of land from Ground Surface to Elevation 428.00 MSL situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

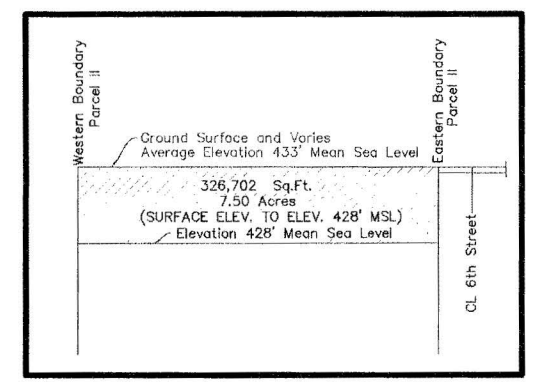
Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way lane of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 19 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the POINT OF BEGINNING of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the POINT OF BEGINNING, containing 326,702 square feet or 7.50 acres, more or less.

EXCEPTION #3 (KM PHOENIX HOLDINGS LLC)
A tract of land from Ground Surface to elevation 408 MSL, also part of the Southwest Quarter of Section 27 and part of the North half of Section 34, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River and Village of Hartford, Madison County, Illinois, described as follows:

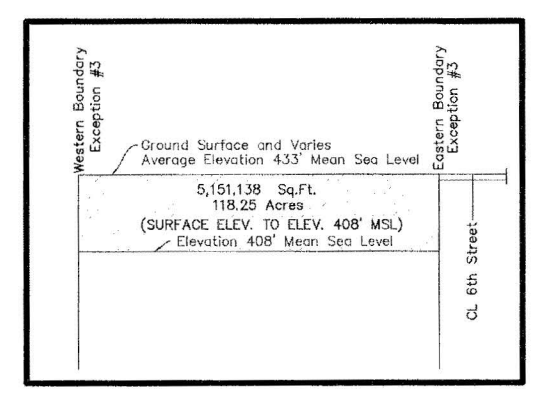
Commencing at the center of said Section 34, thence North 02 degrees 11 minutes 34 seconds West, along the east line of the Northwest Quarter of said Section 34, 375.41 feet to the POINT OF BEGINNING; thence North 87 degrees 25 minutes 28 seconds West, 375.56 feet; thence South 89 degrees 38 minutes 05 seconds West, 85.67 feet; thence South 87 degrees 55 minutes 17 seconds West, 536.04 feet; thence South 88 degrees 35 minutes 37 seconds West, 39.04 feet; thence South 89 degrees 06 minutes 31 seconds West, 306.89 feet; thence North 84 degrees 30 minutes 36 seconds West, 91.24 feet; thence North 01 degree 08 minutes 40 seconds West, 1907.54 feet; thence North 01 degree 43 minutes 44 seconds east, 180.84 feet; thence North 02 degrees 02 minutes 04 seconds West, 31.24 feet; thence North 08 degrees 09 minutes 12 seconds West, 193.17 feet; thence North 23 degrees 51 minutes 46 seconds West, 125.59 feet; thence North 88 degrees 23 minutes 04 seconds east, 361.38 feet; thence North 00 degrees 59 minutes 21 seconds West, 334.93 feet; thence North 89 degrees 00 minutes 24 seconds east, 244.24 feet to the Westerly line of a tract of land as described in book 1989 on page 183 of the Madison county records; thence South 02 degrees 37 minutes 56 seconds east, along said Westerly line, 362.67 feet to the Southwest corner of said tract of land as described in book 1989 on page 183; thence South 89 degrees 51 minutes 20 seconds east, along the South line of said tract of land and the North line of section 34, township 5 North, range 9 West of the third principal meridian, 836.60 feet; thence North 89 degrees 51 minutes 55 seconds east, along said North line of section 34, 179.06 feet; thence South 02 degrees 11 minutes 23 seconds West, 42.87 feet; thence South 61 degrees 19 minutes 54 seconds east, 171.54 feet; thence North 89 degrees 46 minutes 53 seconds east, 309.34 feet, thence North 47 degrees 11 minutes 44 seconds east, 26.12 feet to the Southwesterly right of way of sixth street (old Alton Edwardsville road); thence South 41 degrees 12 minutes 30 seconds east, along said right of way, 157.19 feet; thence South 50 degrees 44 minutes 49 seconds West, 90.82 feet; thence South 41 degrees 23 minutes 46 seconds east, 447.19 feet; thence South 48 degrees 16 minutes 24 seconds West, 58.18 feet; thence South 02 degrees 33 minutes 01 second West, 11.02 feet; thence South 85 degrees 44 minutes 52 seconds West, 265.31 feet; thence South 08 degrees 22 minutes 18 seconds West, 65.76 feet; thence South 01 degree 00 minutes 37 seconds east, 1774.61 feet; thence South 26 degrees 32 minutes 14 seconds east, 121.77 feet; thence South 89 degrees 57 minutes 24 seconds West, 389.76 feet; thence North 00 degrees 04 minutes 26 seconds West, 18.34 feet; thence North 87 degrees 29 minutes 48 seconds West, 49.77 feet; thence North 17 degrees 42 minutes 17 seconds West, 96.06 feet; thence South 89 degrees 57 minutes 51 seconds West, 81.93 feet; thence North 00 degrees 53 minutes 03 seconds east, 16.52 feet; thence North 85 degrees 26 minutes 39 seconds West, 19.88 feet; thence North 02 degrees 32 minutes 56 seconds east, 90.09 feet; thence North 87 degrees 00 minutes 57 seconds West, 94.65 feet to the POINT OF BEGINNING, containing 5,151,138 square feet or 118.25 acres more or less.



VERTICAL VIEW OF EXCEPTION #1
STORMWATER DETENTION BASIN
DONATION PARCEL I
NOT TO SCALE



VERTICAL VIEW OF EXCEPTION #2
POLICE STATION
DONATION PARCEL II
NOT TO SCALE



VERTICAL VIEW OF EXCEPTION #3
KM PHOENIX HOLDINGS LLC
NOT TO SCALE

CMT

CONSULTANTS

MADISON COUNTY
WOOD RIVER, ILLINOIS

MARK	DATE	DESCRIPTION

PROJECT NO: 24007135.00
CAD DWG FILE: 24007135.00_SURVEY.DWG
DESIGNED BY:
DRAWN BY: JRS
CHECKED BY: MEM
APPROVED BY: MEM
COPYRIGHT: CRAWFORD, MURPHY & TILLY, INC. 2018

SHEET TITLE

SHEET 2 OF 2

Path: M:\Sovereign\24007135-00_BPMPLegal\DataCollection\Survey\24007135.00_Survey.dwg
Date: Wednesday, July 17, 2024 2:25:10 PM

REVISION DATE: 07/29/2024

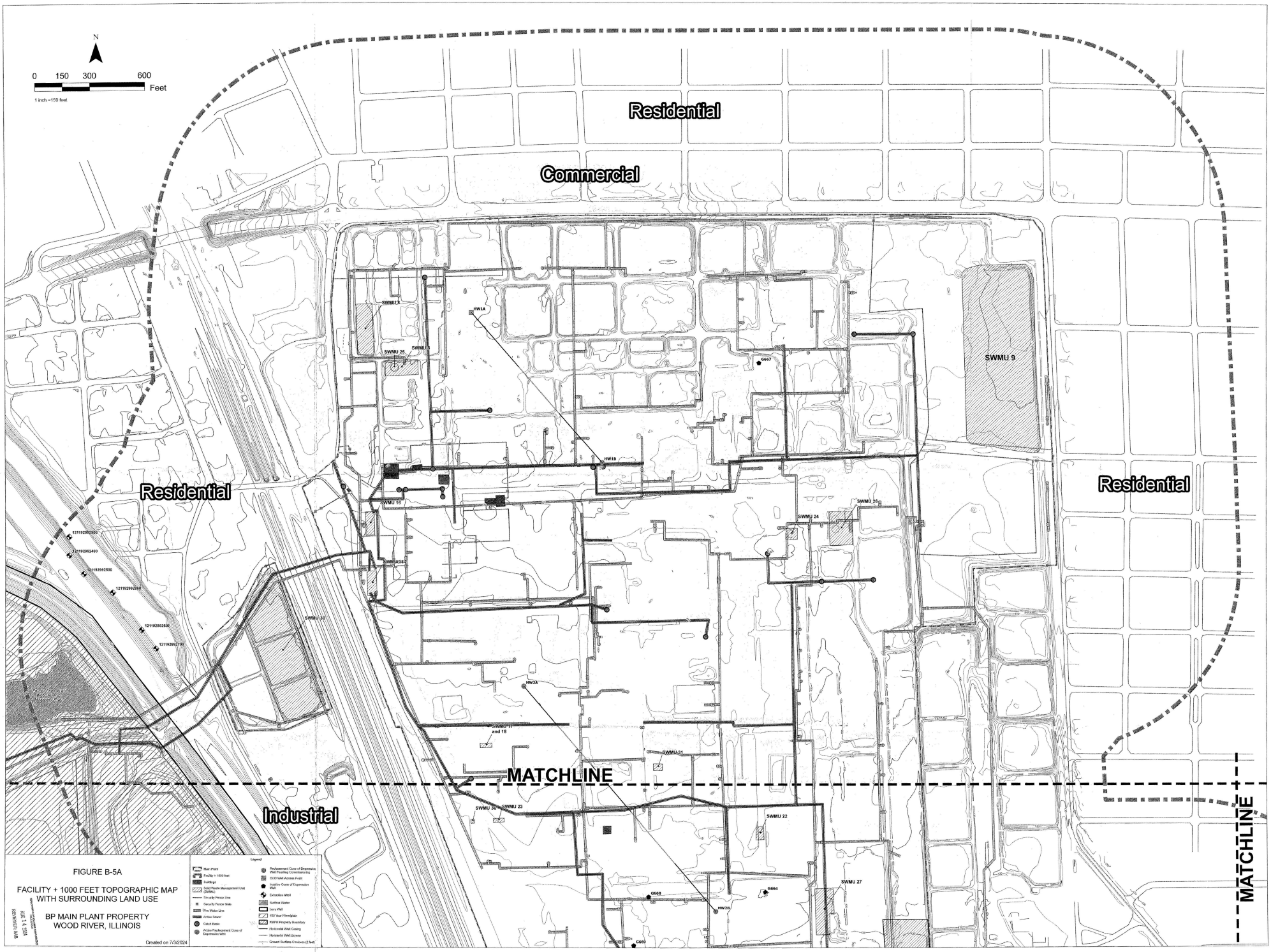


FIGURE B-5A

FACILITY + 1000 FEET TOPOGRAPHIC MAP WITH SURROUNDING LAND USE

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

Created on 7/3/2024

R000530

REVISION DATE: 07/29/2024



FIGURE B-5B

FACILITY + 1000 FEET TOPOGRAPHIC MAP WITH SURROUNDING LAND USE

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

Created on 7/3/2024

R000531

REVISION DATE: 07/29/2024



FIGURE B-5C

FACILITY + 1000 FEET TOPOGRAPHIC MAP WITH SURROUNDING LAND USE

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

Created on 7/3/2024

DOCUMENT 2

Agenda

USEPA-Illinois EPA Corrective Action - Quarterly Call

January 13, 2020

2:00 – 3:00 pm

Please use the following conference call line for this call – **1-202-991-0477; Code: 6835751**

- Introductions
    - Greg Rudloff, Acting Section Chief - Corrective Action Section 3
- Action Items from 9-23-19 Conference Call
    - Beyond 2020 baseline call with Molly
- FY20 Goals and Accomplishments as of 1-7-20:
    - EPA FY20 goals need to be updated; table reflects the current totals in R5 CA database
    - EPA Goals:

Milestone	Completed	Pending
CA550 Remedy Construction	0	33
CA725 Human Exposures Controlled Determination	0	3
CA750 Release to GW Controlled Determination	0	5
CA800 Ready for Anticipated Use Determination	0	1
CA900/999 CA Process Terminate	0	36

    - IEPA Goals:

Milestone	Completed	Pending
CA550 Remedy Construction	0	1
CA725 Human Exposures Controlled Determination	0	1
CA750 Release to GW Controlled Determination	0	1
CA800 Ready for Anticipated Use Determination	0	1
CA900/999 CA Process Terminate	0	1

- Information Sharing
    - CA2020 Tracking Spreadsheet
- Other Topics
    - LCRD Division Director, Ed Nam - A3 Project

DOCUMENT 3

From:	Watson, Rob
To:	Crites, Mark; Halteman, Takako; Huser, Kelly; Kanteti, Vineeth; Lesko, Kevin; Sinnott, Bill
Cc:	Smith, Kenn; Summers, Michael
Subject:	USEPA A3 Project
Date:	Monday, March 2, 2020 2:52:34 PM
Attachments:	DRAFT Copy of IEPA CA2020 Tracking Data A3 Project 200219.xlsx USEPA A3 Project Description 191218.docx
Importance:	High

All,

USEPA Region V has asked Illinois EPA to assist them on a project to evaluate the current status of CA2020 Sites where a remedy has been constructed. This is sort of a pilot project that only IEPA is participating in at this point. USEPA may decide to apply it to other States within Reg V, or even nationally.

I have attached USEPA's project description and the revised CA2020 spreadsheet (see new A3 tab at bottom) used to track our progress on this project. These documents and others pertaining to the A3 Project can also be found in my Staging Area: **WATSON / USEPA CA2020 / A3 PROJECT**

Project Description:

1. Identify the CA2020 sites where a remedy has been constructed (e.g. those with a CA550 code in RCRA Info). There are 104 in IL. IEPA is responsible for CA at 90 of them.
2. Determine which ones have one or more of the contaminants of concern (PFAS, lead, arsenic, TCE, or PCE) in either soil or groundwater, and
3. Review 25% of those sites by end of FFY20 (9/30/2020) to determine if additional action is required.

Work Required by IEPA

- The CA2020 spreadsheet was filtered for sites with a CA550 code. **90 sites** were identified for IEPA to evaluate.
- Identify the CA550 sites with contaminants of concern (in either soil or groundwater). USEPA has asked us to **identify at least 22 sites by the end of May 2020**.
- Perform a 'deep dive' on at least 25% of that subset of CA550 sites using USEPA screening tool (yet to be provided) to determine if additional action is required at a site. It is anticipated that the GPSI will assist in the performance of this work.

Note: I have already identified several CA550 sites where one or more contaminants of concern exist.

We will discuss this project further in our unit meeting tomorrow 3/3/2020 and sites will be divided up between reviewers to evaluate.

Thank you,

Rob Watson, P.E.
RCRA Unit Manager
Permit Section, Bureau of Land
Illinois EPA
217.524.3265
Rob.Watson@illinois.gov

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A3	Project Name: Assessment of continued protectiveness of RCRA site final remedies in Illinois	Program: Region 5, Land, Chemicals, and Redevelopment Division (LCRD)	Report Date:

BOX 1: PROJECT DEFINITION

1a. Problem Statement:
In the past 12 years, the RCRA Corrective Action (CA) program has partnered with the Region 5 states to address 861 facilities that have RCRA CA obligations. In the state of Illinois, 104 of 152 high priority sites have had a remedy selected and implemented. Of those sites, institutional controls and engineering controls have been used to achieve remedy implementation and protectiveness of human health. The program has emphasized completion of the remedy for CA sites and the sites with ICs and ECs have not been reconsidered in light of new lower health levels of concern and new toxicity.

1b. Goal:
Identify the universe of sites with remedies in place that still contain TCE, PCE, lead, arsenic or PFAS and review 25% of those sites in IL by September 30, 2020 to determine if additional action is required

1c. Scope:
Address the 104 sites known to be post remedy as of October 1, 2019. Beginning with 104 sites, determine which sites have one of the 5 contaminants named above. The sites in this subset will be reviewed to determine if contamination was left in place after the remedy was constructed. Twenty five percent of the subset will be reviewed to determine if unacceptable risk remains at the site.

1d. Approval:_____
Henry Darwin, Chief Operations Officer

BOX 2: ANALYSIS

What is the relevant data that shows there is a problem?
In 2007, the RCRA program identified over 860 sites in Region 5 that had been ranked and determined to present a high to medium likelihood of hazardous waste on site. The number of sites in Illinois was 152 and the work to investigate and remediate those sites has been going on for over 10 years. In other Region 5 states, the states themselves have conducted initiatives on all appropriate RCRA sites to determine if certain chemicals and contaminants exist in unsafe levels, regardless of having a final remedy or not. In a number of cases, states like MI and OH have initiated programs that review all sites where a remedy was completed to determine if TCE, PCE, Lead, and PFAS at unacceptable levels remain on the sites. There has not been any such effort in IL to date.

What problem solving tools were used to get to the root causes of the problem?
Data will be reviewed initially for the federal portion of 104 sites in IL with CA550 (Final Remedy Constructed). The federal lead sites will be researched using RCRAInfo and the LCRD in-house project database and those with one of the following contaminants will be highlighted for additional review: PFAS/PFOA; TCE; PCE; lead; arsenic. The state lead sites will be reviewed using the same approach and state databases; sites of interest will be sent to the states for review to determine if additional work was done at these sites; the site list will also be shared with the SF program to check CERCLIS for any additional information on past activities at the sites.
Other tools that will be employed in the reviews include GIS, State databases, deed files and monitoring records stored at EPA and at the IL EPA offices.

BOX 3: IMPROVEMENT ACTION REGISTRY

#	Assigned Date	Action to be Taken	Action Owner	Due Date	Percent Complete	Completed Date

BOX 4: RESULTS

What are your key metrics with baseline and target?
The initial baseline to be reviewed is 12 out of 26 federal lead sites where a remedy has been constructed. The remaining 92 state lead sites will be reviewed in cooperation with the IL EPA. The target for FY20 will be a completed assessment of the continued protectiveness of the remedy at (25%) of the sites with constructed remedies that are contaminated with one of 5 contaminants of concern.

BOX 5: STANDARD PROCESS & VISUAL MANAGEMENT

Describe and post a photograph of your standard process, flow board, and performance board or describe how improvements will be maintained.
I will track progress using an "Illinois Post-Remedy Protectiveness Assessment" time series graphic that will track upward progress toward evaluating all 104 post-remedy sites in Illinois. The y-axis will be labeled to show the number of assessments completed and the x-axis will show time from October 1, 2019 to September 30, 2020. Data will be updated every month, and goals will be clearly shown with a line corresponding to the number of assessments required each month/quarter? A similar graphic will be used for the subset of sites that have one of the five contaminants of interest left in place after they are all identified.

Name:	Role:
Edward Nam	Executive Sponsor
Joe Cisneros	Process Owner
Mike Beedle	Project Lead
Brandon Pursel	Coach

BOX 7: ISSUES

BOX 8: PROJECT MANAGEMENT

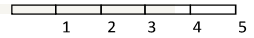
Day and time for regular update meeting:

Regular updates due to project lead by:
End of 2nd, 3rd, & 4th quarters

External Cost for this project (if any): No more than $50,000 will be needed to assess a total of 5 sites.

BOX 9: PROGRESS

Project Start Date: 1/1/2020



Estimated Project Completed Date: September 30, 2020

BOX 10: SIGNATURE

Executive Sponsor's Signature: _____

R000538

A3 Project - CA2020 Sites in Illinois

CA2020 GPRA Universe (IL)	EPA ID #	IEPA ID #	Prog	CA550	CA800	CA900	CA999	Comments	PFAS Y/N/ Potential	Lead Y/N	Arsenic Y/N	TCE PCE Y/N	Offsite Y/N/ Unknown
Escast Inc	ILD000672139	0430050011		6/16/2015	5/18/2018	7/14/2015		aka: Fansteel; IEPA/JKM completed CA550 & CA900CR					
Keystone Steel & Wire Co	ILD000714881	1430050001	Order	7/31/2006	6/13/2017			aka: Liberty Steel & Wire		y		Y	N
Solutia Inc Wg Krummrich Plant	ILD000802702	1631210006	3008(h)										
Beazer East Inc	ILD000819946	0778010002											
Rockford Power Machinery	ILD001756675	2010305136						CA210SF: 9/29/1995 ?				Y	N
Woodward Aircraft Engine Sys	ILD005069380	2010300039		2/1/1990	9/22/2016	10/2/2018		CA550RC, CA900NC; aka Woodward Governor				Y	N
GMC Powertrain Div	ILD005141551	1838040030	RACER					RACER Site #12330		Y			
KIK Custom Products Inc	ILD005141726	1838040031	3008(H)					aka: CCL Custom Mfg.			Y	Y	N
Techalloy, Inc	ILD005178975	1110900003	3008(h)	8/27/2002	2/8/2018			aka: Central Wire in RCRA Info				Y	Y
Aubrey Mfg Inc	ILD005238159	1110905002		11/25/2015	11/25/2015	11/25/2015		CA550NR, CA900CR, CA800YE				Y	N
Signode	ILD005444781	0310275006											
Sherwin Williams Co	ILD005456439	0316500003	nsent Dec	9/7/2012	8/23/2012	12/11/2014		CA900CR		Y		Y	
Bradford Industries Inc	ILD005546981	1750055001											
Dana Companies Llc	ILD006114169	2010400010		6/17/2014	6/5/2019			aka: Warner Electric				Y	y
Olin Corp	ILD006271696	1190200002	Permit							Y			
Sparton Engineered Prod	ILD006304489	0250100007											
Hamilton Sunstrand	ILD010219665	2010300048											
Outboard Marine Corp Galesburg	ILD030550362	0950200008										Y'	
Ashland Performance Materials	ILD043369446	0310390004		**11/9/2016**	2/8/2018			CA550RC				N	N
Us Ecology Inc	ILD045063450	0110950003	3008(h)	8/7/2000	9/24/2014			IEPA issued Post-Closure Permit defers to 3008(h) order				Y	N
3M Company	ILD054236443	1610150001		5/21/2007	1/29/1999		1/29/1999	CA550NR	Y				N
Flint Hills Resources Chem Intermediates	ILD087154555	0990850005	3008(H)					aka: Huntsman Polymers		Y			
Evonik Goldschmidt Corp	ILD095792859	1438050006										Y	
Nexeo Solutions LLC	ILD980700538	0313270001						aka: Ashland Chemical / Willow Springs				y	y
Varley Products Co	ILD982635534	1110155003		9/27/2007	12/19/2001		12/19/2001	CA550NR, CA999NF					
Lake Shore Foundry	ILR000111591	0971905260	Order	7/11/2017	3/5/2019					Y			N
J and M Plating Inc	ILD990783995	2010300050		9/25/2015		9/25/2015		CA550RC, CA900CR, CA210SF: 9/29/1995 **NFR:** 11/1/11, 1.6 ac					
21St Century Env Man Inc Of Illinois	ILD981531643	1190400016	Permit	9/29/2009	9/30/2010		7/21/2015	CA550NR, CA999NF, Permit exp 11/4/02. (B-133) Never built					
Abbott Laboratories	ILD055409940	0971250004	Permit	6/2/1999	9/12/2019		6/2/1999	CA999RM Permit terminated 6/2/99 (B-32)					
Airtex Products	ILD001662816	1918080002		3/21/2007		7/15/2015		CA550NR, CA900NC					
Akzo Nobel Surface Chemistry	ILD065237851	0630600004	Permit										
Alberto Culver Co	ILD005071378	0311865015	SRP	6/3/2015	5/18/2018	8/14/2015		CA900CR; **NFR:** 12/31/14, 10/4/19 aka 2525 Armitage Holdings					
Alcatel-Lucent USA Inc	ILD068608314	0438050004	Permit	8/19/1997	5/18/2018		8/19/1997	aka Bell Labs; permit terminated 2/9/00 (B-107)					
All Steel Inc	ILD000716886	0890050021	SRP	9/13/2013				(11/26/18 CORE memo)					
Alliant Techsystems Inc	IL0210090049	1971105024	Permit	3/31/2011	5/3/2018		7/21/2015	CA550NR, CA999NF,CA210SF: 5/26/95; pmt term 2/28/01 (B-16)					
Allied Tube & Conduit Corp	ILD057863847	0311110005	Permit	9/29/2009	9/30/2010		5/20/1997	CA999NF; permit terminated 5/20/97 (B-14)					
Allrite Sheet Metal	ILD984811539	0310965228		1/22/2015		8/13/2015		CA900NC					
Alton Steel Inc	ILD006280606	1190100004	Permit										
American Nickeloid Co	ILD005072517	0990850007		8/28/2012	5/3/2018	9/3/2015		CA550NR, CA900NC					
American Waste Processing Ltd	ILD000716894	0311830002	Permit	6/12/2003	5/18/2018		3/15/2006	CA999RM; pmt term 3/15/06 (B-158)					
Apex Material Technologies LLC	ILD062480850	1970250002	Permit					aka Phibro Tech					
ArcelorMittal Hennepin Inc	ILD000781591	1550105001	Permit	5/3/2018				aka: ISG Hennepin, aka: J & L Steel					
Argonne National Laboratory	IL3890008946	0438020002	Permit	3/29/2006									
Arnold Magnetic Technologies	ILD005163803	1110650003	SRP										
Beaver Oil Co Inc	ILD064418353	0311260001	Permit	9/29/2009	9/30/2010		11/30/1994	CA550NR					
Best Blast Corp	ILD035755719	0894075833		5/24/2017				CA550RC					
BFI Davis Junction	ILD980700751	1418210001	Permit	9/17/1996	9/17/1996		9/17/1996						
Bouziane Plating & Metal Finishing	ILD980617443	2010300058		6/9/2010	5/22/2018	9/2/2015		CA900NC; earlier CA800 9/30/2010					
Bp Naperville Complex	ILD076877877	0438050003	Permit	6/30/2009	9/30/2010		5/21/2007	CA999NF; permit terminated 5/21/07 (B-112)					
Bp Products North America Inc	ILD980700967	1191150001	Permit					BP Amoco Main Plant					
Bp Products North America Inc	ILD980503106	1191155009	Permit					BP Amoco Riverfront Property					

R000539

A3 Project - CA2020 Sites in Illinois

CA2020 GPRA Universe (IL)	EPA ID #	IEPA ID #	Prog	CA550	CA800	CA900	CA999	Comments	PFAS Y/N/ Potential	Lead Y/N	Arsenic Y/N	TCE PCE Y/N	Offsite Y/N/ Unknown
Bridgestone Firestone Inc	ILD005199013	1150150025	SRP	1/14/2015		8/14/2015		CA900CR; **NFRs:** 10/8/14 South Area; 10/8/14 North Area					
Brighton Landfill 2	ILD000667139	1178020003	Order	5/3/2013		9/30/2015		CA900CR					
Cabot Corp	ILD042075333	0418080001	Permit	12/31/1996	5/22/2018								
Caterpillar Inc	ILD052664604	1790200019	SRP					**NFRs:** 12/21/15 Bldg BB, 10/24/13 HH area, 10/23/13 FA area				Y	U
Centerpoint Properties	ILD079751319	0310960003	SRP	3/28/2014		8/13/2015		aka: Motorola Inc CA900CR; **NFR:** 8/11/16, 13.425 acres					
Century Environmental Resources	ILD099215303	0310030002	Permit	9/29/2009	9/30/2010	7/22/2015		CA900CR aka: AETS LLC,					
Chanute Air Force Base	IL1570024157	0198170001	CERCLA										
Chevron Environmental Mgmt Co	ILD041518861	1970500012	Permit										
Chicago Specialties LLC	ILD981091291	0316495004	SRP	9/5/2013				**NFR:** 7/24/13					
CID Recycling & Disposal Fac	ILD010284248	0310390001	Permit	10/29/1997									
Citgo Lemont Refinery	ILD041550567	1978030004	Permit										
Clayton Chemical Co	ILD066918327	1631210004	Abandon					IEPA Inventory Name: Resource Recovery					
Clean Harbors - CWM	ILD000672121	0316000058	Duplicate					Part of Clean Harbors SVC ILD000608471					
Clean Harbors Pecatonica LLC	ILD980502744	2018000002	Permit	8/10/1998									
Clean Harbors Rsc LLC	ILD005450697	0316000053	Permit	6/30/2009	9/30/2010	7/22/2015		CA900CR					
Clean Harbors Svcs Inc	ILD000608471	0316000051	Permit					Includes Clean Harbors-CWM ILD000672121					
Dana Corp Sealing Products Div	ILD047074661	0338080007	SRP	9/11/2013				**NFR:** 1/11/19, 10.98 acres					
Detrex Corp Solvent & Env Svc	ILD074424938	0311860003	Permit	5/24/2017				aka Trexx Properties					
Dover Industrial Chrome Inc	ILD005125588	0316060002		2/20/2015		9/15/2015		CA900CR					
Dow Chemical Company	ILD093154599	1978000005	Permit	6/30/2009	9/30/2010		7/21/2015	CA999RM, Permit terminated 11/26/01 (B-123)					
Dyno Nobel Inc	ILD982624777	1818995004	Permit					Same site as Ensign-Bickford (ILD980700710)					
E Z Trail Inc	ILD049136484	0414045003		8/28/2012	5/18/2018	8/13/2015		CA900NC					
East Bay Camp	ILD984806323	1138210002		6/9/2010	9/30/2010								
East Peoria Cleaners	ILD025746330	1790205015		3/31/2011	5/22/2018	7/30/2015		CA900CR					
Ensign-Bickford Co	ILD980700710	1818020002	Duplicate					Same site as Dyno Nobel (ILD982624777)					
Envirite Of Illinois Inc	ILD000666206	0311110001	Permit	6/30/2009		7/21/2015		CA900NC					
Equilon DBA Shell Oil Products	ILD080012305	1191150002	Permit	5/25/2016				CA550RC aka: Wood River Refining					
Equistar Chemicals LP (Morris)	ILD048296180	0630600005	Permit	8/28/2012	5/22/2018	7/21/2015		CA550NR, CA900CR					
Equistar Chemicals-Tuscola	ILD005078126	0418080002	Permit					**NFR:** 6/16/14; 1.4 acres, Still active in SRP					
Estes Industrial Center	ILD000810507	1090350004		6/9/2010	5/3/2018	9/9/2015		CA900CR; SRP: Comprehensive NFR issued 9/29/97					
Fagerdala USA	ILD006536239	0990550005		2/7/2003	5/18/2018	9/22/2013		CA900CR aka: Motor Wheel Corp., **SRP terminated on 11/1/12**					
Fermilab	IL6890030046	0890105010	Permit	5/21/2007									
Fluorecycle Inc	ILR000049833	0974550001	Permit	9/29/2009	9/30/2010	7/21/2015		CA550NR, CA900NC					
FMC Corp	ILD005472881	1750205001	SRP										
Former Northwestern Steel & Wire	ILD005263157	1950500007	Bankrupt				10/1/1999	aka: Sterling Steel ILR000115675 Enrolled in SRP					
GE Appliance Controls	ILD005272992	1950350003						aka: GE CEP					
General Dynamics - Area 13	IL8143609487	1998620013	Permit	3/31/2011	5/18/2018	7/21/2015		CA900NC, No CA req'd by permit.					
General Dynamics-OTS	ILD000802801	1998620011	Permit					RFI Necessary					
General Electric Co Morris Operations	ILD062338694	0630600008		6/30/2009	9/30/2010	7/15/2015		CA900NC					
General Instrument Co	ILD000672204	0971150001	SRP	5/15/1997	5/18/2018		9/25/2007	CA999RM **NFR:** 5/15/97					
Glenview Caretaker Site Office	IL3170022930	0311025007	CERCLA	5/3/2018									
Greenfield Env Multistate Trust	ILD020367561	1190650001	Permit	5/22/2007				aka: Tronox, Kerr McGee					
Hentzen Coatings Inc	ILD095309647	0890100007		8/21/2015		7/15/2016		CA550RC, CA900NC					
Heritage Environmental Svc	ILD085349264	0311620007	Permit	9/13/2004			9/13/2004	CA999RM Permit terminated 9/21/04 (B-128)					
Honeywell (formerly) BBI	ILD051937068	0316000037		5/3/2018				aka: Baron Blakeslee					
Honeywell Int Inc Plant 4 (Freeport)	ILD001899772	1770200013	Permit	9/19/1995	5/18/2018		1/19/1995	permit terminated 2/14/96 (B-106)					
Honeywell International Inc (Danville)	ILD005463344	1838040027	SRP					**NFR:** 9/6/16, SWMU #4 and #9.					
Honeywell Intl Inc., Metropolis	ILD006278170	1278540002	Permit										
International Paper	ILD005236468	1430650016		9/11/2013				**SRP Terminated on 10/29/13**					
Leisch, Judith	ILR000007203	1830200076		9/27/2007				aka: Illiana Heat Treating Inc CA550NR					
Laraway Recycling & Disp	ILD074411745	1970450002	Permit	7/28/1993			7/28/1993	CA550NR					

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A3 Project - CA2020 Sites in Illinois

CA2020 GPRA Universe (IL)	EPA ID #	IEPA ID #	Prog	CA550	CA800	CA900	CA999	Comments	PFAS Y/N/ Potential	Lead Y/N	Arsenic Y/N	TCE PCE Y/N	Offsite Y/N/ Unknown
Lonza Inc	ILD001643659	1438050005		9/16/2015	9/16/2015	9/16/2015		CA550RC, CA900NC **NFR:** 8/17/00, 0.5 acres					
Marathon Ashland Petroleum LLC	ILD005476882	0338080002	Permit	9/5/2002									
Maytag Herrin Laundry Products	ILD093746014	1990400003		5/21/2007	5/21/2007		5/21/2007	CA550NR, CA999NF					
Maytag, Galesburg Refrig Prod	ILD067417337	0958040003	SRP	1/22/2015		7/15/2016		CA900CR **NFR:** 11/4/04, 3.52 acres					
Midwest Electric Mfg Corp	ILD059453373	0316080001	SRP	9/10/2013		7/15/2016		CA900CR **NFR:** 10/7/99, 0.1 acres					
Modern Plating Corp	ILD005172325	1770200010	Permit	3/20/2008		7/21/2015		CA900CR					
Nicor National	ILD042659672	1190500001		8/28/2012		8/13/2015		CA900CR					
No.Branch Chicago Riv Reserve. 29A	IL0000060392	0312070017		7/14/1995	5/3/2018	8/11/2015		CA900CR					
North Chicago, City of	ILD097271563	0971250007		3/31/2011		9/30/2015		CA900CR aka: R Lavin & Sons,					
Northrop Grumman Def. Systems Div	ILD005128988	0312730002		9/18/2015				CA550NR					
Packaging Division Inc	ILD005070545	0314710001	SRP	11/22/2005			11/22/2005	CA999RM fna AG Communications **NFR:** 11/22/05, 3.11ac					
PCCR USA Inc	ILD005083316	0890200001						aka: Eastman					
PCCR USA Inc	ILD095299020	0890200002						aka: Resolution Specialty Materials					
Peoria Disposal Co Inc	ILD000805812	1438120003	Permit	9/25/1992			5/14/1999	CA550NR					
Perma-Treat Of Illinois Inc	ILD063698971	1990555010											
Pierce Biotechnology Inc	ILD041539230	2010300034	Permit	5/19/2003	5/22/2018	7/21/2015		CA900CR					
Precision Chrome Inc	ILD089062871	0970205001		6/30/2014									
Precision Dormer LLC	ILD005076567	1110150007	SRP					Consent Order 10/27/05 ?; aka: Precision Twist Drill					
Premcor Refining Group Inc	ILD041889023	1190500002											
Quality Carriers Inc	ILD049812696	0310065005		7/30/2015				CA550RC					
RCH Newco II LLC	ILD990785453	1978030005		6/9/2010	9/30/2010	9/29/2015		CA900CR aka: Ceco Corp.,					
Revere Ware Corp	ILD005078274	0390050004	SRP	8/6/2015				CA550RC **NFR:** 3/25/99, 3.74 acres					
Rho Chemical Co Inc	ILD005178843	1970450031											
Rock Island Arsenal	IL5210021833	1618130001	CERCLA										
Rock Tenn Co	ILD006195853	0316005396	SRP	1/22/2015				aka Pulaski Promenade **NFR:** 4/24/17, 10.6 acres					
Safety Kleen Corp / Schaumburg	ILD079749073	0314890002		8/28/2010	5/18/2018	8/21/2015		CA550NR, CA900NC					
Safety Kleen Corp Dolton	ILD980613913	0310690006	Permit	7/30/2015		7/30/2015		CA900CR					
Safety-Kleen Corp / Arl Hts	ILD000805929	0310090005		12/5/2006	12/6/2006		12/6/2006	CA999NF					
Safety-Kleen Corp / Caseyville	ILD981097819	1630250007	Permit	9/30/2011	5/22/2018		5/14/1999	CA999: 5/8/1996 (State)					
Safety-Kleen Corp / Pekin	ILD093862811	1790600011	Permit	12/7/1995	5/22/2018		12/7/1995	CA800: 12/7/1995; permit terminated 11/30/04 (B-96)					
Safety-Kleen Corp / Urbana	ILD981088388	0198270009	Permit	9/30/2011	5/18/2018		5/20/1996						
Safety-Kleen Corp / Franklin Park	ILD000665869	0310960015		9/30/2011	5/22/2018	9/18/2015		CA550RC, CA900CR					
Safety-Kleen Systems Inc / Elgin	ILD000805911	0314380001	Permit	3/7/1997	2/23/2001		2/23/2001	CA999: 2/23/2001					
Scott Afb	IL7570024177	1630105014	CERCLA										
Standardaero	ILD089637847	1671205056		9/13/2013		7/16/2015		CA900CR aka: Garrett Aviation Services,					
Stratos Lightwave (Methode Electronics)	ILD005092135	0311140002	SRP	10/31/2001	5/3/2018	9/22/2015		CA900CR **NFR:** 5/26/11, 3.3 acres					
Toyal America Inc	ILD000716860	1970500014	SRP	5/25/2016				CR550RC **NFR:** 3/14/13, 37 acres					
U of I - Main Campus	ILD041544081	0198270008	Permit	5/21/2007									
University Of Chicago Hospital	ILD005421136	0316410001	Permit	9/5/2013	5/18/2018		7/21/2015	CA999NF, permit terminated 7/18/2006 (B-130)					
UOP Inc	ILD000814640	0311740008	SRP					**NFR:** 3/7/17; 4 ac East Parcel & 4/22/19 6.1 ac West Parcel					
Valspar Corp The	ILD081040107	0316005445	SRP	11/23/1998	11/23/1998		11/23/1998	**NFR:** 11/23/98; 4 acres					
Van Tran Electric Ill Epa	ILD981093628	0510350004	SRP	6/9/2010	9/30/2010	9/2/2015		**NFR:** 7/7/2009, CA900CR					
Veolia Es Technical Solutions	ILD098642424	1631210009	Permit										
Vertellus Specialties Inc	ILD006278360	1190400006	Permit					aka: Reilly Ind.					
Vision Properties Blue Island	ILD005109525	0310240004	Permit					aka: Gilbet & Bennett					
Wallace Inc	ILR000013219	0770155072		8/28/2012	5/22/2018	8/13/2015		CA550CR aka: The Auto Shop					
Woodstock, City of	ILD005471503	1110950003	SRP	7/15/2005	5/18/2018	2/26/2016		CA900CR aka: Woodstock Die Cast, Eltra Corp **NFR:**7/15/05,9ac					
Xerox Corp Chicago Parts Rehab	ILD096786009	0430705013		12/5/2006	12/6/2006		12/6/2006	CA999NF					
Zimmerman Richard	ILD982069874	1110900006		6/9/2010	9/30/2010	8/13/2015		CA900NC					
Zion Site 1 Phase B Landfill	ILD980700728	0978020001	Permit	6/27/1991	6/27/2001		6/27/1991	CA550NR					

R000541

DOCUMENT 4

A3 Screening Templates

1st meeting

Meeting Date: **5**/1/2020 11:00 AM
Location: Skype Meeting
Participants:

USEPA: Joe Cisneros, Tammy Moore, Jennifer Dodds, Greg Rudloff, Bhooma Sundar
IEPA: Kenn Smith, Kim Rawe, Takako Halteman
Notes by: Rob Watson

Documents Provided for Discussion

Part 1 A3 Risk Screening Table
Part 2 Vapor Intrusion Screening
Part 1 Example A3 Risk Screening Table – Nexeo Solutions

Notes

- Purpose of this A3 project is an ethanol plant in IN where problems/risks presented many years after a remedy had been completed at the site.

- Background for the Forms
  - Bhooma – Risk modeling
  - Greg – Structure of the Forms
  - Font size is either preset or auto size adjust to allow for more text
  - Forms are a composite of similar forms used by superfund, RCRA/LTS, and a Michigan form

- Goal: Part 1 Table is the Goal for now. If Part 1 Form indicates Part 2 Form is warranted, it should be pursued.

Q: Is the goal is to complete the Part 1 Form for the identified CA2020 sites by end of FFY20?
A: Yes
Q: Does one proceed from Part 1 to Part 2 if EC/IC controls vapor intrusion?
A: No

- IEPA Clarification: The TACO regulations were revised in 2013 to address risk from indoor inhalation. IEPA position (within SRP, LUST, RCRA) is that if a site was evaluated prior to 2013, and risk was determined to be acceptable, IEPA will not go back and reassess if there is a risk due to indoor inhalation – unless the facility proposes to change EC/IC at the site.

  USEPA acknowledged the comment and said if this comes up, USEPA will make a determination of whether they should take the lead at the site.

- Good news – due in large part to geology in IL (clayey soils) the 4 test sites USEPA ran, did not proceed to the Part 2 Form.

- Form 1, 1.d - Remediation: bulk of information is provided here. Discuss all COCs here; even if they are in addition to Pb, As, TCE, PCE, PFAS. COCs are those at time of evaluation based on site specific assumptions.

- Form 1, 1.e – Aerial Photo: Cut & past photo at time of CA550 or present. IEPA suggested 2nd page so 2 photos could be presented (then & now).

- Form 1, 2. – Summary of Remedy, Required ECs: Not completed on example form.
  Q: Why was this section was not completed on example form; yet description of remedy indicates existing ECs at site, as well as a requirement for future use to incorporate ECs.
  A: Not sure, this could be an option for person completing the form.

- Form 1, 4. – Data Review Risk Evaluation: IEPA noted that the criteria / screening levels that IEPA uses for some parameters is much lower than the values identified in this column.
  Q: What value should reviewer use when completing this part of the form?
  A: Use USEPA numbers, not IEPA screening criteria.

- Format for Forms:
  - Orientation: Recommended change from portrait to landscape to allow for more text
  - Comment Box: Recommended that a comments box be added at end to allow reviewer to elaborate on various parts of form

IEPA General Comments

- Instructions: IEPA strongly recommended that a set of instructions be developed for each of the forms. The information provided for a site should be essentially the same (reproducible), regardless of who completes the form. USEPA said they would look into this.

- Limitations: USEPA needs to understand IEPA's limitations & constraints while moving forward with this project. Our priority (per PPA) is the review and issuance of RCRA permits. The same reviewers working on permits will be working on the A3 Project.

- Knowledge of Sites: USEPA stated that it was assumed that the person filling out a Form would be very familiar with the site. This is simply not the case. CA550 reviews were completed many years ago (preferred CA550s are pre 2008), new people who are completely unfamiliar with a site are likely the type of reviewer who will be completing the forms. This will necessarily result in a longer review time and is another example of why instructions are important.

- Paperwork Review: In a recent email, Ed Nam indicated that as this was mainly a paper review, it would be well suited for reviewers working remote from their homes. In fact, most of the information on these sites is on paper in the file room and needs to be checked out. File room personnel are only in the office when a request is made. IEPA does not anticipate the process to go as smoothly as USEPA anticipates.

DOCUMENT 5

RCRA Unit

Completeness Review

REVIEW NOTE CHECKLIST
General Information

BP Products North America Inc.- Main Plant
1191150001 --- Madison County
ILD980503106

B-147R2

Start of Review (Date)	Nov 20 2020
Project Manager	Takako Halteman 11/24/20
Groundwater Unit Reviewer	Amy Boley
Corr. Action Reviewer	Takako Halteman
Brief Description of Project	This is a completeness review of the RCRA renewal permit application submitted on Oct 8, 2020 and received by IEPA on Oct 9, 2020.
Site Name/Location	301 Evans Ave, Wood River IL 62095
Facility Contact ☒ - Operator ☐ - Owner	Ms. Sasa Jazic, Operations Manager 150 W. Warrenville Road Naperville, Illinois, 60563 Phone #: (630)386-1620 Email: sasa.jazic@bp.com
Owner ☒ - Same as Facility Contact	
Consultant	Mike Hoffman, P.E. 4232 N. Brandywine Dr. Suite A Peoria, IL 61615 Phone #: (309)693-5777 Email: Michael.hoffman@woodplc.com
Siting (Sec. 3.330 of Act) Cert. of Siting (LPC-PA8)	☐-Yes ☐-No ☒-NA
Environmental Justice Area (See Procedure I.28) Chrome SWAP EJ Database (EJ DB)	a. EJ Area: ☒-Yes ☐-No ☐-N/A[1] (only applies to permit applications). Should be marked "Yes" if either SWAP or EJ DB evaluation indicates EJ concerns. b. EJ Evaluation: i. SWAP Results: ☐-Not located in EJ Area ☐-Blue (1) Minority ☒-Yellow (2) Low Income ☒-Red (3) Minority & Low Inc. ii. EJ DB Results: ☒-(0) Not EJ Area ☐-(1) Minority ☐-(2) Low Income ☐-(3) Minority & Low Income ☐-(99) Status Unknown iii. If SWAP or EJ DB results identify EJ concerns submit EJ Review request to Community Relations via EJ DB. Complete Item c. below. c. Community Relations EJ Response: ☐-Complete –

[1] For Environmental Justice Area reviews, the term "permit applications" means permit applications for various types of waste management facilities, including RCRA corrective actions and (CCDD) fill operations. It does not include uncontaminated soil fil operations (USFO), beneficial use determinations (BUD's) or general correspondence (PS Corr). See Footnote 1 from Procedure I.28.

	☒-Complete – With Outreach Document Community Relations response by attaching a copy of the email response to the review notes. Notes: **EJ notification was issued on** 10/22/2020 A notification letter to EJ mailing list **by IEPA EJ Office (see EJ Outreach Section of the review package).**
39(i) Certification 39(i) Cert. form (LPC 643) **a. Review** (See Procedure I.25, 39(i) Investigations Memo & Sec. 39(i) of the Act)	☐-Not Applicable as this is not an application for a RCRA permit, permit modification, waste storage site, landfill/disposal site, transfer station, treatment facility, incinerator, waste transportation, CCDB fill operation, or tire storage site. **Review of 39(i) Certification**: **I. Applicant Information**: ☒-Complete/adequate ☐-Not complete/not adequate **II. Officers & Employees**: ☒-Complete/adequate ☐-Not complete/not adequate **III. Owner, Operator, Officer, and Employee Information**: A. Prior Conduct Identification: ☒-Yes ☐-No: Are one or more of the questions in this section marked "Yes"? If so, an Attachment A must be included (see below). B. Pending Proceedings: ☐-Yes ☒-No: Are one or more of the questions in this section marked "Yes"? If so, an Attachment A must be included (see below). C. Prior Application Information: i. ☒- Yes ☐-No: Are Previously submitted Attachment A's incorporated into this Certification? ii. ☒- Yes ☐-Not complete/adequate: If C.i. is checked yes; are the applications containing the previously submitted Attachment A's identified? **Certification Statement**: ☒-Yes ☐-Not complete/not adequate: Has the certification been signed by responsible corporate officer who meets the requirements of 702.126(a)(1)? **Attachment A – Information for Individual Persons:** Required if item III A. and/or B. above is check Yes. ☒-N/A ☐-Yes ☐-Not complete/adequate: Attachment A has been completed and contains the required information for individuals, identified in Section II that have prior findings, convictions or pending proceedings.
b. FACES Database Review FACES-DB FACES – 39i Guidance FACES User Manual	☐-Yes ☒-No: Facility has more than two consent decrees? If "Yes" request Full Compliance History (FCH), see item c. below. Notes:
c. Full Compliance History (FCH) Review	FCH Requested: ☐-Yes ☒-N/A: If item b above is checked yes request the FCH for the facility from the Waste Reduction and Compliance Section. Date FCH request made:

d. Other Information	**Other Information:** ☐-Yes ☒-No: Other information has been identified that suggest that applicant has not been truthful, or information provided is incomplete. Other information can be from public comments, news reports, personal knowledge, etc.
e. 39i violations identified that may require permit denial.	☐-Yes ☒-No: 39i violations identified that may require permit denial. If yes, a memo to the Unit Manager should be prepared detailing the violations. i. ☐-A memo, dated _____, has been forwarded to the Unit Manager for evaluation.
f. Revised Permit Condition for 39(i)	☐-Yes ☒-N/A: Permit Condition _____ has been revised to require the submittal of 39(i) Certification Forms with all applications (see item 4 of Procedure I.25).
Field Office Section	a. FOS Region/Contact: Gina Search Email:gina.search@illinois.gov Phone: 217-346-5157 b. Field Inspection Required: ☐-Yes ☒-No If yes, a memo/email should be prepared and sent to the FOS contact, copy FOS Regional Manager. i. ☐-A memo/email, dated _____, has been forwarded to the FOS. c. Comments Received from FOS: ☐-Yes ☒-No – Completeness Review – not technical review , no input is needed.
CROPA Memo Procedure I.31 CROPA Template	a. ☐-Yes ☒-No: CROPA Memo prepared and Memo sent on _____. i. ☐-Yes ☐-No: Permit(s) required from other Bureaus?
Name Change Requested	a. ☐-Yes ☒-No If yes: • ☐-Reviewer has completed Site Inventory Data Input Form **-OR-** • ☐-Facility has submitted an Illinois EPA Inventory Application.
Right to Know Evaluation Sec. 25d of Act Right-to-Know Evaluation form Right-to-Know Fact Sheet	a. ☒-N/A, no release near the property boundary has been documented, **-OR-** b. ☐-Soil, soil gas and/or groundwater contamination warranted a Right-to-Know Evaluation form be completed. The evaluation determined: • ☐-Further evaluation required. • ☐-Additional information is required to make an evaluation. • ☐-No criteria met, site does not warrant further evaluation. If an evaluation has been conducted the form must be attached to the review notes. Notes:

Review Notes

Log NO: B-147R2 – Permit Renewal Application – Completeness Review

Subject Submittals for Review:
Review Date: November 20, 2020
Reviewer: Takako Halteman

Submittal: Application to Renew the Hazardous Waste Management RCRA Corrective Action Permit
Dated: October 8, 2020
Submitted by: Sasa Jazic, BP products, Liability Manager
Received on: October 9, 2020
Current RCRA Permit: Log: B-147R, issued on 3/4/2011, Effective on: 4/8/2011; Expires on: 4/8/2021

1.0 Introduction

The BP Products North America, Inc. (formerly Amoco) Main Plant facility is located at 301 Evans Avenue, Wood River, Madison County, Illinois. The BP Main Plant occupies approximately 569 acres. This facility began operating an oil refinery in 1908, processing 100,000 barrels of crude oil per day into gasoline, heating oil, diesel fuel, jet fuel, kerosene, polypropylene, asphalt, and other commercial petroleum products. An additive company (Amoco Petroleum Additive Company (APAC)) was added to the operation in 1957. The refinery portion of the facility continued to operate until 1981, at which time the dismantling of the refinery began. The additive operations ceased on 1996, and dismantling of that operation was completed in 2001.

As a part of the oil refinery dismantling operation, two units that previously managed hazardous waste were closed under the then-current RCRA interim status closure rules. These were the North Cell of Spray Pond 1 (NCSP1), a surface impoundment that received reactive sulfide material (U189); and the South Flare Pit (SFP), the location of a former underground storage tank that contained various non-hazardous wastes, as well as wastes bearing hazardous waste characteristics (D001, D002, D003, D008, U189, and U122). Both units were determined to be closed with waste in place (the South Flare Pit was then reclassified as a landfill unit), and received their RCRA Post-Closure Permit on September 30, 1993.

In the late 1990s, and 2000s, BP conducted further investigation and remediation of these units. Closure by removal reports were submitted for NCSP1 in November 2002, and for the SFP in April 2005. A letter from Illinois EPA dated January 7, 2008 granted approval for closure by removal of the NCSP1 pending a Class 3 permit modification request to formally remove the unit from the Part B post-closure permit. This letter also granted approval for the soils portion of the closure by removal determination for the SFP, and requested further work on the groundwater portion for this unit. Subsequently, the Permittee conducted this additional work, and based upon Illinois EPA's review of the results of this work, the SFP is now approved for closure by removal, subject to certain conditions.

The last renewed permit formally removed these two hazardous waste management units (the NCSP1 and the SFP) from the post-closure requirements of a RCRA permit. Since these were the only two hazardous waste management units at the site, the last renewal permit solely addressed the remaining corrective action at the site. The last permit modification approved to this permit was on May 29, 2018 (Log NO. B-147R-M-17), which was a Class 2 permit modification to revise the methodology of the hydraulic control of groundwater and incorporate operation of three bioremediation pilot systems into

the corrective action.

2.0 Renewal Application of Corrective Action Permit

In accordance with 35 Ill. Adm. Code 702.142 and 703.125, a new application for a renewed permit was submitted to Illinois EPA 180 days before the expiration date of the current permit on October 9, 2020 The current RCRA Permit issued to BP Main Plant expires on April 9, 2021. **The facility's renewal application was received by Illinois EPA on October 9, 2020.**

Once Illinois EPA receives a renewal application, it will have sixty days to conduct a completeness review of the application in accordance with 35 Ill. Adm. Code 702.125. Illinois EPA must then notify the facility that: (1) the application is complete; (2) the application is not complete.

3.0 Completeness Review of Renewal Permit Application

3.1 Contents of Application

The subject renewal application contained the following sections:

Section A: Forms, Certifications, confidentiality, and Public Involvement

Section B: Facility Descriptions

Section C: Groundwater Monitoring

Section F: Corrective Action

Illinois EPA's Comments: Note Section D & E (Procedures to Prevent Hazards and Closure and Post-Closure Requirements) are only applicable for Closure and Post-closure of the hazardous waste management units. As there is no longer any HWMUs at the BP Min Plant site, these sections were not applicable and were not included in this review notes.

3.2 Groundwater Related Sections of the Application and Review

Groundwater Unit reviewer has reviewed the application for the completeness for the following sections only: Sections C (Groundwater Monitoring), and F.4.2(4) (GW Corrective Action monitoring/remediation). See GWU's memo for the completeness review for these sections.

3.3 Review of the Subject Application for Completeness and Recommendation

This RCRA Reviewer has reviewed the following Sections of the application for the purpose of a completeness review:
Sections A, B, and F. The check list for this completeness review is attached to this review notes as Attachment A. As indicated in Attachment A-Check List, there are deficiencies to be noted in the subject applications; however, those deficiencies will be addressed during the technical review of the application.

Recommendation: As a result of my review and GW Unit review, the application is considered complete.

Attachment: Permit Application Check List – for Completeness Review

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
November 2019

Facility Name : **BP Product North America Inc. - Main Plant**
Log No. : **B-147R2**
State ID No. : **1191150001**
USEPA No. : **ILD980700967**

Date Application Received : **10/9/2020**
Revision No. : **1 - Completeness**
Reviewer : **Takako Halteman**
Review Dates : **11/20/2020**

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**	Y 11/20/20	Y 11/20/20	**Exhibit A-1b**	
A.2	**Certification Using the LPC-PA23 Form**	Y 11/20/20	Y 11/20/20	**Exhibit 2**	
A.2.1	Facility Certification	Y 11/20/20	Y 11/20/20	**Section A (Pg 1), Exhibit A-2**	
A.2.2	Technical Information Certification	Y 11/20/20	Y 11/20/20	**Section A (Pg 1), Exhibit A-2**	
A.2.3	39i Certification	Y 11/20/20	N 11/20/20	**Section A (Pg 1), Exhibit A-2**	*39i form must be submitted for Sasa Jazic, Liability Manager for BP as he is the one signs LPC-PA23 form for the facility.*
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**				
A.3.1	No information Claimed Exempt from Public Disclosure	Y 11/20/20	Y 11/20/20	Cover letter, A3.1	No Exemption claimed
A.3.2	Trade Secrets Claims	Y 11/20/20	Y 11/20/20	Cover letter A3.1	No Exemption claimed

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.3.3	Exempt or Exempt In-Part Data Claims	Y 11/20/20	Y 11/20/20	Cover letter A3.1	No Exemption claimed
A.3.4	Privileged Information	Y 11/20/20	Y. 11/20/20	Cover letter A3.1	No Exemption claimed
A.4	**Public Participation: Facility Mailing List & Information Repositories**				
A.4.1	Facility Mailing	Y 11/20/20	Y 11/20/20	Section A, p.1; Exhibit A-3	
A.4.2	Identification of Repositories	Y 11/20/20	Y 11/20/20	Section A, p.2	
A.4.3	Contents of Repository	Y 11/20/20	Y 11/20/20	Section A, p.2	
A.4.4	Public Notice of Repository Availability	Y 11/20/20	Y 11/20/20	Section A, p.2	
B	**Facility Description**	**XX**	**XX**		
B.1	**General Facility Description**	Y 11/20/20	Y 11/20/20	Section B, p.1	
B.1.1	Operation of Facility	Y 11/20/20	Y 11/20/20	Section B, p.1	
B.1.2	Hazardous Waste Management Units at the Facility	Y 11/20/20	Y 11/20/20	Section B, p.1	
B.1.3	Solid Waste Management Units at the Facility	Y 11/20/20	Y 11/20/20	Section B, p.3, Table B-1, FigureB-4 Section F	
B.2	**Topographic Map**				
B.2.1	Facility + 1 mile	Y 11/20/20	Y 11/20/20	Section B, p.3, Figure B-1	

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
B.2.2	Facility + 1000 feet	Y 11/20/20	TBD	Section B, p.3, Figures B-5A, B-5B, B-5C	Need further review for technical adequacy
B.3	**Location Standards**	Y 11/20/20	Y 11/20/20	Section B, p. 4	
B.3.1	Seismic Standard	Y 11/20/20	Y 11/20/20	Section B, p. 4	
B.3.2	Floodplain Standard	Y 11/20/20	Y 11/20/20	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.3	Facilities in the 100-year Floodplain	Y 11/20/20	Y 11/20/20	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.3.1	Engineering Analysis and Structural/Engineering Study	Y 11/20/20	Y 11/20/20	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.3.2	Procedures to Remove Waste	Y 11/20/20	Y 11/20/20	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)	Y 11/20/20	Y 11/20/20	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.4	**Operating Record**	Y 11/20/20	TBD		Need further review for technical adequacy
C	**Groundwater Monitoring**	**XX**	**XX**	Not Reviewed by RCRA Unit	**Entire Section C is reviewed by GWU Reviewer**
D	**Procedures to Prevent Hazards**	**XX**	**XX**	**NA**	No HWMU and Post-Closure Unit are present at the site, thus this section is not applicable.

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	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E	**Post-Closure Requirements**	**XX**	**XX**	**NA**	No HWMU and Post-Closure Unit are present at the site nor proposed at the site in this permit application, thus this section is not applicable.
F	**Corrective Action (CA)**				
F.1	**Identification of Solid Waste Management Units (SWMUs)**	Y 11/20/20	Y 11/20/20	Section F, p.3; Table F-1, Figure F-1	According to the RCRA Permit Application Guide ; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit!
F.2	**Characterization of the SWMUs**	Y 11/20/20	Y 11/20/20	Section F, p.3	NA
F.3	**Characterization of Releases from SWMUs**	Y 11/20/20	Y 11/20/20	Section F, p.3	NA
F.4	**Information Required for Renewal Applications**	Y 11/20/20	Y 11/20/20	Section F, p.3	See below
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program	NA	NA	NA	IEPA is overseeing the CA at this site thus Not Applicable.
	(1) Chronology of all CA related correspondence between USEPA & facility	NA	NA	NA	NA
	(2) Copies of all letters received from USEPA regarding CA	NA	NA	NA	NA
	(3) Copies of all letters regarding CA sent to USEPA	NA	NA	NA	NA
	(4) Detailed discussion of each SWMU	NA	NA	NA	NA
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation	NA	NA	NA	NA
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program	Y 11/20/20		Section F, p.3-55	Need further review for technical adequacy

R000556

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
	(1) Chronology of all corrective action efforts completed to date	Y 11/20/20	TBD	Section F, p.3-55	Need further review for technical adequacy
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence	Y 11/20/20	N 11/20/202	Section F, p.3-55	No photocopies of IEPA and BP's correspondences are provided in the application. Each submittal must identify the person who made the submittal and for what purpose.
	(3) Detailed discussion of each SWMU	Y 11/20/20	TBD	Section F, p.3-55	Need further review for technical adequacy
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort	Y 11/20/20	REVIEWD by GWU	Section F, p.3-55	This section is complete by technical adequacy is reviewed by GWU.
F.5	**Proposed Interim Measures to be Conducted**	Y 11/20/20	TBD	Section F, p.55-57; Exhibit F-1	
F.6	**Cost Estimate for Required Corrective Action**	Y 11/20/20	Y 11/20/20	Section F, p.57; Exhibit F-2	
F.7	**Financial Assurance for Corrective Action**	Y 11/20/20	Y 11/20/20	Section F, p.57; Exhibit F-3	

R000557

Table of Contents: Groundwater Review

1. Review Notes:

   September 12, 2024: Technical Review Memorandum and associated attachments:

Attachment A:	BP Completed Checklist and Table of Responses to NODs
Attachment 1:	Email and Example Figure of WWS Submitted for Riverfront Property
Attachment 2:	Current LUST Rates Published on the Illinois EPA Website
Attachment 3:	Vented Well Email
Attachment 4:	Email Correspondence August 2024
Attachment 5:	Well G35A and G35B ROST Fluorescence Response Data

   June 6, 2024: Technical Review Memorandum and associated attachments:

   November 20, 2020 Completeness Memorandum

2. Emails and Phone Notes: See above (included within memorandums)

3. Memos from FOS: None

4. Guidance or other supporting documents referenced in the review notes or used to support the Draft Decision: See above (included within memorandums).

5. All formal written correspondence; letters, NODs, etc.: See RCRA Reviewer Section for all written correspondence. Groundwater-specific NODs can also be found in the final Recommendations Section of each memorandum listed above.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, INTERIM DIRECTOR

MEMORANDUM

DATE: September 12, 2024

TO: Omar Faruk, RCRA Unit

FROM: Amy Butler, P.G., Groundwater Unit

SUBJECT: Response to Notice of Deficiencies (NODs) for RCRA Permit Renewal Application

RE: 1191150001 -- Madison County
BP Products North America Inc/Main Plant Property
ILD980700967
Log Nos. B-147R2
RCRA Permit

A technical review has previously been completed on the groundwater portions of the subject submittal entitled, "RCRA Permit Renewal Application", dated October 8, 2020 and received by the Illinois EPA on October 9, 2020. This document was submitted by Mr. Sasa Jazic of BP's Remediation Management Services Company, and was submitted on behalf of BP Products of North America, Inc. (BP). The submittal was prepared in accordance with the RCRA Post-Closure Permit Application guidance document (November 2019), and requested renewal of the approved RCRA Corrective Action Permit (Permit).

A completeness review was completed on the groundwater portions of the subject submittal and approved November 20, 2020.

Following the technical review, an Illinois EPA letter with the Notice of Deficiencies (NODs) was issued. In response to that letter, the facility provided the subject submittal, dated August 29, 2024, as a fully revised permit application (subject submittal or permit application) with, among other things, a new Section C and Section F. A technical review of Section C and relative parts of Section F, plus any associated parts of the application linked to the groundwater portions of these sections, has been reviewed.

The cover letter of the permit application included:

(1) The facility has provided a revised November 2019 Technical Checklist; therefore, a new or revised checklist was not completed by this reviewer; and

(2) A table summarizing the NODs issued and BP responses to each is provided.

Both of these items are provided as Attachment A to this memorandum.

BACKGROUND

The Main Plant occupies approximately 555 acres east of the Mississippi River in the City of Wood River. A refinery was constructed at the Main Plant location beginning in 1907. Operations of the refinery began in 1908. During peak operation, the refinery processed 100,000 barrels of crude per day into gasoline, heating oil, diesel, jet fuels, kerosene, polybutylene, asphalt and other petroleum products. The refinery ceased operation in 1981. Dismantling of the refinery equipment occurred from 1981 until 1991.

Amoco Petroleum Additives Company (APAC) was formed in 1957 and operated a portion of the operating facilities at the Main Plant until 1996. APAC manufactured fuel additives and lubrication oil additives from raw products and operated a terminal for receipt and distribution of gasoline, diesel, and other distillate fuels such as furnace oil and heating oil.

The Permit was initially issued September 30, 1993, and renewed March 4, 2011 (Log Nos. B-147 and B-147R). The March 4, 2011 permit approved closure by removal for the former regulated units (South Flare Pit and North Cell of Spray Pond 1); therefore, the permit was issued as a Corrective Action permit and post-closure care was no longer required. The following groundwater monitoring programs are present at the site:

> The facility maintains a site-wide Groundwater Corrective Action Monitoring Program for property outlined in the Groundwater Corrective Action Program Section.
>
> The Corrective Action Section of the Permit is being implemented for Solid Waste Management Units (SWMUs) at designated Land Reuse Parcel, which include SWMUs and Product Release Sites (PRS) across the site.

SUBJECT SUBMITTALS

The facility provides a table with Illinois EPA NOD Comments and BP Responses (see Attachment A to this memorandum) to each NOD. A technical review of the BP Response and verification the information has been adequately incorporated into the necessary sections of the Permit Application has been completed.

With regards to groundwater, a review of Section C (Groundwater Monitoring) and groundwater-related portions of Section F (Corrective Action) has been completed. Rather than completing Section F.4.2 for groundwater, the facility has provided that information in Section C, as recommended by the Illinois EPA. Only those specific NODs issued and BP Responses are evaluated for this review. Please refer to the table.

BP Response to Illinois EPA NOD General Comment 1.c.i through 1.c.iv

The following revisions have been made:

- To meet General Comment 1.c.i: Sections C and F and associated figures, tables, and exhibits have been revised to incorporate previously submitted permit modifications related to statistical evaluation reporting, groundwater optimization and contaminant control, and Cone of Depression (COD) well replacements. Annual updates for hydrocarbon recovery and remediation have been incorporated into Exhibit F-1 of Section F.
- To meet General Comment 1.c.ii: A revised Section C incorporates the approvals for groundwater optimization and well replacements, as approved in the two (2) Illinois EPA letters, both dated January 19, 2023.
- To meet General Comment 1.c.iii: Section C.8 text and Figures C-4, C-5a, and C-5b, and Section F.4.2.11 and Figure F-2, have been revised to include removal of the KM Phoenix Holdings LLC (KMPH) property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft above mean sea level (AMSL) and BP ownership below 408 ft AMSL).
- To meet General Comment 1.c.iv: References to "interim" have been removed.

Illinois EPA Comments

The responses and revisions to Illinois EPA NOD General Comment 1.c.i through 1.c.iv are adequate with regards to groundwater, with the following exception:

1. An email was sent to clarify a dated "6/03/2020" should be "6/30/2020" and the facility email response (included as Attachment 1 to this memorandum) confirm the typographical error. Submit revised pages to the table entitled, "Response to Illinois EPA Comments Dated June 18, 2024, BP Main Plant Property Permit Renewal Application Nod, Log No. B-147R2" and Page 1 of the Section C text, to correct the reference to a previously submitted permit modification regarding statistical evaluation reporting. The reference date of the report is "6/03/2020", which should be dated "6/30/2020".

BP Response to Illinois EPA NOD Comment to Section C.3

The reference to groundwater classification is already in Section C.3 under the subheadings perched groundwater (Class II) and uppermost aquifer (Class I).

Illinois EPA Comments

The Illinois EPA concurs and no revision is required.

BP Response to Illinois EPA NOD Comment to Section C.4

The following revisions have been made:

- The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B-5C) have been revised to include requested information and the KMPH property has been removed from Area 12 and clearly describes or illustrates the vertical parceling.
- Figure C-2 shows the current groundwater monitoring well network has been renamed Figure C-2a, and new Figure C-2b illustrating the optimized groundwater corrective action monitoring program approved in the Illinois EPA letter dated January 19, 2023 has been added. Figures C-3 and C-4 have also been revised to reflect the optimized groundwater corrective action monitoring program.
- Hydraulic conductivities have been added for the Cahokia and Henry Formation in Section C.3, and Section C.4 references its location. Figure C-1 depicts groundwater elevation contours, flow direction, compliance points, and includes notes for hydraulic conductivity and operating capacity of the COD system.
- It is stated an updated Water Well Survey (WWS) was completed June 26, 2024, and Section C.4 references Figure B-5A with updates of new COD wells and six (6) extraction wells.

The text in Section C-4 states:

The current groundwater monitoring well network is displayed on Figure C-2a.

The approved optimized groundwater monitoring well network is displayed on Figure C-2b.

Illinois EPA Comments

The following comments apply:

1. Injection and withdrawal wells to satisfy 35 Ill. Adm. Code 703.183(s)(9) have been added. An email was sent by this reviewer on August 1, 2024 with questions about the WWS. It was noted the Illinois EPA NOD Comment may have been unclear, as it was intended the facility also search for private and public wells within 2,500 feet of the facility, as the facility focused on injection and withdrawal wells. It was recommended the facility initiate this effort while awaiting an Illinois EPA response to the subject submittal. A follow-up email from Starlet Wright of Sovereign Consulting, Inc. (Sovereign) prompted a phone call to clarify requirements of a WWS. Another email was sent by this reviewer following the call to provide the location of the most recent WWS accepted from BP (Appendix E of a corrective action modification for Parcel A dated August 19, 2010 (Log No. B-145R-CA-19). The email correspondence is included as Attachment 2 to this memorandum.

2. The following requirement will be incorporated into the Compliance Section of the Draft Permit to be issued:

   Within ninety (90) days, the Permittee must provide a Water Well Survey (WWS) as outlined in Section 1600, Subpart B, to ensure that any potable water supply wells are accurately identified and located so that impacts and potential impacts to such wells can be identified. Please refer to the guidance *Well Survey Procedures at RCRA Facilities* provided in Attachment F to the permit.

3. Figure C-2b depicts the approved monitoring network based on the approved optimization.

BP Response to Illinois EPA NOD Comment to Section C.8

The following revisions have been made:

- Figures C-4 and C-5 have been split into Figures C-5a and C-5b to include present the subsurface required to be addressed by BP beneath the Kinder Morgan property with a cross-section indicating vertical parceling at 408 ft MSL.
- Table C-1 has been revised to reflect the optimized groundwater monitoring network approved in the January 19, 2023 Illinois EPA letter.

The constituents monitored are volatile organic compounds (VOCs), semivolatile organic compounds (SVOCs), and total metals as listed in Section V.E.1 of the current permit (also listed in Appendix B of Exhibit C-1). In addition to the specific responses to Illinois EPA NODs, BP has incorporated the proposed modifications throughout Section C.8 and its subsections, which includes:

i) Incorporation of the approved optimized groundwater corrective action monitoring program
ii) The methodology for demonstration of groundwater contaminant control
iii) Incorporation of replacement monitoring wells that have been installed
iv) Removal of monitoring wells that have been plugged and abandoned
v) Incorporation of replacement COD wells
vi) Addressing the deficiencies of the statistical evaluation methodology and frequency of reporting
vii) Reduction of hard copies required for notices or reports submitted to Illinois EPA, and
viii) Removal of the requirement for vented monitoring well caps.

Figure C-5a presents the Class I Groundwater Quality Standard (GQS) exceedances for GMZ Boundary Monitoring Wells in 2018 and 2019, and Figure C-5b presents the Class I GQS exceedances for GMZ Boundary Monitoring Wells in 2021 through 2023.
As detailed in Section B of the permit application, an approximate 118.25-acre three-dimensional parcel above elevation 408 feet above mean sea level (ft MSL) is not part of

the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area at and below elevation 408 ft MSL remains part of the facility and is subject to bp's Part B Permit. The vertical parceling between KMPH and bp is illustrated on Figures C-4, C-5a, and C-5b.

Select notes to well tables attached to tables for Areas in Section C.8 are listed below:

- In August 2019, G302 was plugged and abandoned, and replacement well R302 was installed.
- In August 2020, G047 was plugged and abandoned as the structural integrity of the well was compromised.
- Illinois EPA Well ID pending for multiple wells; designated Main Plant Observation Well (MPOW) as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.
- Former Riverfront Observation Wells G31L and G31D to be designated as a MPOWs (due to location) as part of the optimized groundwater corrective action monitoring program approved by the Illinois EPA in a letter dated January 19, 2023.
- In April 2023, R31L installed to replace G31L, which was plugged and abandoned in November 2023.
- Former Riverfront Observation Wells (IEPA/BP Well No.) R032/R032, R034/C-24, R035/R035 proposed to be designated as a Main Plant Demonstration Well.
- Details regarding the proposed designation of Demonstration Wells are provided in Section C.8.1.
- In August 2019, monitoring well G35 was plugged and abandoned and replaced with the well pair G35A and G35B.
- In September 2018, R042 and R083 replaced G042 and G083, respectively, which were plugged and abandoned.
- In March 2021, G08A was installed to replace G008; however, as the second proposed replacement well was unable to be installed due to subsurface conditions, G008 has not been plugged and abandoned. As noted in Exhibit C-1, Table 1, BP proposes to designate G08A as a GMZ Boundary Monitoring Well and only sample G008 when G08A is dry.
- Area 12 (South Tank Farm) wells are located within the boundary of the KMPH Terminal property and monitor groundwater below elevation 408 ft MSL. G005 is located on the portion of Area 12 that was retained by BP and not sold to KMPH.
- In December 2023, R56S, R56M, and R56D were installed to replace G056, which was plugged and abandoned in March 2024.
- Sentinel Wells R56S, R56M, and R56D have been incorporated into the BP Riverfront Property RCRA Permit.
- In June 2023, G078 was destroyed during an excavation to inspect and repair a natural gas pipeline in the drilling area as detailed in the well condition letter submitted to Illinois EPA on July 11, 2023.
- Illinois EPA/BP Well ID No. G057/G-17 and G058/G-18, also designated Sentinel Wells under the BP Riverfront Property RCRA Permit.

- In June 2023, R067 and R068 were installed to replace G067 and G068. As noted in the Illinois EPA approval letter dated January 19, 2023, since replacement wells for G067 and G068 are greater than 10 feet from the original locations, neither Illinois EPA Well ID can be designated with the "R" prefix. Additionally, as R067 and R068 have contained an insufficient volume of groundwater for sampling since installation, G067 and G068 have not been plugged and abandoned. As noted in Exhibit C-1, Table 1, BP proposes to designate R067 and R068 as GMZ Boundary Monitoring Wells and only sample G067 when R067 is dry, and only sample G068 when R068 is dry.

Illinois EPA Comments

The following comments apply:

1. The deficiencies have been satisfied.

2. The additional revisions to incorporate updates based on approvals by the Illinois EPA are also approved.

3. Table 1 of Exhibit C-1 has well details and designations (i.e., GMZ Bondary wells, LNAPL monitoring network, etc.), and the gauging and sampling frequencies.

4. Specific to vented well caps, BP had a discussion with Illinois EPA via conference call regarding vented well caps as FOS had expressed certain wells at the site do not have vents. It was determined during the call that the wells equilibrate adequately with the current caps and BP takes measurements to ensure the well is stable prior to sampling. An email is included as Attachment 3 to this memorandum.

BP Response to Illinois EPA NOD Comment to Section C.8.1.1 and Figure C-5

The following revisions have been made:

- Figure C-5 has been revised to Figure C-5a and now shows the Class I GQS exceedances from 2021 to 2023.
- Text in Section C.8 has also been revised to reflect the updated GQS exceedances for 2021 to 2023.

Illinois EPA Comments

The following requirement will be incorporated into the Compliance Section of the Draft Permit to be issued:

Exceedances of Class I Groundwater Quality Standards at Groundwater Management Zone boundary wells require additional corrective action, with the exception of inorganic and metals exceedances, as a demonstration submittal dated January 25, 2022, and entitled, "Site-Wide Inorganics and Metals Evaluation Report" currently under Illinois EPA review. Based on the review of the subject submittal, additional corrective action may be required at a later date.

BP Response to Illinois EPA NOD Comment to Section C.8.1.5

The following revisions have been made:

- Updated COD well information is incorporated into Section C.8.1.5.
- Available boring logs, as-built diagrams, a process flow diagram, and piping and instrumentation diagrams for the new COD wells are provided in Exhibit C-2.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Section C.8.4

Section 2.2 of Exhibit C-1 has been revised to state BP samples the wells using a "low-flow" sampling technique with a submersible, bladder, or equivalent pump.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Appendix C of Exhibit C-1

The following revisions have been made:

- Exhibit C-1 has been updated to reflect the optimized groundwater monitoring program.
- Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, now includes the omitted information for the appendix.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Section C.8.4.5 and Exhibit C-3

BP agrees Class I GQSs must be met, while the Mann-Kendall statistical methodology will be used as a tool to aid in evaluating the effectiveness of the corrective action.

- Exhibit C-3 has been updated to better describe the methodology proposed for statistical evaluations.
- Reference to the use of Sanitas statistical software (current version) is made.
- With regards to handling non-detects and estimated results, Exhibit C-3 provides a description of how these will be handled in accordance with the USEPA Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance) (Unified Guidance), and the Sanitas statistical software will also be used.
- Section C.8.4.5 details annually a statistical analysis will be performed. Within the GMZ evaluation reports (required every 5 years), a total of 10 years of data will be used for the statistical evaluations in. Specifically, the previous 5 years of and the current 5 years of data will be used for statistical evaluations.
- The document describes reporting limits are determined due to changes in the USEPA guidelines for the analytical method, equipment accuracy, dilution factor, and the laboratory control for the sample batch. Dilution factors (minor instances are provided) are also discussed. Overall, there are minor low-level fluctuations in reporting levels and which may cause an increase in the statistical evaluations, but only for those with non-detect data evaluations. They conclude the statement referenced by the Illinois EPA from the October 2020 submittal is erroneous and it has been removed from the revised permit application.
- Table C-3 has been revised for clarification and to reflect the optimized groundwater corrective action monitoring program approved in the January 19, 2023 letter.
- The text in Sections C.8.4.5, C.8.4.8, C.8.4.9, and C.9 has been revised to reflect the proposed change to report statistical evaluations every 5 years in accordance with the Illinois EPA approval letter dated February 27, 2020 and as proposed in the Class 1* permit modification request dated June 30, 2020.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Section C.8.4.6

Section C.8.4.6 has been updated to reflect the optimized groundwater corrective action monitoring program approved in the January 19, 2023 letter. Potentiometric groundwater surface maps for the UMA are prepared based on groundwater elevations measured quarterly. The groundwater contour lines are evaluated to determine flow direction. Pumping rates for the bp Main Plant Property COD wells are recorded daily and used to calculate monthly withdrawal rates. The groundwater flow rate, groundwater flow

direction, and withdrawal rates are reported in the bp Main Plant Property Semi-Annual Groundwater Corrective Action Reports.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Section C.8.4.8 and C.9

The text in Sections C.8.4.5, C.8.4.8, C.8.4.9, and C.9 has been revised to reflect the proposed change to report statistical evaluations every 5 years in accordance with the Illinois EPA approval letter dated February 27, 2020 and as proposed in the Class 1* permit modification request dated June 30, 2020.

Illinois EPA Comments

The deficiencies have been satisfied.

BP Response to Illinois EPA NOD Comment to Section F (Groundwater Aspects)

The following revisions have been made in response to Section F.6 Illinois EPA NOD Comment No. 19:

- Section F.4.2.11 has been revised to reflect the issuance of a RCRA Permit to KMPH has been issued a RCRA permit, and to describe the vertical parceling divides KMPH ownership from ground surface to 408 ft MSL, and BP ownership below 408 ft MSL.
- Exhibit F-1 has been revised to document the progression of the bioremediation pilot systems, including incorporation of the Class 1* permit modification requests submitted to provide annual updates for the bioremediation pilot systems to Attachment C of the current permit. Specifically, those modification requests were dated: January 29, 2021; January 31, 2022; January 31, 2023; and January 31, 2024.

The following revisions have been made in response to Section F.6 Illinois EPA NOD Comment No. 23:

- Exhibit F-2 cost estimate has been revised update labor costs on Page 1 to align with the correct costs on Page 2.
- As stated in the Class 1* permit modification request dated December 20, 2017, the Leaking Underground Storage Tank (LUST) laboratory rates were used.

Illinois EPA Comments

The deficiencies have been satisfied. It is noted the LUST laboratory rates can be considered acceptable, while other rates were not reviewed and may not be comparable cost estimates specific to the BP Main Plant. A copy of the most current LUST rates published on the Illinois EPA website is included as Attachment 2 to this memorandum.

Other Modifications, Phone Conference August 20, 2024

Other Modifications

The introduction to Section C highlights BP is proposing to modify the previously approved groundwater monitoring program. Proposals have been requested in the following Class 1* permit modification currently in-house with the Illinois EPA in documents as dated below. These proposals were submitted in response to approvals and directives from the Illinois EPA:

- 06/03/2020: Statistical Evaluation Reporting
- 09/23/2020: G047 Well Abandonment
- 02/28/2023: Groundwater Optimization and Contaminant Control
- 01/16/2024: Cone of Depression (COD) Well Replacements

Groundwater corrective action is required due to the presence of light nonaqueous phase liquid (LNAPL) and dissolved groundwater impacts that originated from historical operations at the Amoco petroleum refinery and the Amoco Petroleum Additives Company (APAC). The LNAPL and dissolved plumes are not located near the former regulated units (North Cell of Spray Pond 1 [NC-SP1] and South Flare Pit [SFP]), and the plumes did not originate from the regulated units. The corrective action is designed to control the migration of LNAPL and impacted groundwater within the Groundwater Management Zone (GMZ) by inducing an inward hydraulic gradient toward the COD wells located on the Main Plant Property.

The groundwater pumped by the COD wells is treated at the City of Wood River Publicly Owned Treatment Works (POTW). BP will continue hydraulic control as an interim corrective action for groundwater exceeding applicable groundwater quality standards until a final remedy is proposed and approved by the Illinois EPA. In the event that an inward gradient is unable to be confirmed in the southeast corner or downgradient of the western portion of the GMZ, south of Area 9, compliance will be satisfied by demonstrating contaminant control as discussed in Section C.8.1.

The groundwater monitoring program (GMP) monitors for groundwater quality and flow in the uppermost aquifer (UMA). Periodic groundwater testing and gauging is conducted to monitor the progress of corrective action over time.

Phone Conference August 20, 2024

A phone conference was held August 20, 2024 between Illinois EPA and BP Main Plant and its consultants. The following items were discussed:

- Slides were presented during the call to present new pumping well VW01 has not performed as intended. The cause is expected to be a result of the well development process. Four (4) attempts (May 2023, August 2023, October 2023, and April 2024) were made to redevelop VW01, but the specific capacity of the well only increased minimally with increased pumping rates. The tests stepped up each time they
- The new horizontal wells, HW01 and HW02, are performing better than expected and potentiometric mas were presented to demonstrate their competence during normal and more extreme conditions.
- The inability to induce an inward gradient in most challenging during low river stages for the Mississippi River, and the facility has an approved approach for focusing on contaminant control during those extreme periods (400 ft MSL and 416 ft MSL river stage).
- 1,600 gallons per minute (gpm) is the maximum target for pumping as this is the modeled maximum necessary and also the maximum volume of water the facility can handle. Specifically, 30gpm resulted in a specific capacity (SC) equaled 1 gpm per ft of drawdown (gpm/ft-dd). Later events results found 50 gpm resulted in SC = 1.6 gpm/ft-dd, 60gpm had SC = 2 gpm/ft-dd, and 70 gpm had SC = 2.67 gpm/ft-dd.
- The facility concluded the well will not be effective and they asked for guidance on abandonment procedural steps to maintain compliance with the permit. Discussion on whether VW01 is even in the permit yet for both the Riverfront facility (BOL ID No. 1191155009) and the Main Plant was had. Replacement Pages were recommended for the Main Plant Permit Renewal Application as VW01 is proposed to be added. For the Riverfront, BP will review whether it has been added to the permit and request removal accordingly.
- Four (4) pending well condition letter have also been submitted for G078, G030, G97L, and G87L. G030 is considered a Riverfront facility well. Of those wells, only G078 no longer exists because the well was damaged. These are proposed in the in-house permit application to have new or replacement wells for various reasons.
- Wells G067 (occluded), G068 (siltation issues), G302 (occluded, abandoned, and new well with shallower screen installed (no water table well because of the geology in the area), but it was noted the contamination was seen in the deeper interval and Illinois EPA continued to acknowledge the contamination appears to be from Shell's Rand Ave site and Shell will be required to delineate the extent of that plume), and G008 (20 ft screen). Besides the abandoned G302, the other wells are proposed to be sampled if the new adjacent wells are dry.
- BP will send a revised Table 1 with geology designations.
- Area 9 report submittal was discussed. They will provide 2 hard copies, and electronic for the remainder. The laboratory reports previously submitted for Area 9 were discussed, and as stated in the Illinois EPA letter dated February 10, 2020,

those were not withdrawn because they were certified. An electronic copy of that data will be provided if the current consultant can obtain it.

Revised Pages Dated August 28, 2024 were provided based on the call (see below).

Revised Pages Dated August 28, 2024

Figure C-2a and C-2b are provided to reflect only the horizontal pumping wells. Text within Section C is also revised to propose VW01 be abandoned due to the low yield. Supporting figures in Exhibit C-4 have been added to demonstrate the vertical gradient control well can be abandoned. Section C.8.1.5 has been revised to provide discussion and detail regarding installation and justification for abandonment of pumping well VW01. All the information is presented to demonstrate hydraulic control can be maintained with the horizontal wells under varied conditions. Specifically, control is maintained or contaminant control is maintained under low, normal, and flood stages of the Mississippi River.

Section C, Exhibit C, Table 1 has been revised to reflect the most accurate well details.

Illinois EPA Comments

The following comments apply:

1. Groundwater monitoring IEPA well G302 (facility well RP-2D) was replaced with IEPA well R302 (facility well R302). It was noted the screened interval is different from the well G302, while it does also monitor the waters within the Cahokia Sand facies. Well G302 has already been abandoned.

    a. Well details reviewed from the current permit and the proposed changes identified in the permit application are provided below:

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation
G302	RP-2D	49.0	383.63	393.63-383.63	UMA C
R302	R302	33.2	399.84	410.04-400.04	UMA C

    b. A review of benzene analytical data reported by BP for both wells showed the following range of detections:

IEPA Well No.	Facility Well No.	Benzene minimum (mg/L)	Benzene maximum (mg/L)	Dates Range
G302	RP-2D	<0.001	30.50	1/9/2006 – 4/22/2019
R302	R302	<0.001	<0.001	4/14/2021-4/17/2024

c. Based on Comments 1.a and 1.b above, the contamination detected at the screened interval for former G302/RP-2D must continue to be monitored due to contaminant levels previously detected. As the Illinois EPA is working with Shell Oil Products US to delineate benzene contamination associated with a benzene pipeline release at BOL site ID No. 1191150025, BP will not be required to install a well at the screened interval of approximately 393.63-383.63 at this time, as it appears the neighboring facility will be investigating this contamination. This language will be incorporated into the permit to be issued.

2. A notation will be added to identify wells G078, G97L, and G87L require a new or replacement well or well pairs must be installed within ninety (90) days. Of those wells, only G078 no longer exists because the well was damaged.

3. An email was sent 8/23/24 to verify wells LS-1 and SVE-1, which are proposed as LNAPL monitoring wells, are traditional groundwater monitoring wells as these two wells need IEPA well names. Starlet Wright verified these are monitoring wells. A question was also asked about electronic reporting of data for IEPA Well Nos. G39, G18, G19, G33, G34, and G39, as these wells have 3 digits. It was determined data has successfully been submitted for years with these names and a space is added at the end for submissions. The emails are included as an Attachment 4 to this memorandum.

Other Comments Based on Creating the Draft Permit

1. Wells G35A and G35B were installed to replace G35 due to the screen interval. A review of screens for G35A (22 to 32 ft-bgs) and G35B (30 to 40 ft-bgs) indicates a level C and D well are necessary based on the ROST fluorescence response data at ROST-8 collected June 6, 2003. A copy is attached as Attachment 5 to this memorandum. Fluorescence was observed between 40 and 60 ft-bgs. It is also noted the wells are located essentially at the boundary of the property at the former processing area. Therefore, 10-foot well screens are needed to monitor the 40 to 50 and 50 to 60 ft-bgs intervals. The facility must install G35C and G35D to meet this requirement within 90 days. Exceedances at any well above the Class I GQS will require further delineation.

2. The "Q" designations and note at the end of the list of program monitoring wells is no longer necessary and has been removed for issuance of the Draft permit.

3. Well G128 is proposed as a GMZ Boundary well; however, the well is not sampled and has been moved to the Observation Monitoring well list. The technical review associated with B-147R-M-6 (issued August 13, 2013) had the following comment in the review memorandum:

Due to the known Shell Oil pipeline benzene release that occurred in 1986 in the immediate vicinity of the new well G128, the Illinois EPA will not require BP to sample water quality at this well. Please note that water quality sampling is required of Shell at a well adjacent to G128 on BP's property. To date, the well owned by Shell has not shown detections above 35 Ill. Adm. Code Part 620 Class I Groundwater Quality Standards (GQSs).

Given the comment above, a note for G128 has been to the table of wells to state only gauging is required due to the known benzene Shell Oil pipeline release in 1986 and the requirement for the Permittee associated with RCRA Permit Log No. B-43R and Bureau of Land ID No. 119115002 to sample well G128.

ILINOIS EPA RECOMMENDATIONS

The following recommendations address groundwater:

Revisions to the application are approvable and changes will be incorporated into the Draft Permit to be issued.

Attachments

Attachment A: BP Completed Checklist and Table of Responses to NODs
Attachment 1: Email and Example Figure of WWS Submitted for Riverfront Property
Attachment 2: Current LUST Rates Published on the Illinois EPA Website
Attachment 3: Vented Well Email
Attachment 4: Email Correspondence August 2024
Attachment 5: Well G35A and G35B ROST Fluorescence Response Data

RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

IEPA COMMENT	BP RESPONSE
1. GENERAL COMMENTS	
a. Provide a list of acronyms for the permit renewal application.	An acronym list has been added after the application cover page.
b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).	A copy of the complete/updated renewal application will be mailed to the required Region V address, Attn: Norberto Gonzales.
c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program. i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved. ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.	Sections C and F and associated figures, tables, and exhibits have been revised as follows: i. The following previously submitted permit modification requests have been incorporated into Section C of the permit application: i) Statistical Evaluation Reporting (6/03/2020); ii) G047 Well Abandonment (9/23/2020); iii) Groundwater Optimization and Contaminant Control (2/28/2023); and iv) Cone of Depression (COD) Well Replacements (1/16/2024). The following previously submitted permit modification requests have been incorporated into Section F (Exhibit F-1) of the permit application: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024). ii. Section C has been updated to reflect the following Illinois EPA approval letters: i) Main Plant Groundwater Optimization (1/19/2023); and ii) Main Plant Well Replacements (1/19/2023).

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RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

IEPA COMMENT	BP RESPONSE
iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.	iii. Section C.8 text and Figures C-4, C-5a, and C-5b have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Section F.4.2.11 and Figure F-2 have been revised to clearly describe and/or illustrate the vertical parceling in Area 12 (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).
iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim."	iv. The references to "interim" have not been removed from the Section C introductory text as a final remedy has not been selected for the Main Plant Property.
2. Exhibit A-1b, Hazardous Waste Permit Part A Form	
a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.	Exhibit A-1b has been revised to i) reflect the Liability Manager change from Sasa Jazic to Michelle Knapp under Item #1, and ii) add the current RCRA permit under Item #4. Additionally, Section A.2.3 and Exhibit A-1a were revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp.
b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.	The figure for Item #10 has been revised to delineate and label all existing structures and SWMUs. Additionally, the figure for Item #9 has been revised to include the SWMUs, existing structures, and the approximate dimensions of both. There are no sites for future treatment, storage, or disposal areas.
3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification	
Update the information on the 39(i) Certification, Section B for the new liability manager.	Exhibit A-2 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp in Section B of the 39(i) Certification and Sections II and IV of the LPC-PA23 Form.

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RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

IEPA COMMENT	BP RESPONSE
4. Exhibit A-4, Public Notice Letter	
Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated.	Exhibit A-4 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp. Additionally, Section 8.4.4 and Exhibit A-3 was revised to include/reference the mailing list provided by Illinois EPA in an email dated June 24, 2024.
5. Exhibit B-1	
Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.	Exhibit B-1 has been revised by a professional land surveyor licensed to practice in Illinois to reflect all vertical parceling exceptions. A legal description of the three-dimensional parcel above elevation 408 ft MSL sold to KMPH has also been added to Exhibit B-1. Additionally, Section B.1.1 has been updated to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).
6. Section B.2.2	
Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).	The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B-5C) have been revised along with Section B.2.2. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the *Information Required in an Application for a RCRA Post-Closure Permit*. Figures B-5B and B-5C have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Exhibit B-2 has been revised to include an updated wind rose diagram dated June 25, 2024, including data from June 1, 2014, through June 25, 2024.

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RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
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IEPA COMMENT	BP RESPONSE
7. Section C.3	
Revise Section C.3 to also identify the groundwater classification.	The groundwater classification is already noted in Section C.3 under the subheadings "Perched Groundwater Zones" (Class II: General Resource Groundwater) & "Uppermost Aquifer" (Class I: Potable Resource Groundwater).
8. Section C.4	
a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically: i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate with the exceptions listed in Comment 8.b below; and ii. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comments 8.b and 9 below.	The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B-5C) have been revised. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the *Information Required in an Application for a RCRA Post-Closure Permit*. Figures B-5B and B-5C have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL). Additionally, Figure C-2 illustrating the current groundwater monitoring well network has been renamed Figure C-2a, and new Figure C-2b illustrating the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023 has been added. Figures C-3 and C-4 have also been revised to reflect the optimized groundwater corrective action monitoring program.

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IEPA COMMENT	BP RESPONSE
b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s) and 703.185(c). The facility must provide additional information to present the following: i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area. ii. An updated Water Well Survey (WWS) must be completed, and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site.	i. The text under subheading "Groundwater Flow Directions and Flow Rates" in Section C.3 was revised to include hydraulic conductivities for the Cahokia and Henry Formations. Section C.4 was revised to reference Section C.3 as well as Figure C-1, which illustrates the groundwater elevation contours, flow direction, compliance points, and includes notes for the average hydraulic conductivity for the Cahokia and Henry Formations and the maximum operating capacity for the COD Well System. ii. Section C.4 was revised to reflect that a WWS was completed on June 26, 2024, for wells (groundwater extraction and injection) on and within 1,000 feet of the bp Main Plant Property. In addition to the COD wells on the bp Main Plant Property, the WWS identified six extraction wells as shown on Figure B-5A.
9. Section C.8	
Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.	Figure C-4 and Figure C-5 (which has been split into Figures C-5a and C-5b as noted under #10 below) have been revised to include a cross-section indicating the vertical parceling at 408 ft MSL. Additionally, Table C-1 has been revised to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023.

R000578

RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

IEPA COMMENT	BP RESPONSE
10. Section C.8.1.1 and Figure C-5	
Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.	The original Figure C-5 showing Class 1 GQS exceedances for 2018-2019 is now Figure C-5a. New Figure C-5b has been added showing Class I GQS exceedances for 2021-2023. Additionally, the text in Section C.8 has been revised to include Class 1 GQS exceedances for 2021-2023 at wells located within each Land Reuse Area.
11. Section C.8.1.5	
a. Update Cone of Depression (COD) well information to reflect changes since the time of the submittal; and	Section C has been revised to reflect the installation / status of the legacy COD wells and the new COD wells installed in 2023, including well construction detail in Section C.8.1.5.
b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.	Exhibit C-2 has been revised to include available boring logs, as-built diagrams, a process flow diagram, and piping and instrumentation diagrams for the new COD wells.
12. Section C.8.4	
The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.	Section 2.2 of Exhibit C-1 has been revised to remove the reference to use of a peristaltic pump. Additionally, Appendix A of Exhibit C-1 has been updated with the current *Standard Operating Procedure (SOP) for Low-Flow Groundwater Sample Acquisition.*
13. Appendix C of Exhibit C-1	
Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.	Exhibit C-1 has been revised to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023, including Appendix C.

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14. Section C.8.4.5 and Exhibit C-3	
A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies: i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program. ii. Indicate the most current version of the proposed software that will be used. iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.	There is no dispute that Class 1 GQS must be met. As noted, the proposed statistical evaluations using trend analysis will be used as a tool to aid in determining the effectiveness of the corrective action. i. Exhibit C-3 has been revised to include a more robust description of how the Mann-Kendall statistical methodology will be used to evaluate COC concentrations at Main Plant GMZ Boundary Monitoring Wells. ii. Commercially-available computer software Sanitas™ Statistical Software Version 10 (Sanitas) or the most current version of the software will be used. Sanitas programming was designed to conform to requirements of the March 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities* (Unified Guidance) issued by the USEPA. If licenses or access changes in the future or it is determined that another statistical program suite is preferable, then the alternative statistical program suite will be comparable in ability and utility to Sanitas. iii. The proposed handling of non-detect and estimated results is dictated by best practices from the Unified Guidance (USEPA, 2009) and built into the statistical software being used. In the case of non-detects (ND), the substitution method will be used where the ND (also denoted with a laboratory flag of < or U) value will be replaced by the reporting limit (RL) unless the percentage of NDs is less than 15% in which case the ND will be replaced by half of the RL. This substitution method ensures that the mean of datasets with a majority of detectable results is not biased high which could result in a skewed trend analysis. For datasets with more than 15% ND values, trend analyses will estimate to the RL as the confidence tails off. For estimated (J flag) values, no substitution will be completed; the estimated value provided by the analytical laboratory will be utilized.

R000580

iv. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations. 1. The March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance), must be followed and percentages of non-detections handled accordingly; and 2. Statistical requirements of 35 IAC 724.197 also apply.	iv. RLs are determined due to changes in the USEPA guidelines for the analytical method, equipment accuracy, dilution factor, and the laboratory control for the sample batch, all of which are outside of bp's control. Changes in RLs due to dilution factor were minor (factor of 1 to 5) for G023 (VOCs), G078 (VOCs), G059 (chromium and nickel), and G049 (chromium and nickel). Changes in RLs due to equipment accuracy or to comply with changes to USEPA guidelines are minor (e.g., 2,4-Dinitrophenol RL shift of 10 µg/L in 2013 to 20 µg/L by 2023 and the Class I GQS is 20 µg/L or Fluoranthene RL shift of 0.1µg/L in 2013 to 0.5 µg/L by 2023 and the Class I GQS is 0.5 µg/L) or variances due to laboratory control for the sample batch that affects every batch on a case-by-case is minor (e.g., naphthalene RL variance of 0.45 to 0.50 µg/L for sample batch for the sample event where the Class I GQS is 0.50 µg/L). These minor low-level fluctuations in RLs can cause an increase in the Mann-Kendall statistical evaluation but only for data sets in which the majority of the data being evaluated is ND; discussion of these observations and trends are presented in the Second (Third and Fourth Quarters) Semi-Annual Reports with the most current Main Plant report submittal dated February 1, 2024. As such, the statement in the October 2020 permit renewal application is considered erroneous as these low-level fluctuations do not have a substantial impact on data sets outside of those which are predominantly ND.
v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for antimony, G006 is only analyzed for arsenic, etc.	v. Table C-3 has been revised for clarification and to reflect the optimized groundwater corrective action monitoring program approved by Illinois EPA in a letter dated January 19, 2023.
vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.	vi. The text in Sections C.8.4.5, C.8.4.8, C.8.4.9, and C.9 has been revised to reflect the proposed change to report statistical evaluations every 5 years in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020.

R000581

RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

15. Section C.8.4.6	
Update Section C.8.4.6 to reflect changes since the time of the submittal.	Section C.8.4.6 has been updated to reflect that the Illinois EPA approved the Main Plant optimized groundwater corrective action monitoring program in a letter dated January 19, 2023. Accordingly, bp submitted a Class 1* Permit Modification Request to Illinois EPA dated February 28, 2023, to propose modifications to Section V of the Permit. The approved optimized groundwater corrective action monitoring program has therefore been incorporated throughout Section C of this application.
16. Section C.8.4.8	
The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.	The text has been revised to reflect the proposed change to report statistical evaluations every 5 years as part of the GMZ Re-evaluation report in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020. Potential statistically significant increases (SSIs) will also be evaluated as part of the GMZ Re-evaluation report.
17. Section C.8.4.9	
Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5.	The text has been revised to reflect that Mann-Kendall statistical methodology will be used.
18. Section C.9	
Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.5.	The text has been revised to reflect the proposed change to report statistical evaluations every 5 years as part of the GMZ Re-evaluation report in accordance with the Illinois EPA approval letter dated February 27, 2020 and Class 1* Permit Modification Request to Illinois EPA dated June 30, 2020. Potential statistically significant increases (SSIs) will also be evaluated as part of the GMZ Re-evaluation report.
19. Section F (Groundwater Aspects)	
a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.	Section F.4.2.11 has been revised to reflect the issuance of a RCRA Permit to KMPH on March 4, 2024, and clearly describe the vertical parceling in Area 12 (i.e., KMPH ownership from ground surface to 408 ft AMSL and bp ownership below 408 ft AMSL).

R000582

b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.	Exhibit F-1 has been revised to document the progression of the bioremediation pilot systems in addition to incorporating the Class 1* Permit modification requests submitted to Illinois EPA on the following dates for the annual updates to Attachment C. • 1/29/2021 • 1/31/2022 • 1/31/2023 • 1/31/2024
20. Section F.4.2	
a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.	Corrective action letters sent to the Illinois EPA and Illinois EPA responses are summarized in new Table F-3. Additionally, the status of each Land Reuse Area is summarized in new Table F-2 as requested by Illinois EPA via email on June 26, 2024.
b. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application: i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area. ii. A copy of the certified ELUC for each applicable Land Reuse Area.	i. All no further action letters are provided in new Exhibit F-4. ii. All certified ELUCs are provided in new Exhibit F-5.
21. Section F.4.2.2.2	
Provide the total size of Area 2 in the detailed description of unit.	Section F.4.2.2 has been revised to include the total size of Area 2 (43.17 acres).
22. Section F.4.2.3.2	
Provide the screening interval during field screening investigation from November 2002 to July 2003.	Section F.4.2.3.2 has been revised to reflect that soil samples were collected at approximate depths of 3 to 8 feet below ground surface.

R000583

RESPONSE TO ILLINOIS EPA COMMENTS DATED JUNE 18, 2024
BP MAIN PLANT PROPERTY PERMIT RENEWAL APPLICATION NOD
LOG NO. B-147R2

23. Section F.6	
Revise Exhibit F-2 based on the following comments:	Exhibit F-2 has been revised as follows:
i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.	i. The labor costs on page 1 have been revised to align with the correct costs on page 2.
ii. Check for consistency between the task objective for Area 5, mentioning four remediation areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.	ii. The task objective for Area 5 on page 9 has been revised to align with the correct text in F.4.2.5.
iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.	iii. The text in F.4.2.6 has been revised to clarify five of seven remediation areas required delineation; the task objective for Area 6 on page 13 has been revised to align with the revised text.
iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.	iv. As stated in the Class 1* Permit Modification request dated December 20, 2017, the 2017 Corrective Action Cost Estimate for Financial Assurance was prepared using the Illinois EPA LUST Program Maximum Payment Amount for LUST lab rates were used for the laboratory rates.
v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.	v. A table summarizing bp Job Categories for Environmental Services has been added to Exhibit F-2.

R000584

Faruk, Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Friday, August 2, 2024 10:35 AM
To: Butler, Amy
Subject: [External] Re: copy of new WWS?
Attachments: Figure for Item 8.pdf

When you refer to our previous WWS, are you referring to the municipal wells shown on *Item #8 Figure for the Hazardous Waste Part A Permit Form* within 1 mile of the facility (attached)? I see that those form instructions say to include drinking water wells within ¼ mile of the facility.

Where does the May 2021 guidance document attached to the NOD letter require a WWS? We can't find anything about a WWS in 35 IAC 703.183(s) or 35 IAC 703.185(c) unless it's just the "injection and withdrawal wells both on-site and off-site" requirement on the 1000-ft+ topo map, which we did complete (Figure B-5A). We are just trying to understand where the permit application requirements for a WWS are that were missed, including the 2,500-ft requirement.

Currently, we plan to update the private and public wells shown on *Item #8 Figure for the Hazardous Waste Part A Permit Form* to include those within 1 mile of the facility based on more recent WWS results; but please let me know on Monday if you are looking for something different.

Thanks,

Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
www.sovcon.com

From: Butler, Amy <Amy.Butler@Illinois.Gov>
Sent: Thursday, August 1, 2024 5:10 PM
To: Starlet Wright <swright@sovcon.com>
Subject: RE: copy of new WWS?

I think my condition may have been unclear. I was intending for you to do a WWS, and also depict any new injection or withdrawal wells.

Did you look for potential private and public wells within 2,500 feet of the facility (similar to your previous WWS)? We have guidance on our website. If did not look for private/public wells – this is something that could be initiated while you are waiting for us to respond to your recent submittal.

I'm off tomorrow but back in on Monday.

Thanks,
Amy

From: Starlet Wright <swright@sovcon.com>
Sent: Thursday, August 1, 2024 4:07 PM
To: Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: [External] Re: copy of new WWS?

The Section C.4 text was updated, but the extraction wells identified within 1,000 feet (in addition to bp's COD wells) are shown on Figure B-5A (Section B).

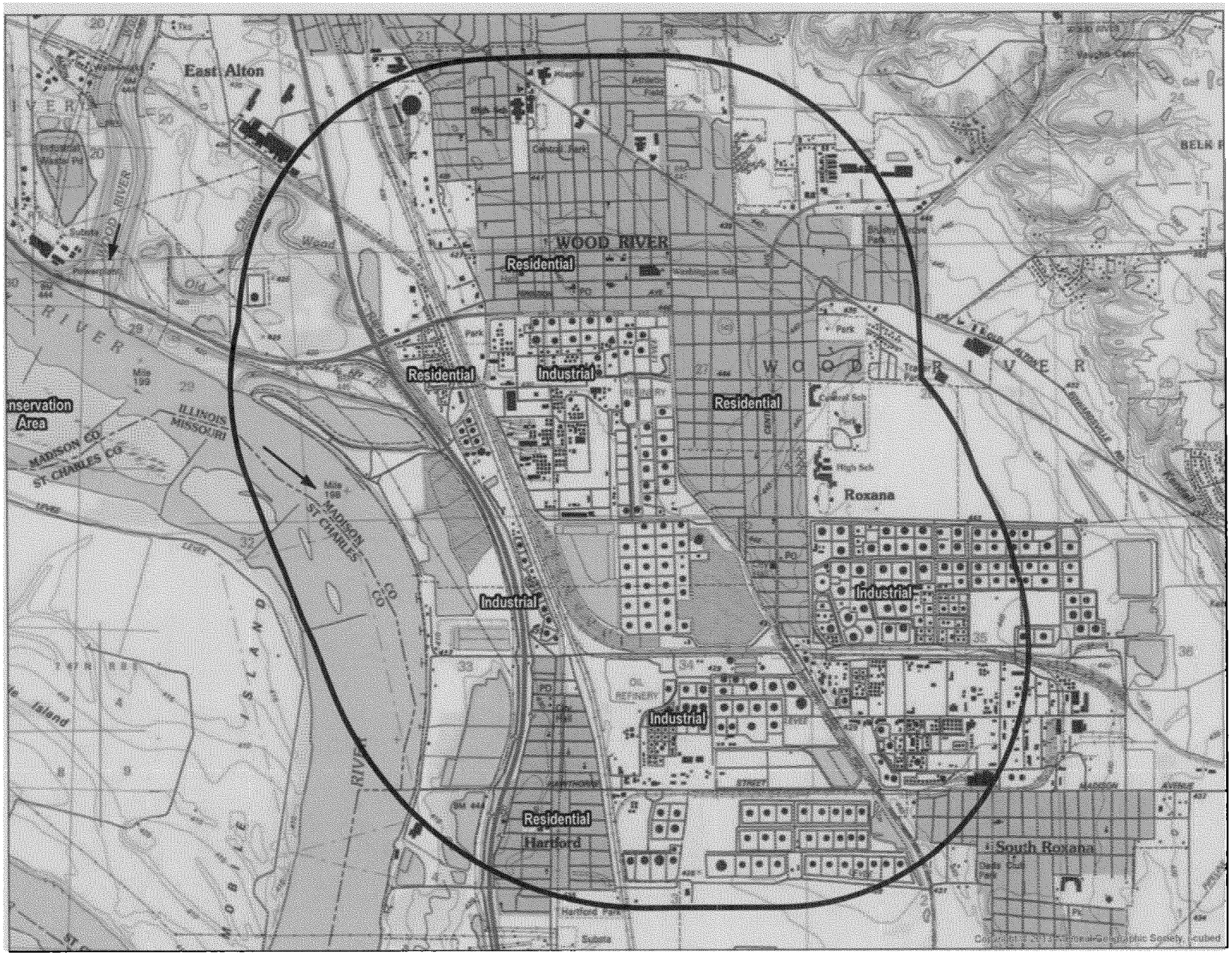


Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
https://link.edgepilot.com/s/fbbe1613/JLtDydQX9E_pH_YZlbjeJQ?u=http://www.sovcon.com/

From: Butler, Amy <Amy.Butler@Illinois.Gov>
Sent: Thursday, August 1, 2024 3:58 PM
To: Starlet Wright <swright@sovcon.com>
Subject: copy of new WWS?

Did you provide a copy of the new WWS?

Amy Butler, P.G.
Geologist, Groundwater Unit
Illinois EPA/Bureau of Land/Permits
217/558-4716
Amy.Butler@illinois.gov



Legend

- Facility Plus 1 Mile
- Main Plant Property
- Municipal Well
- River Flow Direction

Source:
USGS 7.5 Minute Topographic Map
-Wood River, IL-MO, 2017
-Alton, IL, 2017
-Bethalto, IL, 2017
-Columbia Bottoms, MO, 2017

N

1,600 800 0 1,600
Feet

Figure for Item #8 - Map
Part A Permit Application

Topographic Map
1 Mile Facility Radius

BP Main Plant Property
Wood River, Illinois

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Job No.	6560175030
Drawn By:	JT
Reviewed By:	AV
Date:	8/19/2020

R000587

Maximum Payment Amounts
July 1, 2024 through June 30, 2025

	Maximum Total Amount
Drilling:	
Hollow-stem auger	$35.73 per foot
Direct-push platform for sampling or other non-injection	$27.70 per foot
Direct-push platform for injection	$23.08 per foot

The costs associated with a round of drilling must not exceed $1,846.39 for direct-push platform or $2,307.98 for hollow-stem auger or the above applicable per foot amount, whichever is greater.

Monitoring/Recovery Wells:	
Monitoring well installation via hollow-stem auger	$25.40 per foot
Monitoring well installation via direct-push platform	$19.23 per foot
4" or 6" recovery well installation	$38.47per foot
8" or greater recovery well installation	$63.08 per foot
Monitoring well abandonment	$15.39 per foot
Excavation, Transportation, and Disposal of Contaminated Soil:	$87.70 per cubic yard
Backfilling the Excavation:	$30.77 per cubic yard
Overburden Removal and Replacement:	$10.01 per cubic yard
Groundwater or Free Product Removal and Disposal (per round):	$1.05 per gallon

Removal, transportation, and disposal costs associated with each round of free product removal via hand bailing, or a vacuum truck must not exceed $307.73 or the above per gallon amount, whichever is greater.

Drum Disposal:

Purchase, transportation, and disposal of drummed waste must not exceed $769.33 or the following amounts, whichever is greater:

Purchase, transportation, and disposal of drum of solid waste	$384.66 per drum
Purchase, transportation, and disposal of drum of liquid waste	$230.81 per drum

UST Removal:	
UST volume 110 to 999 gallons	$3,231.17 per UST
UST volume 1,000 to 14,999 gallons	$4,846.77 per UST
UST volume ≥15,000 gallons	$6,308.48 per UST

Replacement of Concrete, Asphalt, and Paving:

asphalt @ 2" depth: $2.54 per square foot	asphalt @ 3" depth: $2.85 per square foot
asphalt @ 4" depth: $3.67 per square foot	asphalt @ 6" depth: $4.74 per square foot
concrete @ 2" depth: $3.77 per square foot	concrete @ 3" depth: $4.51 per square foot
concrete @ 4" depth: $5.25 per square foot	concrete @ 5" depth: $5.99 per square foot
concrete @ 6" depth: $6.72 per square foot	concrete @ 8" depth: $8.17 per square foot

Concrete, Asphalt, and Paving Installed as an Engineered Barrier:

asphalt @ 2" depth: $2.54 per square foot	asphalt @ 3" depth: $2.85 per square foot
asphalt @ 4" depth: $3.67 per square foot	concrete @ any depth: $3.67 per square foot

Destruction or Dismantling and Reassembly of Above Grade Structures: $10,000.00 per site

Maximum Payment Amounts
July 1, 2024 through June 30, 2025

Personnel Titles and Requirements

Title	Degree Required	Ill. License Required	Minimum Yrs. Experience	Maximum Hourly Rate
Engineer I	Bachelor's in Engineering	None	0	$115.39
Engineer II	Bachelor's in Engineering	None	2	$130.79
Engineer III	Bachelor's in Engineering	None	4	$153.87
Professional Engineer	Bachelor's in Engineering	P.E.	4	$169.25
Senior Prof. Engineer	Bachelor's in Engineering	P.E.	8	$200.03
Geologist I	Bachelor's in Geology or Hydrogeology	None	0	$107.70
Geologist II	Bachelor's in Geology or Hydrogeology	None	2	$115.39
Geologist III	Bachelor's in Geology or Hydrogeology	None	4	$135.40
Professional Geologist	Bachelor's in Geology or Hydrogeology	P.G.	4	$141.55
Senior Prof. Geologist	Bachelor's in Geology or Hydrogeology	P.G.	8	$169.25
Scientist I	Bachelor's in a Natural or Physical Science	None	0	$92.31
Scientist II	Bachelor's in a Natural or Physical Science	None	2	$100.00
Scientist III	Bachelor's in a Natural or Physical Science	None	4	$107.70
Scientist IV	Bachelor's in a Natural or Physical Science	None	6	$115.39
Senior Scientist	Bachelor's in a Natural or Physical Science	None	8	$130.79
Project Manager	None	None	8[1]	$138.48
Senior Project Manager	None	None	12[1]	$153.87
Technician I	None	None	0	$69.24
Technician II	None	None	2[1]	$76.93
Technician III	None	None	4[1]	$84.63
Technician IV	None	None	6[1]	$92.31
Senior Technician	None	None	8[1]	$100.00
Account Technician I	None	None	0	$53.85
Account Technician II	None	None	2[2]	$61.55
Account Technician III	None	None	4[2]	$69.24
Account Technician IV	None	None	6[2]	$76.93
Senior Acct. Technician	None	None	8[2]	$84.62
Administrative Assistant I	None	None	0	$38.47
Administrative Assistant II	None	None	2[3]	$46.16
Administrative Assistant III	None	None	4[3]	$53.85
Administrative Assistant IV	None	None	6[3]	$61.55
Senior Admin. Assistant	None	None	8[3]	$69.24
Draftsperson/CAD I	None	None	0	$61.55
Draftsperson/CAD II	None	None	2[4]	$69.24
Draftsperson/CAD III	None	None	4[4]	$76.93
Draftsperson/CAD IV	None	None	6[4]	$84.62
Senior Draftsperson/CAD	None	None	8[4]	$92.31

[1] Equivalent work-related or college level education with significant coursework in the physical, life, or environmental sciences can be substituted for all or part of the specified experience requirements.

[2] Equivalent work-related or college level education with significant coursework in accounting or business can be substituted for all or part of the specified experience requirements.

[3] Equivalent work-related or college level education with significant coursework in administrative or secretarial services can be substituted for all or part of the specified experience requirements.

[4] Equivalent work-related or college level education with significant coursework in drafting or computer aided design (CAD) can be substituted for all or part of the specified experience requirements.

Maximum Payment Amounts
July 1, 2024 through June 30, 2025

Laboratory Rates Per Analysis	Maximum
Chemical	
BETX Soil with MTBE	$130.79
BETX Water with MTBE	$124.63
COD (Chemical Oxygen Demand)	$46.16
Corrosivity	$23.08
Flash Point or Ignitability Analysis EPA 1010	$50.76
FOC (Fraction Organic Carbon)	$58.46
Fats, Oil, & Grease (FOG)	$92.31
LUST Pollutants Soil - analysis must include all volatile, base/neutral, polynuclear aromatic, and metal parameters list in Section 732.Appendix B and 734.Appendix B	$1,066.29
Organic Carbon (ASTM-D 2974-87)	$50.76
Dissolved Oxygen (DO)	$36.93
Paint Filter (Free Liquids)	$21.54
PCB / Pesticides (combination)	$341.58
PCBs	$170.78
Pesticides	$215.41
pH	$21.54
Phenol	$52.31
Polynuclear Aromatics PNA, or PAH SOIL	$233.88
Polynuclear Aromatics PNA, or PAH WATER	$233.88
Reactivity	$104.63
SVOC - Soil (Semi-Volatile Organic Compounds)	$481.60
SVOC - Water (Semi-Volatile Organic Compounds)	$481.60
TKN (Total Kjeldahl) "nitrogen"	$67.70
TOC (Total Organic Carbon) EPA 9060A	$47.70
TPH (Total Petroleum Hydrocarbons)	$187.72
VOC (Volatile Organic Compound) - Soil (Non-Aqueous)	$269.26
VOC (Volatile Organic Compound) - Water	$260.04
Geo-Technical	
Bulk Density ASTM D4292 / D2937	$33.85
Ex-situ Hydraulic Conductivity / Permeability	$392.36
Moisture Content ASTM D2216-90 / D4643-87	$18.46
Porosity	$46.16
Rock Hydraulic Conductivity Ex-situ	$538.53
Sieve / Particle Size Analysis ASTM D422-63 / D1140-54	$223.11
Soil Classification ASTM D2488-90 / D2487-10	$104.63
Other	
EnCore® Sampler, purge-and-trap sampler, or equivalent sampling device	$15.39
Sample Shipping (*maximum total amount for shipping samples in a calendar day)	*$76.93

Metals	Maximum
Soil preparation for Metals TCLP Soil (one fee per sample)	$121.55
Soil preparation for Metals Total Soil (one fee per sample)	$24.61
Water preparation for Metals Water (one fee per sample)	$16.91
Arsenic TCLP Soil	$24.61
Arsenic Total Soil	$24.61
Arsenic Water	$27.70
Barium TCLP Soil	$15.39
Barium Total Soil	$15.39
Barium Water	$18.46
Cadmium TCLP Soil	$24.61
Cadmium Total Soil	$24.61
Cadmium Water	$27.70
Chromium TCLP Soil	$15.39
Chromium Total Soil	$15.39
Chromium Water	$18.46
Cyanide TCLP Soil	$43.08
Cyanide Total Soil	$52.31
Cyanide Water	$52.31
Iron TCLP Soil	$15.39
Iron Total Soil	$15.39
Iron Water	$18.46
Lead TCLP Soil	$24.61
Lead Total Soil	$24.61
Lead Water	$27.70
Mercury TCLP Soil	$29.23
Mercury Total Soil	$15.39
Mercury Water	$40.01
Selenium TCLP Soil	$24.61
Selenium Total Soil	$24.61
Selenium Water	$23.08
Silver TCLP Soil	$15.39
Silver Total Soil	$15.39
Silver Water	$18.46
Metals TCLP Soil (a combination of all RCRA metals)	$158.48
Metals Total Soil (a combination of all RCRA metals)	$144.62
Metals Water (a combination of all RCRA metals)	$183.09

Faruk, Omar

From: Knapp, Michelle <Michelle.Knapp@bp.com>
Sent: Thursday, April 4, 2024 1:56 PM
To: Butler, Amy; Dial, Shawntay D.; Al-Janabi, Ali
Subject: [External] bp Wood River monitoring wells

Ali, Amy, and Shawntay,

Per our call on 4/2/2024, we have summarized our comments in response to the Illinois EPA 8/3/2023 Main Plant RCRA Inspection Report recommendation to make air vent holes in the caps of the inner casing in all monitoring wells so the well can breathe and not have water table level changes impeded by creating positive or negative air pressure inside the well. We understand that the recommendation was intended to help us improve our gauging accuracy and avoid any potential violations. However, the venting of wells at the Wood River facilities (Riverfront and Main Plant) is neither advisable nor necessary due to the following site-specific conditions:

- The gauging SOP includes collection of repeat measurements to ensure accurate depth to water is recorded.
- Under site-specific conditions, the groundwater level equilibrates within seconds of removing well cap (as demonstrated via slug test data).
- Groundwater gauging data is collected via a digitized system now, allowing us to identify monitoring wells with anomalous depth to water measurements and re-gauge them within the 72-hour period.
- Pressurized wells could release methane and VOC's in impacted areas. This could result in air permit exceedences.
- Vented well caps are not appropriate for flushmount wells as well vaults may not remain water-tight over time; this could allow surface runoff to enter a well before the well vault is replaced.
- Regarding the Main Plant Property, if necessary, bp can submit replacement pages for the Main Plant RCRA Permit Renewal Application to clarify that the vented well cap shown on the Illinois EPA Bureau of Land well construction diagram (Attachment B to the current Main Plant RCRA Permit) is not appropriate for the Main Plant Property for the above reasons.
- Additionally, as the Riverfront Property is subject to flooding, vented well caps are not recommended at any Riverfront Property flushmount or stick-up monitoring wells.

Thanks for your time on the call, and let me know what, if any, next steps we should take to update the permit(s).

Thanks,

Michelle

Michelle Knapp
Liability Manager

BP Remediation Management
847-346-7112

bp

Together, we...





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Faruk, Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Monday, July 29, 2024 1:49 PM
To: Butler, Amy; Knapp, Michelle
Cc: Faruk, Omar
Subject: [External] Re: question about southeast contaminant control demonstrations
Attachments: Section V.F.12 proposed revision to reporting.docx

Hi Amy,

Please see attached markup of current permit Section V.F.12 for your review. The changes proposed here for the SE Corner and Sentry Wells would also be written into the renewal application proposing the same for contaminant control in the vicinity of Area 9 (per the January 19, 2023 Illinois EPA letter; Log No. B-147R-CA-115 and the associated pending Class 1* permit mod request dated February 28, 2023) and the proposed Demonstration Wells in that area.

Thanks,

Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
www.sovcon.com

From: Butler, Amy <Amy.Butler@Illinois.Gov>
Sent: Monday, July 29, 2024 11:00 AM
To: Knapp, Michelle <michelle.knapp@bp.com>; Starlet Wright <swright@sovcon.com>
Cc: Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: RE: question about southeast contaminant control demonstrations

Sounds good.

Thanks,
Amy

From: Knapp, Michelle <Michelle.Knapp@bp.com>
Sent: Monday, July 29, 2024 9:03 AM
To: Butler, Amy <Amy.Butler@Illinois.Gov>; STARLET Wright <swright@sovcon.com>
Cc: Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: [External] RE: question about southeast contaminant control demonstrations

Amy,
Thanks for reaching out. I understand that you talked with Starlet last Friday, and we will be incorporating this into our submittal.
I'll reach out if we have any further questions.
Thanks,
Michelle

From: Butler, Amy <Amy.Butler@Illinois.Gov>
Sent: Friday, July 26, 2024 3:01 PM
To: Knapp, Michelle <Michelle.Knapp@bp.com>; STARLET Wright <swright@sovcon.com>
Cc: Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: question about southeast contaminant control demonstrations

Hi,

I was wondering how your response to the NODs is coming along. I'd like to discuss the notification and reporting requirements in Condition 12 of the GW CA section of the permit, and possible simplification which could be incorporated into the permit renewal application.

Michelle, I can talk directly with you or someone you feel comfortable with. I know we are on a tight turnaround timeline, but I think this could even be addressed as a revised page submittal as additional information if you've already finalized everything.

I'm working until 4pm today and 8-530 Mon-Th of next week.

Thanks,
Amy

Amy Butler, P.G.
Geologist, Groundwater Unit
Illinois EPA/Bureau of Land/Permits
217/558-4716
Amy.Butler@illinois.gov



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Faruk, Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Friday, August 23, 2024 3:05 PM
To: Butler, Amy
Subject: [External] Re: ETA for revised pages + well question

Hi Amy,

We will do our best to get the replacement pages out next week, but September 4 at the latest.

Regarding those two wells, yes, to my knowledge they are currently regular groundwater monitoring wells. The belt skimmer is currently at LS-1, which I believe is a 4-inch well. We do not have boring/well logs for them, but I want to look through the historical files one more time to see if I can find any.

Thanks,

Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
www.sovcon.com

From: Butler, Amy <Amy.Butler@Illinois.Gov>
Sent: Friday, August 23, 2024 1:51 PM
To: Starlet Wright <swright@sovcon.com>
Subject: ETA for revised pages + well question

Hi,

Do you have an estimate on when the revised pages will be finalized? Also, are the LNAPL monitoring BP wells LS-1 and SVE-2 traditional groundwater monitoring wells?

Thanks,
Amy

Amy Butler, P.G.
Geologist, Groundwater Unit
Illinois EPA/Bureau of Land/Permits
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ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: June 6, 2024

TO: Omar Faruk, RCRA Unit

FROM: Amy Butler, P.G., Groundwater Unit

SUBJECT: Technical Review for RCRA Permit Renewal Application

RE: 1191150001 -- Madison County
BP Products North America Inc/Main Plant Property
ILD980700967
Log Nos. B-147R2
RCRA Permit

A technical review has been completed on the groundwater portions of the subject submittal entitled, "RCRA Permit Renewal Application", dated October 8, 2020 and received by the Illinois EPA on October 9, 2020. This document was submitted by Mr. Sasa Jazic of BP's Remediation Management Services Company. This document was submitted on behalf of BP Products of North America, Inc. (BP). The submittal was prepared in accordance with the RCRA Post-Closure Permit Application guidance document (November 2019), and requests renewal of the approved RCRA Corrective Action Permit (Permit). A completeness review was completed on the groundwater portions of the subject submittal and approved November 20, 2020.

Additional Information: A document dated May 10, 2022, was submitted to provide replacement pages due to well construction and repairs for well G669/HPW61.

Phone Conference: A phone conference was held May 30, 2024 to discuss certain aspects of the application. Specifically, the removal of the property sold to Kinder Morgan (formerly known as Area 12) was discussed and other general deficiencies noted to date by the RCRA Unit. With regards to groundwater, it was discussed the Notice of Deficiencies (NODs) to be issued would indicate several updates to the application are be needed due to approvals and modifications to the program since the time the application was initially submitted.

BACKGROUND

The Main Plant occupies approximately 555 acres east of the Mississippi River in the City of Wood River. A refinery was constructed at the Main Plant location beginning in 1907. Operations of the refinery began in 1908. During peak operation, the refinery

processed 100,000 barrels of crude per day into gasoline, heating oil, diesel, jet fuels, kerosene, polybutylene, asphalt and other petroleum products. The refinery ceased operation in 1981. Dismantling of the refinery equipment occurred from 1981 until 1991.

Amoco Petroleum Additives Company (APAC) was formed in 1957 and operated a portion of the operating facilities at the Main Plant until 1996. APAC manufactured fuel additives and lubrication oil additives from raw products and operated a terminal for receipt and distribution of gasoline, diesel, and other distillate fuels such as furnace oil and heating oil.

The Permit was initially issued September 30, 1993, and renewed March 4, 2011 (Log Nos. B-147 and B-147R). The March 4, 2011 permit approved closure by removal for the former regulated units (South Flare Pit and North Cell of Spray Pond 1); therefore, the permit was issued as a Corrective Action permit and post-closure care was no longer required. The following groundwater monitoring programs are present at the site:

> The facility maintains a site-wide Groundwater Corrective Action Monitoring Program for property outlined in the Groundwater Corrective Action Program Section.
>
> The Corrective Action Section of the Permit is being implemented for Solid Waste Management Units (SWMUs) at designated Land Reuse Parcel, which include SWMUs and Product Release Sites (PRS) across the site.

SUBJECT SUBMITTAL

The facility provides a completed copy of the, "Illinois Environmental Protection Agency Completeness Checklist", dated November 2019. The Decision Guide Checklist refers to the locations of relevant information to satisfy each section. For this initial review, a copy of the RCRA Post-Closure Permit Application Checklist with reviewer notes regarding completion and location of information was not completed due to the need for a new Section C which will reflect the changes to the program since submittal of the application.

With regards to groundwater, a review of Section C (Groundwater Monitoring) and groundwater-related portions of Section F (Corrective Action) has been completed.

SECTION C (Groundwater Monitoring)

Rather than completing Section F.4.2 for groundwater, the facility has provided that information in Section C, as recommended by the Illinois EPA. This technical review memorandum will follow the format of Section C, comment accordingly, and will not repeatedly state the facility is following the format of Section C instead of placing all information in Section F.4.2.

The facility states that BP is proposing to continue the previously approved alternative groundwater monitoring program in accordance with 35 Ill. Adm. Code 724.200. Groundwater corrective action is required due to the presence of light non-aqueous phase liquid (LNAPL) and dissolved groundwater impacts that originated from historical operations of the former refinery and Amoco Petroleum Additives Company (APAC). They state the LNAPL and dissolved plumes are not located near the former regulated units (South Flare Pit and North Cell of Spray Pond 1). BP states the interim corrective action is designed to control the migration of impacted groundwater within the GMZ through Cone of Depression (COD) wells, which induce a hydraulic gradient. Periodic groundwater testing and gauging is also conducted.

Illinois EPA Comments to Section C

The following comments address the introduction to Section C:

1. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".

Exemption from Groundwater Protection Requirements (Section C.1)

The facility is not subject to these requirements and is not requesting exemption from the groundwater protection requirements; therefore, this section is not applicable.

Illinois EPA Comments Regarding Section C.1

The Illinois EPA has determined that Section C.1 is adequate.

Interim Status Groundwater Monitoring Data (Section C.2)

The facility is not subject to interim status. The program is intended to meet the requirements of 35 Ill. Adm. Code 724.200.

Illinois EPA Comments Regarding Section C.2

The Illinois EPA concurs an interim status period is not applicable and Section C.2 is adequate. It must be noted the facility historically had regulated units and interim status data for the program is available in previous permit applications and Agency files prior to the closure of those units.

Historical Hydrogeologic Summary (Section C.3)

The Main Plant is located in an area of the Mississippi River floodplain valley called the American Bottoms, which is seven miles wide. These unconsolidated sediments, ranging

in thickness from 0 to 160 feet, are designated as "valley fill" and include recent alluvium and glacial material. Four (4) stratigraphic units have been identified at the facility; the units are as follows:

Floodplain Deposits: The fine-grained sediments encountered at the ground surface and at shallow depths are composed mainly of complexly interbedded silt and clay deposits. The thickness of the unit ranges from 18 to 46 feet.

Fine Sand Unit: Fine-grained sand is sometimes found underlying the Floodplain Deposits. The sand is often silty with some medium-grained sand. This unit is not present in many areas of the Riverfront property and the maximum thickness is 17 feet.

Coarse Sand and Gravel Unit: This unit consists mostly of coarse-grained sand and gravel with localized beds of cobbles and some boulders. This unit ranges in thickness from 45 feet to 80 feet.

Basal Clay Layer: A thin basal clay layer (0.5 to 4 feet) overlying bedrock has been identified at several well locations.

Bedrock: is encountered at depths ranging from 101 to greater than 113 feet below ground surface (bgs) and consists of both limestone and shale. A boring southeast of the Main Plant property indicated the upper 143 feet of bedrock is composed of interbedded shale and sandstone with some minor limestone.

Hydrogeologic Units

Two groundwater zones have been identified based on hydrogeological investigations: perched groundwater and the uppermost aquifer (UMA).

A shallow perched zone is sometimes encountered above or within the clays of the Floodplain Deposits between 4 and 15 feet bgs. Perched groundwater appears to be limited in quantity and discontinuous. The sources are precipitation and surface water features. Perched water levels may vary by as much as three feet, which indicates the water is not in direct hydraulic connection with the uppermost aquifer.

The deeper zone is the principal regional aquifer of the American Bottoms and is identified as the facility's uppermost aquifer. The Uppermost Aquifer is generally encountered from 30 to 40 feet bgs in the coarse-grained outwash deposits and extends from the water table to the bedrock surface.

Hydraulic Aquifer Properties

Hydraulic conductivity of the Fine Sand Unit is 26 feet per day (ft/day) based on results of slug tests and a pump test. Hydraulic conductivity of the Coarse Sand and Gravel Unit using a single well method is 355 ft/day. Historical slug tests performed on wells

screened in the perched water-bearing sediments resulted in hydraulic conductivity values of 0.19 ft/day and 0.20 ft/day, which are consistent with silty sands to clays.

Groundwater Flow Directions and Groundwater Flow Rates

Hydraulic gradients are influenced by the following: COD wells at the Main Plant, Wood River Community Water Supply (CWS) wells to the northwest, and the Shell pumping wells east of the facility.

Groundwater Management Zone (GMZ)

A GMZ is established for impacts caused by the release of contaminants from the site. See Figure C-1 for the horizontal extent of the approved GMZ, which was initially approved April 6, 1994. BP uses the COD wells located at the Main Plant facility for hydraulic control of the dissolved plume. The GMZ was initially established based on exceedances of standards as described in Section C.8.1.3.

Illinois EPA Comments Regarding Section C.3

The following comments address Section C.3:

1. Revise Section C.3 to also identify the groundwater classification.

Topographic map requirements (Section C.4)

A topographic map that extends 1,000 feet beyond the facility is provided in Section B, Figures B-5A, B-5B, and B-5C. The legal description is provided in Exhibit B-1 of Section B.

Illinois EPA Comments Regarding Section C.4

The following comments address Section C.4:

1. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 Ill. Adm. Code 703.183(s) and 35 Ill. Adm. Code 703.185(c). Specifically:

   a. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate, with the exceptions listed in Comment 2 below; and

   b. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comment 2 below and Comments to Section C.8.

2. Revise Section C.4 to meet the remaining requirements of 35 Ill. Adm. Code 703.183(s) and 703.185(c). The facility must provide additional information to present the following:

   a. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

   b. An updated Water Well Survey (WWS) must be completed, and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site, as required by 35 Ill. Adm. Code 703.183(s).

   c. The RCRA Unit noted during the May 30, 2024 conference call with BP that the topographic map will need to be modified to reflect removal of the upper portion of Area 12, now owned by Kinder Morgan. Comments will be issued by the RCRA Unit and no additional comments regarding groundwater are required.

3. The RCRA Unit noted during the May 30, 2024 conference call with BP that Pages 3 and 4 of the legal description were missing and will need to be modified to reflect removal of the upper portion of Area 12, now owned by Kinder Morgan. Comments will be issued by the RCRA Unit and no additional comments regarding groundwater are required.

Contaminant Plume Description (Section C.5)

BP states this section is not applicable per 35 Ill. Adm. Code 703.185(d) and 35 Ill. Adm. Code Part 724, Appendix I, since the regulated units are not the source of the plume. The regulated units were removed with the issuance of the Permit issued March 4, 2011 (Log No. B-147R).

Illinois EPA Comments Regarding Section C.5

The following comments address Section C.5:

1. See Section C.8 for a description of corrective action for the contaminant plume required by 35 Ill. Adm. Code 724.201.

DETECTION MONITORING PROGRAM (SECTION C.6)

Section C.6 is not applicable as the facility is undertaking a groundwater corrective action monitoring program required by 35 Ill. Adm. Code 724.201.

Illinois EPA Comments Regarding Section C.6

The facility does not have a Detection Monitoring Program as the regulated units were removed; therefore, the requirements of 35 Ill. Adm. Code 703.185(f) and 724.198 are not applicable, and Section C.6 is adequate.

COMPLIANCE MONITORING PROGRAM (SECTION C.7)

Section C.7 is not applicable as the facility is undertaking a groundwater corrective action monitoring program required by 35 Ill. Adm. Code 724.201.

Illinois EPA Comments Regarding Section C.7

The facility does not have a Compliance Monitoring Program; therefore, the requirements of 35 Ill. Adm. Code 703.185(g) and 724.199 are not applicable, and Section C.7 is adequate.

CORRECTIVE ACTION PROGRAM (SECTION C.8)

This section describes the groundwater corrective action monitoring program required by 35 Ill. Adm. Code 724.201. It lists the specific wells found in each of the 19 Land Reuse Areas, and off-site wells, and the groundwater exceedances, relative to the time the application was prepared, found in each of those Areas.

- The monitoring wells are shown on Figure C-2.
- The constituents monitored are Volatile Organic Compounds (VOCs) and Semi-Volatile Organic Compounds (SVOCs), and total metals as listed in Section V.E.1 of the Permit. The Groundwater Monitoring Program Exhibit C-1 also provides the list in Appendix B.
- Table C-1 lists the wells present in each Land Reuse Area.
- Figure C-4 depicts the Land Reuse Area boundaries and the wells.
- Figure C-5 presents Class I GQS exceedances for GMZ boundary wells in 2018 and 2019.
- Exhibit C-1 of the Groundwater Monitoring Program lists sampling frequencies.
- A discussion of Area 1 through Area 19 is provided to list the monitoring wells within each respective area, and the Class I GQS exceedances at every well if they exist in the 2018 and 2019 sampling period. The off-site wells are also listed and exceedances noted. For those off-site wells with exceedances, a table is created below:

Illinois EPA Comments to Section C.8

The following comments address Section C.8:

1. Section F of the application references back to Section C; therefore, the information was reviewed within Section C to meet these requirements.

2. It is noted there are wells with exceedances of Class I GQSs; however, the data is from 2018 and 2019. A GMZ Evaluation is in-house (GMZ document is Log No. CA-10, dated December 21, 2020) and will be reviewed separately. Please also see Illinois EPA Comments to Section C.8.1.1.

3. Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

Description of Corrective Action Program (Section C.8.1)

This section describes the requirements of the Groundwater Corrective Action Program listed in Conditions V.A.1 through V.A.4 of the current permit. Corrective action measures for groundwater include hydraulic control of groundwater, verification and monitoring of the program, remediation of LNAPL at and below the water table, and demonstration of inward gradient and groundwater quality. Subsections C.8.1.1 through C.8.1.6 provide additional details.

Illinois EPA Comments Regarding Section C.8.1

The Illinois EPA has determined that information provided and referenced in Section C.8.1 is adequate to describe the program and corrective measures in place at the time of submittal. A general comment will require the section be revised to reflect the current program.

Characterization of Contaminated Groundwater (Section C.8.1.1)

The monitoring well locations are shown on Figure C-2, and groundwater quality sampling is conducted in accordance with the facility permit. While note noted here, the data from 2018 and 2019 is depicted on Figure C-5 to show exceedances at GMZ Boundary wells.

Illinois EPA Comments Regarding Section C.8.1.1

The following comments address Section C.8.1.1 and Figure C-5:

1. Figure C-5 shows exceedances at GMZ boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last

three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.

Concentration Limits (Section C.8.1.2)

Section C.8.1.2 states the concentration limits are listed in Condition V.E.1 of the permit and also in Appendix B of Exhibit C-1 of the application.

Illinois EPA Comments Regarding Section C.8.1.2

The information provided and referenced in Section C.8.1.2 is adequate to identify the concentration limits.

Compliance Point (Section C.8.1.3)

The compliance point is the three-dimensional region comprising the GMZ Boundary. The GMZ Boundary Wells, as specified in the Permit at the time the application are identified.

BP states further establishment of a point of compliance will be postponed until the monitoring wells have attained the applicable concentration limits that comprise the groundwater protection standard found in permit Condition V.E.1 and the GMZ expires. At that time, BP must submit a proposal for the establishment of a point of compliance which satisfies the regulatory requirements found in 35 IAC, Subpart F and reflects the current conditions at the facility.

Illinois EPA Comments Regarding Section C.8.1.3

Section C.8.1.3 describes the language in Condition V.C.4 of the permit and is adequate to describe the compliance point.

Compliance Period (Section C.8.1.4)

The compliance period began with the issuance of the Permit in September 1993.

Illinois EPA Comments to Section C.8.1.4

The statement in Section C.8.1.4 is accurate, while this reviewer notes, as stated in 35 IAC 724.196(b), *The compliance period begins when the owner or operator initiates a compliance monitoring program meeting the requirements of Section 724.199;* which applies to the regulated units that have been removed.

Construction Detail (Section C.8.1.5)

This section states the BP Main Plant COD pumping wells are used to induce groundwater flow within the BP Riverfront Property GMZ towards the Main Plant. Boring logs and information regarding COD well components are stated to be included in Exhibit C-2.

Illinois EPA Comments to Section C.8.1.5

1. Provide the following information for Section C.8.1.5:

   a. Update COD well information to reflect changes since the time of the submittal; and

   b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

Effectiveness of Corrective Action (Section C.8.1.6)

The facility evaluates the effectiveness of the Corrective Action Program and demonstrates its effectiveness semi-annually by reporting: (1) quarterly potentiometric surface mapping to verify gradient towards the BP Main Plant COD wells; and (2) and groundwater monitoring data evaluations which compare to applicable standards and statistical evaluations.

Illinois EPA Comments to Section C.8.1.6

The Illinois EPA has determined that information provided and referenced in Section C.8.1.6 is adequate to describe how the facility evaluates the corrective action program for groundwater.

Alternate Concentration Limits (Section C.8.2 and Subsections C.8.2.1 and C.8.2.2)

The facility is not proposing Alternate Concentration Limits (ACLs) so Section C.8.2 and related Subsections are not applicable.

Illinois EPA Comments to Section C.8.2

The Illinois EPA concurs Section C.8.2 and related Subsection C.8.2.1 and C.8.2.2 are not applicable and the information provided is adequate.

Corrective Action Plan (Section C.8.3)

The facility proposes to continue ongoing corrective action as described in Section C.8.4.

Illinois EPA Comments to Section C.8.3

Please refer to Section C.8.4.

Groundwater Monitoring Plan (Section C.8.4)

The facility describes the components of the groundwater monitoring plan within Exhibit C-1 of the application. Exhibit C-1 summarizes the procedures for sampling and monitoring the wells, including: well sample order, water level measurement, purging wells, measuring and recording field stabilization parameters, sampling procedures used in sample collecting, preservation, shipment, analysis, and chain of custody procedures.

Illinois EPA Comments to Section C.8.4

The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure. It is also noted, portions of Sections C.8.4.1 through C.8.4.9 describe the program in more detail, and comments to these sections are provided below as applicable.

General Monitoring Program Requirements (Section C.8.4.1)

A detailed in the subsections below, BP follows the previously approved plan as updated in letters and permit modification approvals.

Illinois EPA Comments to Section C.8.4.1

Please refer to Sections C.8.4.2 through C.8.4.9 for additional details of the program.

Groundwater Monitoring System (Section C.8.4.2)

BP refers to Exhibit C-1 for information regarding the groundwater monitoring wells, including well identification numbers, well depth, screen interval, ground surface elevation and top of casing elevation.

Illinois EPA Comments to Section C.8.4.2

The following comments address Section C.8.4.2:

1. Table 1 of Exhibit C-1 contains well details.

2. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

Description of Sampling and Analysis Procedure (Section C.8.4.3)

The Groundwater Sampling and Analysis Plan (SAP) is provided in Exhibit C-1. The facility uses a low flow sampling method. The facility identifies analytical methods, sampling containers, preservation methods, and holding times for each parameter or parameter groups are listed in Table 3 of Exhibit C-1.

Illinois EPA Comments to Section C.8.4.3

Section C.8.4.3 and Exhibit C-1 provides an adequate SAP.

Background Quality (Section C.8.4.4)

The facility has submitted a site-wide (both Main Plant and Riverfront properties) metals and inorganics evaluation (Log No. B-147R-CA-94).

Illinois EPA Comments to Section C.8.4.4

The background evaluation will be reviewed separately.

Statistical Evaluations (Section C.8.4.5)

Exhibit C-3 contains a summary of the Mann-Kendall statistical evaluations performed for the Main Plant GMZ Boundary wells as required by Condition V.F.c.2., for constituents in Condition V.E.1. They note a Class 1* permit modification requested results be reported every 5 years.

Illinois EPA Comments to Section C.8.4.5

The following comments address groundwater:

1. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

    a. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

    b. Indicate the most current version of the proposed software will be used.

    c. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

    d. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations.

        i. The March 2009, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance)*, must be followed and percentages of non-detections handled accordingly;

        ii. Statistical requirements of 35 IAC 724.197 also apply.

    e. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for the antimony, G006 is only analyzed for arsenic, etc.

    f. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

Evaluation of Groundwater Surface (Section C.8.4.6)

The groundwater surface will be determined in accordance with procedures described in the Groundwater Monitoring Plan in Exhibit C-1 on a quarterly basis. Gauging data is collected at network wells in Figure C-2 and other non-permitted wells on the property.

Pumping rates for COD wells are also recorded daily and used to calculate monthly withdrawal rates. The groundwater flow rate and direction , and withdrawal rates are reported in semi-annual reports.

BP notes a Groundwater Monitoring Optimization Report dated June 28, 2018 (Log No. B-147R-CA-89), and an addendum dated July 20, 2020, were submitted.

Illinois EPA Comments to Section C.8.4.6

The following comments apply:

1. Section C.8.4.6 is adequate to describe the evaluation of the groundwater surface.

2. Update Section C.8.4.6 to reflect changes since the time of the submittal.

Extension of Compliance Period (Section C.8.4.7)

The compliance period defined in 35 Ill. Adm. Code 724.196(c) is not applicable as there are no regulated units.

Illinois EPA Comments to Section C.8.4.7

The Illinois EPA concurs this section is not applicable.

Effectiveness of Corrective Action (Section C.8.4.8)

The effectiveness of the corrective action program is determined by conducting groundwater monitoring to ensure impacted groundwater flow is adequately controlled by the COD system, and to monitor the progress of corrective action over time. Reports on corrective action effectiveness are submitted semi-annually and include statistical evaluations also.

Illinois EPA Comments to Section C.8.4.8

Section C.8.4.8 is adequate to describe how BP determines the effectiveness of corrective action. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C which will be required. Also see comments to Section C.8.4.5.

Evaluation of Corrective Action Program (Section C.8.4.9)

If groundwater gauging or Sentry Well sampling data indicate that groundwater flow and/or quality at the BP Main Plant Property GMZ is not adequately controlled, BP will conduct the following steps:

a) Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.
b) Take actions as necessary to regain control of groundwater flow.
c) Submit a written report to the Illinois EPA within thirty (30) days describing the actions taken to regain control of groundwater flow. In addition, the report will contain information that demonstrates that groundwater flow is being adequately controlled.
d) Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

Potential statistically significant increases (SSIs) are currently reported to the Illinois EPA annually in the Second Semi-Annual Groundwater Corrective Action Report.

BP notes a June 30, 2020 Class 1* permit modification has been submitted to results of the statistical evaluations be included within GMZ Evaluations submitted every 5 years.

Illinois EPA Comments to Section C.8.4.9

Section C.8.4.9 is adequate to describe the actions which must be taken if groundwater corrective action is not adequate. The following comments apply:

1. Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5. Also see comments to Section C.8.4.5.

REPORTING REQUIREMENTS (Section C.9)

Reporting and recordkeeping requirements in the current permit are stated with no changes proposed, except for a request statistical evaluations be reported every 5 years with GMZ evaluations as requested in the June 30, 2020 Class 1* permit modification request.

Illinois EPA Comments to Section C.9

Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.9.

Section C, Exhibit C-1, and Appendices to Exhibit C-1

The information in Exhibit C-1 and its appendices was reviewed when referenced in Section C and comments were made if necessary.

SECTION F - CORRECTIVE ACTION

Sections F.4.2 and its subsections discuss each SWMU and each subsection refers to Section C for groundwater information. Please refer to Section F for a detailed discussion of individual SWMU and Area history and status. A list of submittals and decisions are also included for each Area and SWMUs within it. Table F-1 provides a list of all SWMUs in each Land Reuse Area.

Section F.5 – Proposed Interim Corrective Measures

BP operated a Hydrocarbon Recovery System (HRS) at the Main Plant Property as an interim remedial measure (IRM), beginning in 1993 to hydraulically recover subsurface mobile light non-aqueous phase liquids (LNAPL) from above the water table. The original system included 21 HRS extraction wells.

Following 17 years of operation, 16 HRS wells were deactivated in 2010 based on declining LNAPL recovery. After 7 additional years of operation, the remaining five HRS extraction wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness.

During 2016 and 2017, BP replaced the HRS with alternative pilot remedial system(s) to provide an interim measure, and to conduct an evaluation of bioremediation technologies. BP installed and commenced operation of the following three different hydrocarbon bioremediation systems in the northern and central part of the Main Plant Property on a pilot scale:

a. Central Biovent System (in the central portion of Area 3); the Biovent System is designed to inject air to the vadose zone to provide oxygen and enhance insitu aerobic bioremediation of hydrocarbons and refinery product at and above the water table as detailed in Exhibit F-1;
b. Southern Biosparge/Biovent System (mainly in the eastern portion of Area 5 extending to portions of Area 10 and Area 6); the Biosparge/Biovent System is designed to inject air above or below the water table to provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in groundwater and the smear zone, as well as allow for biodegradation of volatilized hydrocarbons and residual product as it contributes to dissolved phase impacts in the vadose zone as detailed in Exhibit F-1; and
c. Northern Air Sparge/Soil Vapor Extraction (AS/SVE) (in Area 7/8); Air Sparging is designed to inject air below the water table to volatilize hydrocarbons from groundwater and the smear zone and provide oxygen for enhancing aerobic

bioremediation of hydrocarbons and refinery product in the saturated zone; Soil Vapor Extraction is designed to recover volatilized hydrocarbons above the biodegradation capacity of the vadose zone for ex-situ treatment. Soil Vapor Extraction also promotes the flow of atmospheric air into the vadose zone to enhance aerobic bioremediation above the water table; this system is detailed in Exhibit F-1.

BP was granted a Temporary Authorization (TA) by Illinois EPA to cease operation of the HRS system on December 5, 2017 (Log No. B-147R-TA-2) for 180 days while Illinois EPA reviewed the Class 2 permit modification and associated additional information, with the commitment that BP's pilot-scale systems being operated on-site would eventually be expanded to a site-wide hydrocarbon recovery/remediation system.

In the permit modification dated May 29, 2018, the Illinois EPA approved the BP document entitled, "Class 2 Permit Modification Request, Contaminant Control Demonstration and Hydrocarbon Recovery System", dated October 27, 2017. The Class 2 Permit Modification Request included changes to Sections IV and V of the RCRA Permit to incorporate:

1) A revised methodology for demonstration of groundwater contaminants control;
2) Operation of the three (3) pilot-scale bioremediation systems, which will be expanded, to progress the remedy beyond the capability of the hydrocarbon recovery system (HRS); and
3) Interim recovery actions for recovery of mobile LNAPL under specific site conditions as described in Exhibit F-1.

Additional information regarding the hydrocarbon recovery and remedial systems is included in Exhibit F-1.

Section F.6 – Cost Estimate for Required Corrective Action

The proposed cost estimate for completion of corrective action at the BP Main Plant Property including groundwater remediation is $87,922,423. The cost estimate backup is included in Exhibit F-2. The 2019 and 2020 inflation factors are provided.

Exhibit F-1

Exhibit F-1 provides detailed information outlining the three (3) pilot-scale bioremediation systems.

Exhibit F-2

A corrective action cost estimate summary with backup information is provided for Project Management, Land Reuse Areas, and Groundwater Corrective Action.

Page 1 provides a high-level summary of each category.
Page 2 provides a detailed breakdown of the Project Management Costs, which does include groundwater aspects.
Pages 3 to 54 provide detail for the Land Reuse Areas.
Pages 55 to 61 provide breakdown of estimates for the site-wide groundwater costs.

The groundwater categories and cost estimates on Page 1 includes, but is not limited to:

Cost Element	Cost Detail	Planned Activities Detail	Number of Years/ Occurrences	Extended Cost	Contingency
Groundwater Corrective Action (GWCA) [see detailed cost breakdown, pp. 55-61]	Sampling, Reporting and Permitting	Site wide sampling, reporting, and permitting activities	30	$16,257,991	10%
	COD System Operation	Operation, Monitoring and Maintenance of COD Wells	30	$17,160,266	10%
	COD Well Evaluation/ Rehabilitation	Evaluate and rehabilitate 2 existing production wells and install existing COD well equipment.	2	$1,059,525	10%
	GMZ Well Installation	Install 10 New GMZ Wells	1	$102,742	10%
	Bioremediation Pilot Systems Operation	Operation of the bioremediation pilot systems: biovent, biosparge, AS/SVE	2	$1,801,932	10%
	Water Disposal at Wood River WWTP	Operation, Monitoring and Maintenance of COD Wells	30	$39,000,000	5%

Note: Financial assurance documents are included in Exhibit F-3.

Illinois EPA Comments to Section F

The following comments address Section F:

1. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.

2. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the

corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.

ILLINOIS EPA RECOMMENDATIONS

The groundwater related portions of information provided and referenced within Section C (Groundwater Monitoring) and Section F (Corrective Action) has determined the following deficiencies must be satisfied to complete the technical review:

1. General Groundwater Comments:

    a. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program.

        i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved.

        ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.

        iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.

        iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".

2. Section C.3

    a. Revise Section C.3 to also identify the groundwater classification.

3. Section C.4

    a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 Ill. Adm. Code 703.183(s) and 35 Ill. Adm. Code 703.185(c). Specifically:

i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate to meet the requirements of 35 Ill. Adm. Code 703.183(s), with the exceptions listed in Comment 2 below; and

ii. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comment 2 below and Comments to Section C.8.

b. Revise Section C.4 to meet the remaining requirements of 35 Ill. Adm. Code 703.183(s) and 703.185(c). The facility must provide additional information to present the following:

i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

ii. An updated Water Well Survey (WWS) must be completed and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site, as required by 35 Ill. Adm. Code 703.183(s).

4. Section C.8

a. Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

5. Section C.8.1.1 and Figure C-5

a. Figure C-5 shows exceedances at GMZ boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.

6. Section C.8.1.5

a. Update COD well information to reflect changes since the time of the submittal; and

b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

7. Section C.8.4

   a. The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.

8. Appendix C of Exhibit C-1

   a. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

9. Section C.8.4.5 and Exhibit C-3

   a. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

      i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

      ii. Indicate the most current version of the proposed software will be used.

      iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

      iv. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations.

         1. The March 2009, *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance)*, must be followed and percentages of non-detections handled accordingly; and

         2. Statistical requirements of 35 IAC 724.197 also apply.

v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for the antimony, G006 is only analyzed for arsenic, etc.

vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

10. Section C.8.4.6

    a. Update Section C.8.4.6 to reflect changes since the time of the submittal

11. Section C.8.4.8

    a. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.

12. Section C.8.4.9

    a. Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5.

13. Section C.9

    a. Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.5.

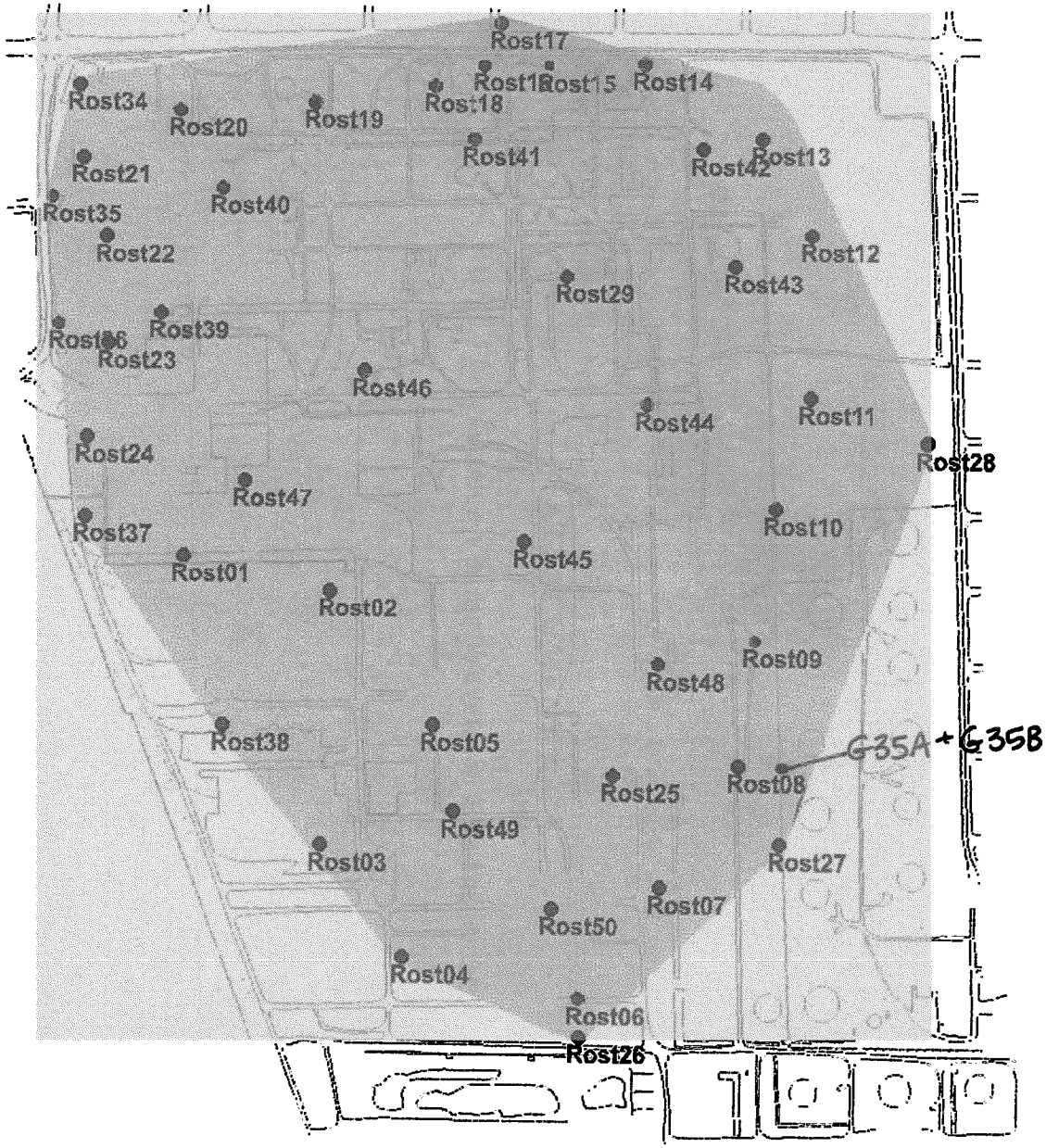
14. Section F (Groundwater Aspects)

    a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.

    b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.

BP Former Refinery - Main Plant - Wood River, Illinois

URS



Prepared For: bp	Date: 11/12/04
	Prepared by: GMA
	Approved: KTW

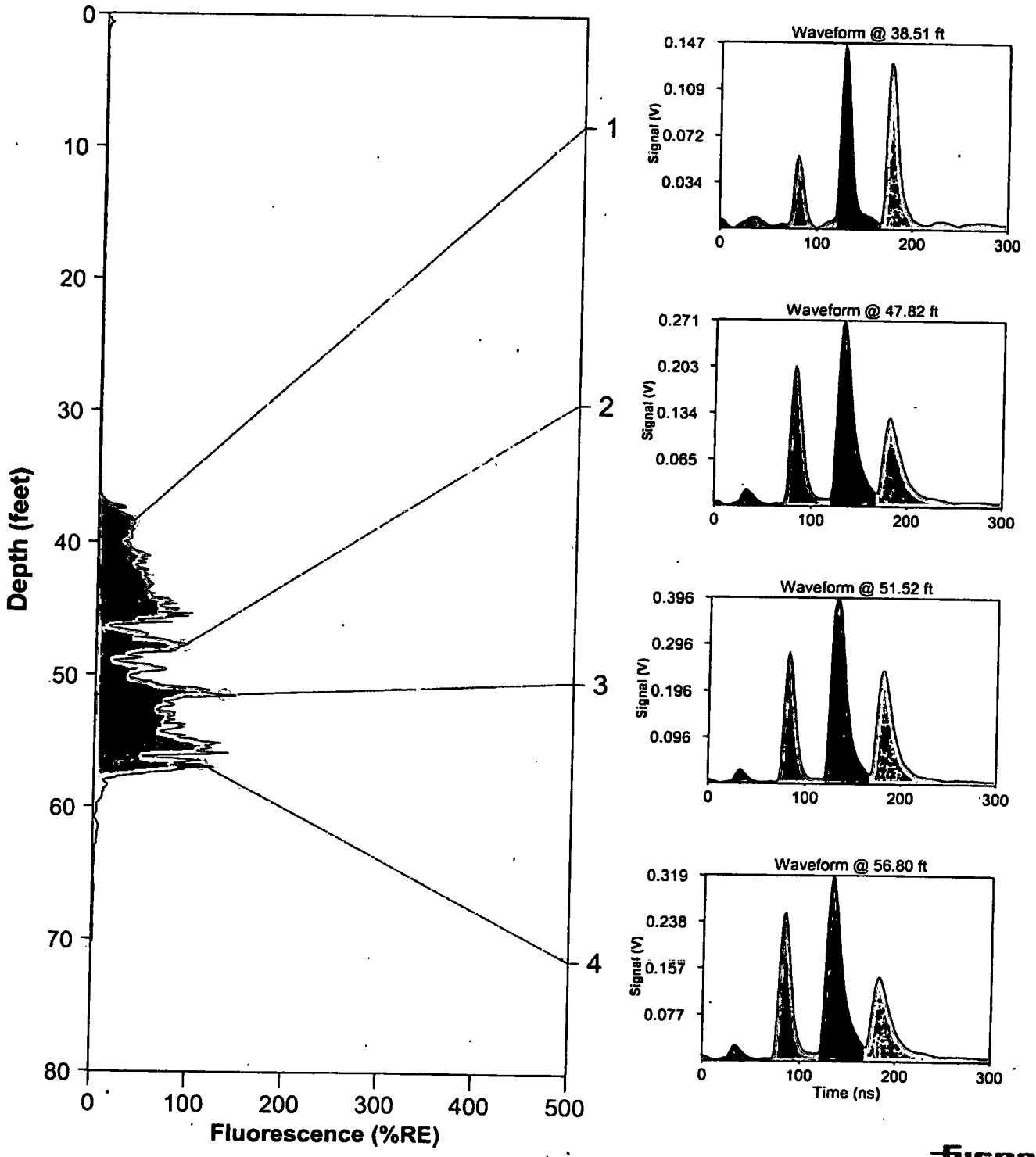
Figure 1
ROST Boring Locations

Property of BP Corporation North America, Inc.

ROST Fluorescence Response Data

Site: BP Products	Operator: Kevin V.
Client: URS Corp	Fugro Job #: 0304-1347
Date/Time: 6/6/2003 @ 8:08:23 AM	Max fluorescence: 147.06% @ 51.62 ft
ROST Unit: V	Final depth BGS: 70.28 ft

rost-08



Fugro Geosciences, Inc., 6105 Rookin, Houston, TX 77074 (713) 346-4000 www.geo.fugro.com

DOCUMENT 6

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
November 2019

Facility Name : **BP Product North America Inc. - Main Plant**
Log No. : **B-147R2**
State ID No. : **1191150001**
USEPA No. : **ILD980700967**

Date Application Received : **10/9/2020**
Revision No. : **April 12, 2024**
Reviewer : **Omar Faruk**
Review Dates : **11/20/2020**

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**	Y 11/20/20	Y	**Exhibit A-1b**	
A.2	**Certification Using the LPC-PA23 Form**	Y 11/20/20	Y	**Exhibit 2**	
A.2.1	Facility Certification	Y 11/20/20	Y	**Section A (Pg 1), Exhibit A-2**	
A.2.2	Technical Information Certification	Y 11/20/20	Y	**Section A (Pg 1), Exhibit A-2**	
A.2.3	39i Certification	Y 11/20/20	Y	**Section A (Pg 1), Exhibit A-2**	Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated. NOD 6/18/2024). Technically adequate with 07/09/24 revisions.
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**				

R000626

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.3.1	No information Claimed Exempt from Public Disclosure	Y 11/20/20	Y	Cover letter, A3.1	No Exemption claimed
A.3.2	Trade Secrets Claims	Y 11/20/20	Y	Cover letter A3.1	No Exemption claimed
A.3.3	Exempt or Exempt In-Part Data Claims	Y 11/20/20	Y	Cover letter A3.1	No Exemption claimed
A.3.4	Privileged Information	Y 11/20/20	Y	Cover letter A3.1	No Exemption claimed
A.4	**Public Participation: Facility Mailing List & Information Repositories**				
A.4.1	Facility Mailing	Y 11/20/20	Y	Section A, p.1; Exhibit A-3	
A.4.2	Identification of Repositories	Y 11/20/20	Y	Section A, p.2	
A.4.3	Contents of Repository	Y 11/20/20	Y	Section A, p.2	
A.4.4	Public Notice of Repository Availability	Y 11/20/20	Y	Section A, p.2	
B	**Facility Description**	**XX**	**XX**		
B.1	**General Facility Description**	Y 11/20/20	Y	Section B, p.1	Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois (NOD 6/18/24). Technically adequate with 07/29/24 revisions.
B.1.1	Operation of Facility	Y 11/20/20	Y	Section B, p.1	
B.1.2	Hazardous Waste Management Units at the Facility	Y 11/20/20	Y	Section B, p.1	

R000627

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
B.1.3	Solid Waste Management Units at the Facility	Y 11/20/20	Y	Section B, p.3, Table B-1, FigureB-4 Section F	
B.2	**Topographic Map**				
B.2.1	Facility + 1 mile	Y 11/20/20	Y	Section B, p.3, Figure B-1	
B.2.2	Facility + 1000 feet	Y 11/20/20	Y	Section B, p.3, Figures B-5A, B-5B, B-5C	Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application is dated 3/3/2007(NOD 6/18/2024). Technically adequate with 07/29/24 revised application.
B.3	**Location Standards**	Y 11/20/20	Y	Section B, p. 4	
B.3.1	Seismic Standard	Y 11/20/20	Y	Section B, p. 4	
B.3.2	Floodplain Standard	Y 11/20/20	Y	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.3	Facilities in the 100-year Floodplain	Y 11/20/20	Y	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.3.1	Engineering Analysis and Structural/Engineering Study	Y 11/20/20	Y	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain

R000628

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
B.3.3.2	Procedures to Remove Waste	Y 11/20/20	Y	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)	Y 11/20/20	Y	Section B, p. 4; Exhibit B-3	Not in 100-year Floodplain
B.4	**Operating Record**	Y 11/20/20	Y		
C	**Groundwater Monitoring**	**XX**	**XX**	Not Reviewed by RCRA Unit	**Entire Section C is reviewed by GWU Reviewer**
D	**Procedures to Prevent Hazards**	**XX**	**XX**	**NA**	No HWMU and Post-Closure Unit are present at the site, thus this section is not applicable.
E	**Post-Closure Requirements**	**XX**	**XX**	**NA**	No HWMU and Post-Closure Unit are present at the site nor proposed at the site in this permit application, thus this section is not applicable.
F	**Corrective Action (CA)**				
F.1	**Identification of Solid Waste Management Units (SWMUs)**	Y 11/20/20	Y	Section F, p.3; Table F-1, Figure F-1	According to the RCRA Permit Application Guide ; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit.
F.2	**Characterization of the SWMUs**	Y 11/20/20	Y	Section F, p.3	NA

R000629

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
F.3	**Characterization of Releases from SWMUs**	Y 11/20/20	Y	Section F, p.3	NA
F.4	**Information Required for Renewal Applications**	Y 11/20/20	Y	Section F, p.3	See below
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program	NA	NA	NA	IEPA is overseeing the CA at this site thus Not Applicable.
	(1) Chronology of all CA related correspondence between USEPA & facility	NA	NA	NA	NA
	(2) Copies of all letters received from USEPA regarding CA	NA	NA	NA	NA
	(3) Copies of all letters regarding CA sent to USEPA	NA	NA	NA	NA
	(4) Detailed discussion of each SWMU	NA	NA	NA	NA
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation	NA	NA	NA	NA
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program	Y 11/20/20		Section F, p.3-55	
	(1) Chronology of all corrective action efforts completed to date	Y 11/20/20	Y	Section F, p.3-55	
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence	Y 11/20/20	Y	Section F, p.3-55	Provide copies of the following letters, in chronological order, as a new attachment to the renewal application: All "no further action required" letters from the Illinois EPA to the facility for each applicable Land Reuse Area. A copy of the certified ELUC for each applicable Land Reuse Area (NOD 6/18/2024). Technically adequate with 07/29/24 revised application.

R000630

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
	(3) Detailed discussion of each SWMU	Y 11/20/20	Y	Section F, p.3-55	
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort	Y 11/20/20	Y	Section F, p.3-55	
F.5	**Proposed Interim Measures to be Conducted**	Y 11/20/20	Y	Section F, p.55-57; Exhibit F-1	
F.6	**Cost Estimate for Required Corrective Action**	Y 11/20/20	Y	Section F, p.57; Exhibit F-2	Revise the labor costs mismatch on pages 1 and 2, task objectives for Area 5 and Area 6, use the IEPA LUST lab rates. Technically adequate with 07/29/24 revised application.
F.7	**Financial Assurance for Corrective Action**	Y 11/20/20	Y	Section F, p.57; Exhibit F-3	

R000631

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

REVIEW NOTES CHECKLIST
General Information

1191150001 – Madison County
BP Products North America Inc – Main Plant
USEPA ID#ILD980700967
Log #: B-147R2

Start of Review (Date)	April 12, 2024	
Project Manager	Omar Faruk (OF)	
Groundwater Unit Reviewer	Amy Butler (AMB)	
Corr. Action Reviewer	Omar Faruk (OF)	
Brief Description of Project	Post Closure Permit Renewal Application	
Site Name/Location	BP Products North America, Inc. – Main Plant 301 Evans Avenue Wood River, Illinois 62095	
Facility Contact ☒ - Operator ☒ - Owner	BP Products North America, Inc Attn: Michelle Knapp 150 West Warrenville Road Naperville, Illinois, 60563	Phone #: 8473467112 Email: michelle.knapp@bp.com
Owner ☒ - Same as Facility Contact	Company Attn: Contact Person, Title Address City, State, Zip	Phone #: Email:
Consultant	AMEC Attn: Mike Hoffman Engineer 4232 North Brandywine Dr. Suite A Peoria, IL 61614	Phone #:309-692-4422 Email: michael.hoffman@woodplc.com
Forms, Certifications and Original Signatures	☒- All required forms are provided with the application. ☒- Professional Engineer and Licensed Professional Geologist have provided a certification statement and seal as required. * ☒- Original signatures present on all documents/forms provided with application. * * Original signatures/seals are not required on additional copies of the application.	
Siting (Sec. 3.330 of Act) Cert. of Siting (LPC-PA8)	Has siting for facility been approved: ☐-Yes ☐-No ☒-NA	
Environmental Justice Evaluation (See Procedure I.28) EJ Start	Determine if the submittal requires an Environmental Justice (EJ) evaluation, if so use the EJ Start webpage to determine if the facility is located within an EJ area. See BOL Permit Procedure I.28 for information on applicability, and performing an EJ evaluation. See the EJ Review Request System Guide for information on submitting an EJ Review Request.	

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

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EJ Review Request Webpage EJ Review Request System Guide	a. EJ Evaluation Required: ☒-Yes ☐-No b. EJ SWAP Results: ☐-Not in an EJ Area ☐-Blue (1) Minority ☒-Yellow (2) Low Income ☐-Red (3) Minority & Low Inc. c. EJ Review Request: If the facility is in an EJ area submit an EJ Review Request to the EJ Office using the EJ Review Request webpage. d. **Final** EJ Office Evaluation Response: (**Note:** Projects with an EJ status of "Outreach in Progress" will not be signed by the Permit Section Manager). ☐-Complete – No Outreach ☐-Complete – With Outreach e. Documentation: Emails from EJ Office documenting the EJ review should be attached to review notes. Notes:
39(i) Certification 39(i) Cert. form (LPC 643) **a. Review** (See Procedure I.25, 39(i) Investigations Memo & Sec. 39(i) of the Act)	☐-Not Applicable as this is not an application for a RCRA permit, permit modification, waste storage site, landfill/disposal site, transfer station, treatment facility, incinerator, waste transportation, CCDD fill operation, or tire storage site. **Review of 39(i) Certification**: **I. Applicant Information**: ☒-Complete/adequate ☐-Not complete/not adequate **II. Officers & Employees**: ☒-Complete/adequate ☐-Not complete/not adequate **III. Owner, Operator, Officer, and Employee Information**: A. Prior Conduct Identification: ☐-Yes ☐-No: Are one or more of the questions in this section marked "Yes"? If so, an Attachment A must be included (see below). B. Pending Proceedings: ☐-Yes ☐-No: Are one or more of the questions in this section marked "Yes"? If so, an Attachment A must be included (see below). C. Prior Application Information: i. ☐- Yes ☐-No: Are Previously submitted Attachment A's incorporated into this Certification? ii. ☐- Yes ☐-Not complete/adequate: If C.i. is checked yes. are the applications containing the previously submitted Attachment A's identified? **Certification Statement**: ☒-Yes ☐-Not complete/not adequate: Has the certification been signed by responsible corporate officer who meets the requirements of 702.126(a)(1)? **Attachment A – Information for Individual Persons:** Required if item III A. and/or B. above is check Yes. ☒-N/A ☐-Yes ☐-Not complete/adequate: Attachment A has been completed and contains the required information for individuals, identified in Section II that have prior findings, convictions or pending proceedings.

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

b. FACES Database Review FACES-DB FACES – 39i Guidance FACES User Manual	☐-Yes ☒-No: Facility has more than two consent decrees. If "Yes" request Full Compliance History (FCH), see item c. below. Notes:
c. Full Compliance History (FCH) Review	FCH Requested: ☐-Yes ☒-N/A: If item b above is checked yes, request a full report of the site compliance history for the facility from the Waste Reduction and Compliance Section, Manager.[1] Date FCH request made:
d. Other Information	**Other Information:** ☐-Yes ☒-No: Other information has been identified that suggest that applicant has not been truthful, or information provided is incomplete. Other information can be from public comments, news reports, personal knowledge, etc.
e. 39i violations identified that may require permit denial.	☐-Yes ☒-No: 39i violations identified that may require permit denial. If yes, a memo to the Unit Manager should be prepared detailing the violations. i. ☐-A memo, dated _____, has been forwarded to the Unit Manager for evaluation.
f. Revised Permit Condition for 39(i)	☒-Yes ☐-N/A: Permit Condition _____ has been revised to require the submittal of 39(i) Certification Forms with all applications (see item 4 of Procedure I.25).

Field Office Section	a. FOS Region/Contact: Ali Al-Janabi Email: Ali.Al-Janabi@Illinois.com Phone: b. Field Inspection Required: ☐-Yes ☐-No If yes, a memo/email should be prepared and sent to the FOS contact, copy FOS Regional Manager. i. ☐-A memo/email, dated _____, has been forwarded to the FOS. c. Comments Received from FOS: ☐-Yes ☐-No
CROPA Memo Procedure I.31 CROPA Template	a. ☐-Yes ☒-No : CROPA Memo distributed on _____. i. ☐-Yes ☐-No: Permit(s) from other Bureaus required.
Change of Basic Facility Information (Change of Name, Owner/Operator, Contact Information, etc.)	a. ☐-Yes ☐-No If yes: i. Facility with BOL ID/Inventory Number only (Non-RCRA Facility): ☐-Reviewer has completed Site Inventory Data Input Form **-OR-** ☐-Facility has submitted an Illinois EPA Inventory Application. ii. Facility with a Federal (RCRA) ID Number : ☐- Facility has submitted a revised Notification of Regulated Waste Activity Form (USEPA Form 8700-12).

[1] See item 2 of June 26, 2018 39(i) Investigations Memo

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

Right-to-Know (RTK) Evaluation Sec. 25d of Act Right-to-Know Evaluation Form (2023) Contaminant Evaluation Group (CEG) Referral Memo (2023) IEPA Right-to-Know Website	A Right-to-Know (RTK) evaluation must be performed for any review in which soil, soil gas and/or groundwater contamination data is reviewed. a. ☒-N/A No release near the property boundary has been documented. b. ☐-RTK Evaluation performed , RTK Evaluation Form attached. c. Soil, soil gas and/or groundwater contamination were evaluated. The evaluation determined: • ☐-Further evaluation required and Item d below must be completed. • ☐-Additional information is required to make an evaluation. • ☐-No criteria met. site does not warrant further evaluation. d. ☐-Right-to-Know Evaluation Form required a CEG Referral Memorandum be completed and sent to Community Relations RTK Coordinator. Memo sent on date: _____ e. ☐-Other: Right-to-Know Evaluation Form completed, met criteria for referral to CEG but was not required based on: _____ Notes:
RCRA Permit, RCRA Corrective Action, & RCRA Closure Submittals USEPA RCRAInfo Database IEPA RCRAInfo Data Entry Guidance (Draft) USEPA R1 RCRAInfo Data Entry Walk Through USEPA Comprehensive RCRAInfo Help & Guidance USEPA RCRAInfo Data Element Dictionary	☐- N/A: Submittal(s) is not a RCRA Permit, RCRA Closure or RCRA Corrective Action Submittal. a. ☒- RCRA Info: Enter data into the USEPA RCRAInfo Database for RCRA permits, permit modifications, RCRA Closure and Corrective Action submittals as required. See linked documents to the left for additional guidance. b. ☐-Yes ☐-No ☐-N/A: Permit Modification Class Correctly Identified: The submittal has been properly classified by the applicant i.e., as a Class I, Class I*, Class II or Class III modification (35 IAC 703.280) or as a Corrective Action submittal. If the permit class was not correct: • ☐- Admin Support was contacted to correct the permit class in the RCRA Database, and the Tracking Sheet was updated and was redistributed to the FOS regional office and other staff. • ☐-Yes ☐-N/A: If necessary, the applicant has been notified of the change in the permit modification Class of the submittal. (35 IAC 703.280(d)(2)(A). 703.282(f)).

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

1191150001- Madison County
BP Products North America, Main Pant
Wood River, Illinois
ILD980700967
Log No. B-147R2
RCRA Renewal Permit Application
RCRA Administrative Record

The following is a section-by-section summary of the information in the document entitled **"RCRA Permit Renewal Application"** submitted on October 8, 2020.

1. Forms, Certifications, Confidentiality, and Public Involvement
2. Facility Description
3. Groundwater Monitoring
4. Corrective Action (CA)

The following tables, figures and exhibits have been copied from the permit application to support the document described above:

Tables:

1. SWMU and PRS Descriptions	Table B-1
2. SWMUs and PRSs located within Land Reuse Areas	Table F-1
3. Land Reuse Area Document Summary	Table F-2
4. Land Reuse Area Status Summary	Table F-3

Figures:

1. BP Main Plant Property + 1 Mile Topographic Map	Figure B-1
2. BP Main Plant Property Land Reuse Areas Map with Photograph	Figure B-2
3. Tax Parcel Map	Figure B-3
4. Land Reuse Areas, SWMU and PRS Locations	Figure B-4
5. Facility + 1000 feet with Surrounding Land Use	Figure B-5A
6. Facility + 1000 feet with Surrounding Land Use	Figure B-5B
7. Facility + 1000 feet with Surrounding Land Use	Figure B-5C
8. Land Reuse Areas, SWMU and PRS Locations	Figure F-1
9. Proposed Land Reuse Area Boundaries	Figure F-2

Exhibits:

1. RCRA Subtitle C Site Identification Form	Exhibit A-1a
2. Hazardous Waste Permit Part A Form	Exhibit A-1b
3. LPC-PA23 Form and 39(i) Certification	Exhibit A-2
4. Mailing List	Exhibit A-3
5. Public Notice Letter	Exhibit A-4
6. Facility Legal Description	Exhibit B-1
7. Wind Rose	Exhibit B-2
8. National Flood Insurance Program Maps	Exhibit B-3
9. Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems	Exhibit F-1
10. Main Plant Corrective Action Cost Estimate	Exhibit F-2
11. Financial Assurance Mechanism Documentation	Exhibit F-3

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

TECHNICAL REVIEW

Comments listed in ***bold italic*** type are considered deficiencies.

Table of Contents – ***a list of acronyms should be included in the application.***

Section A – Forms, Certification, Confidentiality & Public Involvement

A.1 RCRA Part A Application Form

In accordance with 35 Ill. Adm. Code 703.181, the following information must be included in Part A of the RCRA application:

Required items	Comments
The latitude and longitude of the facility	***Not provided***
The name, address, and telephone number of the owner of the facility	Mentioned in RCRA Subtitle C Site Identification Form
An indication of whether the facility is new or existing and whether it is a first or revised application	Existing one
For existing facilities, a scale drawing of the facility showing the location of all past, present, and future treatment, storage, and disposal areas	Checked; Fig B-5A, B-5B, and B-5C
For existing facilities, photographs of the facility clearly delineating all existing structures; existing treatment, storage, and disposal areas; and sites of future treatment, storage, and disposal areas	***Not provided photographs***
A description of the processes to be used for treating, storing, and disposing of hazardous waste, and the design capacity of these items	They are not actively treating, storing, or disposing HW.
A specification of the hazardous wastes listed or designated under 35 Ill. Adm. Code 721 to be treated, stored, or disposed of at the facility, an estimate of the quantity of such wastes to be treated, stored, or disposed of annually, and a general description of the processes to be used for such wastes	There were two hazardous waste management units (the NCSP1 and the SFP) which were removed from the post-closure requirements of a previous RCRA renewal permit.
For hazardous debris, a description of the debris categories and containment categories to be treated, stored, or disposed of at the facility	No Hazardous Debris mentioned

The RCRA Subtitle C Site Identification Form is provided in Exhibit A-1a.

Hazardous Waste Permit Part A Form is provided in Exhibit A-1b. ***Item 4; add current RCRA permit (B-147R) to the list of Environmental Permits.***

A.2 Certification Using the LPC-PA23 Form

A.2.1 Facility Certification

This form is provided as Exhibit A-2. It is signed by Sasa Jazic, Liability Manager. as owner and operator.

A.2.2 Technical Information Citification

MICHAEL J HOFFMAN, P.E., has signed as the certifying engineer for the renewal application. I looked up the PE's license of the Illinois Dept. of Professional Regulation and George's license is active and expires 11/30/2025.

A.2.3 39i Certification

It should be updated for Michelle Knapp.

A.3 – Public Disclosure or Trade Secret

None of the information included in this application such as confidential data, trade secrets, or privileged information is claimed to be exempt from public disclosure.

A.4 – Facility Mailing List & Information Repositories

A.4.1 – Facility Mailing List

Hard copy of the mailing list and an MS Word copy were provided. Checked it. ***Community Relation, Sarah Brubaker was requested to update the list. The mailing list is now updated. Ok***

A.4.2 Identification of Repositories

Two repositories are provided: (1) Wood River Municipal Office and (2) Wood River Public Library. Address, contact name, phone number and operating hours for both repositories are included in the table.

A.4.3 Contents of Repository

BP will maintain, verify and the repository contents throughout the review process. BP will visit the repositories on a regular basis to ensure its organization is maintained.

A.4.4 Public Notice of Repository

A copy of the notice was provided as Exhibit. A-4. The notice contains the required information listed in the guidance document.

Section B – Facility Description

B.1 General Description

B.1.1 Operation of Facility

The BP Products North America, Inc. (formerly Amoco) Main Plant facility is located at 301 Evans Avenue, Wood River, Madison County, Illinois. The BP Main Plant occupies approximately 569 acres. This facility began operating an oil refinery in 1908, processing 100,000 barrels of crude oil per day into gasoline, heating oil, diesel fuel, jet fuel, kerosene, polypropylene, asphalt, and other commercial petroleum products. An additive company (Amoco Petroleum Additive Company (APAC)) was added to the operation in 1957. The

refinery portion of the facility continued to operate until 1981, at which time the dismantling of the refinery began. The additive operations ceased on 1996, and dismantling of that operation was completed in 2001. BP operated a storage and distribution facility at the Main Plant Property for gasoline and Petroleum distillates until 2016 when it sold this facility to Kinder morgan Phoenix Holdings (KMPH). Then, the facility was divided into 19 Land Reuse Areas for redeveloping commercial/industrial use through RCRA Corrective Action in accordance with the requirements of Title 35 Illinois Administration Code (IAC) 724.200.

A legal description of the facility is included in Exhibit B-1. ***Page No 3 and 4 of legal description are missing. Along with a professional land Surveyor Licensed to practice in Illinois who developed the legal description is missing.***

A list of Parcel Numbers for the BP facility is depicted on Figure B-3.

B.1.2 HWMU

There were two hazardous waste management units removed from the post-closure requirements of a previous RCRA renewal permit. These were the North Cell of Spray Pond 1 (NCSP1), a surface impoundment that received reactive sulfide material (U189); and the South Flare Pit (SFP), the location of a former underground storage tank that contained various non-hazardous wastes, as well as wastes bearing hazardous waste characteristics (D001, D002, D003, D008, U189, and U122). Both units were determined to be closed with waste in place (the South Flare Pit was then reclassified as a landfill unit) and received their RCRA Post-Closure Permit on September 30, 1993.

In the late 1990s, and 2000s, BP conducted further investigation and remediation of these units. Closure by removal reports were submitted for NCSP1 in November 2002, and for the SFP in April 2005. A letter from Illinois EPA dated January 7, 2008 granted approval for closure by removal of the NCSP1 pending a Class 3 permit modification request to formally remove the unit from the Part B post-closure permit. This letter also granted approval for the soils portion of the closure by removal determination for the SFP, and requested further work on the groundwater portion for this unit. Subsequently, the Permittee conducted this additional work, and based upon Illinois EPA's review of the results of this work, the SFP is now approved for closure by removal, subject to certain conditions.

B.1.3 SWMU

Twenty-one solid waste management units (SWMUs) and Product Release Sites (PRSs) were listed out. The locations of each SWMU and PRS are shown of figure B-4. Not so much description about each SWMU is provided. **More information about each SWMU is provided in section F.4.2.**

B.2 Topographic Map

B.2.1 Facility + 1 mile

The required topographic map depicting surrounding land use and the site location is provided as Figure B-1.

B.2.2 Facility + 1000 feet

The Facility + 1000 feet topographic map is provided as Figures B-5A, B-5B, and B-5C. ***They should provide the contour map interval.*** The map(s) must contain/identify the following:

Required Items	Comments
Map Orientation (North Arrow)	Checked; Fig B-5A, B-5B, and B-5C
Map Date	***Not Provided***
Scale	Checked; Fig B-5A, B-5B, and B-5C
Legal Boundaries	Checked; Fig B-5A, B-5B, and B-5C
Surrounding land uses	Checked; Fig B-5A, B-5B, and B-5C
Access controls	***Not Provided (reasons if not applicable)***
Buildings and Structures	Checked; Fig B-5A, B-5B, and B-5C
Storm drains	***Not Provided (reasons if not applicable)***
Sewers: storm, sanitary and process	Checked; Fig B-5A, B-5B, and B-5C
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	No injection wells are present
Areas in the 100-year flood plain	No part in the 100-year flood plain
Flood control or drainage barriers	***Not Provided (reasons if not applicable)***
Run-off control systems	Not Provided any information why it is not applicable.
Fire control facilities	Checked; Fig B-5A, B-5B, and B-5C
A wind rose	Checked in Exhibit B-2 (3/13/2007), ***Updated wind rose is required.***
Hazardous waste management units	No HWUs are present
Solid waste management units	Checked, Figure F1
Equipment required by Item D.2 below	Section D is not applicable
Surface waters including Intermittent streams	Checked, Fig B-5A, B-5B, and B-5C

B.3 Location Standards

B.3.1 Seismic Standard

The facility is not located in a seismic area. Madison County is not listed in Appendix VI of 40 CFR 264 as referenced in the Board Note at 724.118. Ok.

B.3.2 Floodplain Standard

The facility is not in a 100-year floodplain area. The NFIP Flood Insurance Map in Exhibit. B-3. **I checked with FEMA to find updated Map, but the website one is also outdated. So Ok**

B.3.3 Facilities in the 100-year Floodplain

The facility is not in a 100-year floodplain area.

B.4 Operating Records

The operating record is maintained by BP and kept on the file at the BP office located on the BP main Plant property. The information in the operating record includes monitoring, testing or analytical data, corrective action data, and cost estimates for corrective action. The Operating Record is maintained at the BP office located on the BP Main Property and is available for Illinois EPA review.

Section F – Corrective Action

BP is currently conducting corrective action at the Site in compliance with the Part B Permit (log. B-147R-M-17 and M-18), RCRA section 3004, and 35 IAC 724.201 to protect health and the environment from hazardous waste releases. The RCRA renewal permit, issued on March 4, 2011, removed two hazardous waste units from prior post-closure requirements and now focuses solely on site corrective action. On June 21, 2002, the IEPA approved expanding the corrective action program at the Main Plant Property, dividing it into 19 Land Reuse Areas for targeted corrective action and potential redevelopment to meet regulatory standards.

BP aims to achieve No Further Action (NFA) for each Land Reuse Area (LRA). NFAs have been obtained for LRAs 1, 2, 4, and 15 for soils and perched water. The process involves creating a Current Conditions Report, addressing data gaps, completing soil and water investigations, analyzing data, conducting a risk assessment, identifying remedial actions and institutional controls, issuing a conditional NFA letter upon IEPA approval, recording ELUC on property deeds, developing the land reuse area, and constructing barriers if needed. In addition, BP is independently evaluating the groundwater component for Vapor Intrusion (VI) to address TACO concerns.

The LRA process proposed in this application above will be incorporated into the Corrective Action Section of the permit to replace the previous section "PARCELING AND REMOVAL OF LAND FROM THE DEFINITION OF "FACILITY' COVERED BY THIS PERMIT". This LRA Process proposed herein and with additional requirements for no further actions with institutional controls (ICs) allowed under 35 IAC 742 and corrective action required regardless of the facility boundary under 35 IAC 201.c, for purpose of redevelopment and removal of a LRA may be allowed if certain conditions can be met and approved by the Illinois EPA.

F.1 Identification of SWMUs

F.2 Characterization of the SWMUs

F.3 Characterization of releases from SWMUs

35 IAC 724.201 requires that the information identified in items F.1 through F.3 be contained in the original permit application.

F.4 Information Required for a Renewal Application

F.4.2 Information Required if Illinois EPA oversaw initial CA Program

No photocopies of IEPA and BP's correspondences are provided in the application. Each submittal must identify the person who made the submittal and purpose of the submittal. Table format would be best.

F.4.2.1 Area 1- Northwest Corner

Area 1 is 6.3-acre area, including portions of PRS 5. PRS 5, located in the north-central part of the Main Plant facility, was a tank farm used for storing various petroleum products like gasoline, crude oil, kerosene, and heating oil. No releases have been found from this unit, and each tank was surrounded by dikes. The tank farm supported the refinery during its operational phase. On December 5, 2001, Illinois EPA issued a NFA letter for soil and perched groundwater for Area. The ELUC was recorded with the Madison County Recorder's Office. ***The conditions of ELUC should be listed.***

F.4.2.2 Area 2 - Northeast Corner

Area 2 covers PRS 1, PRS 5 (part of portion), PRS 6 (part of the portion), SWMU 9. PRS 1(600 by 400 feet), located in the northeast of the Main Plant in Land Reuse Area 2, was the former Tank 228 Dike Area with waste piles. SWMU 9, in the northeast corner of the Main Plant in Land Reuse Area 2, measures around 750 by 1,200 feet. Waste deposited includes water-diluted phenols, sulfonic acid sludges, and DAF Unit sludge. Overall, the area was used for petroleum storage; no refinery operations were conducted at this location. On August 13, 2002, Illinois EPA issued a NFA letter for soil and perched groundwater for Area.

F.4.2.3 Area 3 - North Central Area

Area 3 occupies SWMU 24 (Former finished slop oil tank 70, capacity of 282000 gal) and SWMU 26 (Former slop oil four tanks 189,190,845, 846, two of them 132000 gal, and other two capacity 282000 gal). There are no PRSs in this location. There were two types of mode of operation. First mode of operation includes petroleum refining and processing of heavy oils. Second mode of operation includes processing and distribution of asphalt and fuel oil using underground product pipelines and support APAC operations.

Investigation

Historical Activities	Time period
Collection of seven soil samples from six borings (max depth: 35 feet) and screening with PID at SWMU 24 and 26 during the phase I RFI	1995
IEPA approval for RFI I required "Phase II shallow soils investigation for SWMU 24" and no further investigation for SWMU 26	July 2001
Field screening investigation (total 88 borings) for lead, cPAHs, and VOCs. ***Screening interval was not mentioned.***	Nov 2002 to July 2003
Sampling activities of soil and groundwater part of Land Reuse Investigation (LRI)	2006 to 2011
I. 99 soil borings (127 soil samples) for delineation purposes	Oct to Nov 2006.
II. Collection of 66 soil samples from 39 soil borings • 19 borings- to address elevated LEL readings previous-2006 sampling activities • 12 borings- to log deeper geology for cross sections • 8 borings-delineation purpose	Oct-Nov 2009

III.	Installation of three monitoring wells and sampling of Perched wells for BTEX, PAHs, total and dissolved metals	June and July 2010
IV.	Physical soil investigation for developing site-specific Tier 2 ROs. Collection of three environmental soil samples close to previous borings for analyzing BTEX and PAHs	2010
V.	Soil borings to identify and evaluate potential releases or previous impacted locations due to the underground product pipelines.	Sep 16, 2010 to June 9, 2011
VI.	BP currently operates a Bioventing system	April, 2017- Present
VII.	BP summarized all investigation of field activities and results in the LRI report **(under review)**	March 12, 2024

Current CA activities

In 2018, LRI activities commenced to further delineate extend (vertical and lateral) of the Csat exceedances in the Area 3 remediation areas (RA01 through RA03) based on the results of previous investigations.

	RA01	**RA02**	**RA03**
Location number of soil sampling for chemical/phy para.	16/2	10/2	7
Chemical parameters	Benzo(a)pyrene	Benzo(a)pyrene	Total and TCLP lead
Physical soil parameter	Org carbon content, m/c, sieve analysis, particle and bulk density, total soil porosity, air-filled soil porosity, water filled soil porosity.	Same as RA01	

Summary of historical and current hydrocarbon recovery & remedial system from Exhibit F-1

The hydrocarbon recovery system at the BP main plant was established in 1993 as an interim measure to hydraulically extract mobile LNAPL from above the water table. Initially comprising 21 extraction wells, 16 were deactivated in 2010, with the remainder decommissioned in 2017 due to performance limitations. BP then introduced a pilot-scale Bioventing system in April 2017, aimed at increasing oxygen levels in the vadose zone to foster aerobic conditions and enhance hydrocarbon biodegradation. Modifications to this system and associated technologies began in 2019 to improve remediation efforts across expanded site areas.

System description

The biovent system consists of a rotary vane compressor delivering air up to 60 standard cubic feet per minute (scfpm) and 10 psi pressure, distributing among 18 biovent wells (6 initially, 12 added during expansion). The following wells are installed to monitor the progress of biovent:

- Eighteen Biovent wells

- Six Piezometers
- Twenty Vapor Monitoring Points (VMPs)

F.4.2.4 Area 4 - Former Rail Yard

Area 4 is 26.3-acre area, including SWMU 13, 21, 33. SWMU 13, in the southern section of the Main Plant near Tank 249, stored hazardous waste (K051 sludge) and railroad ties. It measured about 450 ft by 100 ft, with an estimated 30,000 cubic feet of waste. SWMU 21, situated west of the Spray Ponds, comprised a 50 ft by 75 ft elevated concrete pad supporting three 15 cubic-yard roll-off boxes. These containers stored nonhazardous spent filter cake material and oil-contaminated debris from a rotary vacuum drum in the Multipurpose Additives Plant (MAP) area. SWMU 33, southwest of the Main Plant and near the Spray Ponds, stored hazardous and non-hazardous APAC wastes before off-site disposal. Originally a 75 ft by 25 ft, 4 ft deep storage facility, it held various substances, including phosphorous pentasulfide (U189). Initially closed in 1985, it was subject to RCRA Part B Permit for post-closure care due to regulatory changes. Additional investigation and removal in 2001-2002 led to its closure certification, eliminating the need for further RCRA Post-Closure care. ***The conditions of ELUC should be listed.***

F.4.2.5 Area 5- South Central Area

Area 5 occupies SWMU 27 (total 3 tanks, capacity of 901000 gal each), PRS 3, underground product pipelines, former Union Tank Car Area, Number 2 Fluid Catalytic Unit Area and the Number 5 Pipe Still Area, managing petroleum products such as gasoline and crude oil.

Historical Activities	**Time period**
During the phase I RFI, five (5) soil borings for soil sampling	1995
Twelve soil (12) borings for soil sampling	2002 to 2003
Fifty-eight (58) soil borings along with installation of 2 perched groundwater wells	Aug – Nov 2006
Confirmation sample for removal of asphalt from soil	July 2007
Installation of 8 perched groundwater wells	2007
Additional soil sampling: 124 soil samples from 61 soil borings and 10 perched groundwater wells to delineate impacts identified	Oct through Dec 2008
15 soil borings for further delineation	June 2009
Seventeen soil (17) borings for 56 soil sampling for evaluation potential release from underground piping.	July 2010
Investigation on perched groundwater for further delineation of gw/soil impacts and confirming the presence of potential LNAPL	2010-2011

Current CA activities

In 2018, LRI activities commenced to further delineate the Area 5 remediation areas (RA01 through RA05) based on the results of previous investigations.

	RA01	RA02	RA03	RA04	RA05

Location number of soil/ perched gw sampling	5	63/12	11	5	5
Chemical parameters	Total arsenic	PAHs	Total and TCLP lead	Total xylene, ethylbenzene, FOC	Xylene, FOC

Field activities and results will be summarized in Area 5 LRI report. BP currently operates a Pilot scale Biosparging system in Area 5.

System description

The biosparge system includes a compressor delivering air at up to 150 scfpm and 40 psi pressure, split into 35 biovent wells (1 horizontal biosparge initially, 34 added during expansion). The horizontal biosparge well is designed to create an oxygen curtain at the bottom of groundwater impacts, with a 150' screened portion perpendicular to groundwater flow to influence flow within the targeted area despite minor temporal variations. The following wells are installed to monitor the progress of biosparge:

- Thirty-five Biovent wells
- Twenty-two Piezometers
- Eighty-one Vapor Monitoring Points (VMPs)

Summary list of corrective action submittal

I. CCR/Characterization Work Plan approved 9/27/02
II. Disapproved Investigation Report received 12/26/06
III. IEPA letter regarding comprehensive Land reuse Investigation reports for Area 3, 5, 6, 7/8, 9, 10 and 17 (2/10/2020)
IV. BP LRI data submittal for Areas 3, 5, 6, 7/8, 13,14, 16 and 17 received 03/12/2024 (B-147-CA-125)

F.4.2.6 Area 6 - Former APAC Area

Area 6 is 55 acres, including SWMU 17, 18, 22, 23, 31 and running from 1957 to 1996. There were two types of mode of operation. Approximately 250 Aboveground storage tanks (ASTs) containing at least 31 different products were present in Area 6 at some point during this time period. First mode of operation includes petroleum blending, storage, and transport processes. Second mode of operation includes additive processing as a part of APAC operations. In both operations, compound house area, barrel house area, southwest storage area, continuous pressure stills are common except multipurpose additive plant and general additive plant area in second mode.

SWMU 22	New APAC waste transfer area began operations on April 1, 1992. The non-hazardous waste was disposed of off-site.
SWMU 17	The Additives Waste Pit in the Detergent Additives Plant area previously contained spent filter material, oil, and possibly off-specification additive waste (mainly calcium sulfonates and calcium phenates). All waste was excavated and disposed of off-site.
SWMU 18	The Detergent Additives Plant Spent Filter Cake Storage Area featured a 100-square-foot concrete pad and roll-off boxes for spent filter cake material.

SWMU 23	The MAP Spent Filter Cake Storage Area had three asphalt/concrete pads (one 10x100 feet; two 10x50 feet) and 5 to 10 logger boxes (3 to 5 cubic yards each), storing spent filter cake from a rotary vacuum filter.
SWMU 36	MAP Liquid Waste Collection Bin, was used to contain waste oil that was collected as a part of the quality assurance/quality control of incoming pipelines.
SWMU 31	Waste Phenol Accumulation Area was located southwest of a hazardous waste drum staging area and within the General Additives Plant Area.

Investigation

Historical Activities	**Time period**
Nine (9) soil borings at SWMU 17, 22 and 31, four (4) soil borings at SWMU 23. No Samples from SWMU 36 due to prior soil removal.15 samples (maxim depth: 35 bgs) from these borings	1995
IEPA approval for Phase II RFI for shallow soils investigation at SWMU 22 and 31	2002
Field screening of 76 soil samples at 3 and 8 feets for lead, cPAHs, and VOCs	Nov 2002 – July 2003
101 soil borings (biased borings and sys grid borings; 6.5 to 30 ft) for delineation and deeper geology with collecting 134 soil samples	Oct 2006
Discovery of wet soil layers in 40 out of 121 borings, with LNAPL presence in 15	2006
Installation of perched monitoring wells (initially three and then fourteen for delineation of potential LNAPL and confirmation of LNAPL presence during field activities	Oct 2006, Sep 2007
Several soil borings for soil delineation and evaluation of perched gw	Dec 2008, July 2009 and Dec 2009
EM survey for underground pipelines and analyzing samples for BTEX, PAHs, metals and pH	July-Nov 2010

Current CA activities

In 2018, LRI activities commenced to further delineate the Area 6 remediation areas (RA01 through RA05) based on the results of previous investigations.

	RA01	RA02	RA03	RA04	RA05
Location number of soil/ perched g/w sampling	14	7	12	5	6
Chemical parameters	Benzopyrene, dibenzo	Benzopyrene	Benzene, toluene,	Benzene, toluene,	Total xylene

	anthracene, Total arsenic		ethylbenzene, Total xylene,	ethylbenzene, Total xylene.	

Field activities and results will be summarized in Area 6 LRI report. BP currently operates a Pilot scale Biosparging system in Area 6.

Summary List of corrective action efforts

I. CCR/Characterization Work Plan approved 9/5/02
II. Investigation Report received 12/26/06
III. Illinois EPA requested clarification regarding the Tier 2 risk evaluation included in the Area 6 Land Reuse Investigation Report and Closure Plan 03/29/2007
IV. Illinois EPA approval letter for the UPI/WP; 07/06/2009
V. Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
VI. BP LRI data submittal for Areas 3, 5, 6, 7/8, 13,14, 16 and 17 received 03/12/2024

F.4.2.7 Area 7- Former Alkylation Plant /Area 8- North Tank Farm

Area 7 (3 acres) and Area 8 (Area 7/8), 62 acres, is located in the north-central area of the Main Plant Property, including SWMU 8 and 25s. The Area 7/8 include ASTs, pump houses, receiving houses, balloon houses, underground product piping, crude oil batteries, pipe stills, continuous pressure stills, transformers, filling stations, a pit associated with the East Non-Process area, SWMUs, PRSs and documented release locations.

Historical Activities	**Time period**
Collection of 7 soil samples from seven soil borings at SWMU 8 and 25s during the phase I RFI.	1995
Removal of 15 cubic yards of soil due to a leak at Tank 184	Dec 2001; Feb 2002
Collection of 17 soil samples from 8 borings near tank 184 for analyzing hydrocarbon fingerprinting	May 2002
Investigation of 78 soil borings based on IEPA response indicating contamination on-site	July 2003
Collection of soil samples from several borings for IEMA incident-related releases	2007
Installation of perched monitoring wells for perched groundwater investigation.	Aug 2007
Collection of 222 soil samples for investigating underground product pipelines	Sep 2011

Current CA activities

In 2018, LRI activities commenced to further delineate the areas into thirteen current estimated remediation areas (CERA01 through CARA13) based on the results of previous investigations.

Soil sampling for concerned Chemicals	Remediation Areas
Toluene and/or xylenes	CERA 01, 02
Lead	CERA 03, 04
Xylenes	CERA 05, 06, 07, 08, 09, 11, 12, 13
Toluene, xylenes and ethylbenzene	CERA 10

Field activities and results will be summarized in Area 7,8 LRI report. BP currently operates a Pilot scale Air Sparge/Soil Vapor Extraction (AS/SVE) system in Area 7,8.

System description

The AS/SVE pilot test system delivers air into the ground to capture vapors. Air from the AS compressor is split among up to 15 AS wells **(flow rates up to 150 scfm@50 psi)**, while air from the SVE blower collects vapors from up to 6 SVE wells **(flow rates up to 500 scfm@60 iw)**. Both air streams go through filters, valves, and gauges for control and monitoring. Vapors collected from the SVE blower undergo further treatment before being discharged through a stack. A catalytic oxidizer, installed in 2020, replaced granular activated carbon for off-gas treatment. The following wells are installed to monitor the progress of AE/SVE:

- Twenty AS wells
- Ten SVE wells
- Sixteen Piezometers at three different depths- shallow, mid, and deep
- Seventeen nested VMPs, a total of fifty-one Vapor Monitoring Points (VMPs)

Summary List of corrective action efforts

I. CCR/Characterization Work Plan approved 8/7/03
II. Investigation Report should be submitted by 8/1/07
III. IEPA approved Underground Piping Investigation Work Plan (Revision 1) dated 07/06/09
IV. Area 7-8 Land Reuse Investigation Report and Remediation Plan (Area 7/8 Comprehensive Report) 12/10/2012
V. Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.

F.4.2.8 Area 9-Korea Tank Farm

Area 9, Korea Tank Farm- 8.5 acres, located at the northwest portion of the facility, was used for storage of petroleum products and raw materials beginning in approximately 1951 when the construction of five ASTs was completed. The RECs in Area 9 include these five ASTs also referred to as PRS 8, associated underground product pipelines, SWMU 30 (leaded tank bottoms disposal areas), and historical petroleum releases.

Historical Activities	Time period
During the Remedial Planning Field Investigation, lead was found in soil in SWMU 30.	1986
No investigation on SWMU 30 and PRS 8 during phase I	1995

IEPA approval for RFI I required "Identify the location of leaded tank bottom disposal areas at SWMU 3), and coordinate soil and groundwater remediation with PRS 8 remediation"	June 2001
45 soil sampling from 36 soil borings and Installation of 4 perched groundwater wells for analyzing BTEX, PAHs, metals, and pH.	Oct 2002
Installation of 9 perched groundwater wells additionally	2007
Conducting 10 soil borings near the underground product pipelines in Area 9 instead of complete trenching, considering the potential future activation of the underground pipelines.	2007
Collection of 46 soil samples from 13 soil borings for analyzing BTEX, PAHs, metals, and pH.	2009
Installation of 12 perched groundwater wells additionally and identification of LNAPL from several wells	July 2010
Collection of 15 soil samples from 5 soil borings for soil delineation	2011

Current CA activities

In July 2018, Land Reuse Investigation activities commenced to further delineate and investigate Area 9. One Remediation Area (RA01) was identified based on the results of previous investigations.

	RA01
Location number of soil sampling	11
Chemical parameters	Benzene and fractional organic carbon

Twenty-six soil borings were drilled to locate LNAPL in Area 9, along with one extra boring for separation confirmation from Main Plant LNAPL. In April 2019, BP installed 15 monitoring wells (7 nested pairs, 1 continuous tubing) to delineate LNAPL in groundwater. Additionally, 26 groundwater samples were collected from these new and nearby gw monitoring wells for VOC. analysis. BP currently operates a belt skimmer to remove LNAPL from G-47 in Area 9.

F.4.2.9 Area 10-East Tank Farm

Area 10, 24.96 acres, is located in the eastern section of the Site. It is also known as the East Tank Farm area of the Main Plant Property. Area 10 contained 31 ASTs and associated product pipelines and pump houses which were used to manage petroleum products including gasoline, crude oil, kerosene, heating oil, and the former Experimental Land Treatment Cell (ELTC).

Historical Activities	**Time period**
During the phase I RFI, no SWMU was identified and PRS 6 was determined.	1995
Submittal of Permit Application for Experimental Land Treatment Cell (ELTC) and approval by IEPA • Ten locations of Soil sampling (5.5 to 6 feet) for BTEX and PAHs and these compound levels greater than soil cleanup objectives • Treating soils for 4 months and submitted report to IEPA	1993 and 1994

Changing the status from experimental permit to a permit for development and operation	1995
Beginning of phytoremediation • 14 soil sampling from 0-6 inches for total petroleum hydrocarbon (TPH) and results ranged below detection levels	2000
Conducted 54 Field screening boring (3 & 8 feet) for cPAHs and VOC. Among them, 11 for lab analysis and 3 of them were located within 20 feet of former underground product pipelines.	Nov 2002 to Jul 2003
Observation of asphalt like material along with an aboveground product pipeline corridor during hot weather and excavation of asphalt and impacted soils	June and Jul 2007
Collection of 54 soil samples from 29 soil borings and installation of 2 perched groundwater wells	Apr and Aug 2007
8 soil borings for horizontal and vertical delineation of soil and perched groundwater impacts east of SWMU 27	Oct and Nov 2008
15 Soil boring and installation of 2 perched groundwater wells based on IEPA comments in 2008	Nov 2009 and 2010
Investigation of the underground product pipelines (trenching at 50 locations, 47 soil borings at locations for potential past releases)	2008 through 2010

Current CA activities

In 2018, LRI activities commenced to further delineate the Area 10 remediation areas (RA01 through RA07) identified based on the results of previous investigation.

	RA01	**RA02**	**RA03**	**RA04**	**RA05**	**RA06**	**RA07**
Location number of soil	10	7	9	9	11	9	9
Chemical parameters	Benzopyrene	Benzopyrene and PAHs	Benzene, and PAHs	Benzopyrene	Benzopyrene	Benzopyrene	Total xylenes

Summary List of corrective action efforts

I. CCR/Characterization Work Plan approved 6/4/03
II. Area 10 Comprehensive LRI Report and Remediation Plan submitted by 05/03/2011.
III. Main Plant Area 10 2019 Comprehensive Land Reuse Investigation Report submitted by 12/20/2019.
IV. Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.

F.4.2.10 Area 11 - Spray Pond Area (Ponds 1 & 2 / Intake Channel Areas), SWMU 15

Area 11 is a 22-acre parcel, comprised of Spray Pond 1, Spray Pond 2, the Intake Channel, and the Separator Box (formerly the Separator Ponds) and located in the southwest portion of the Main Plant Property. There were two types of mode of operation.

First mode of operation (between 1945 and 1960)	Second mode of operation (Approx. 1960 - 1981)
The cooling pond setup included Separator Ponds, a Pump House, Spray Pond 1, Spray Pond 2, and an Intake Channel. Water from industrial processes was cooled in Separator Ponds before being pumped to Spray Ponds 1 and 2 for cooling. The water then flowed into the Intake Channel and back to the Pump House for reuse, with some lost to evaporation, the refinery sewer system, or firefighting. Replacement water came from groundwater and the Mississippi River.	Modifications included dividing Spray Ponds 1 and 2 and adding sprayers to Spray Pond 3. The Separator Ponds were replaced by the Separator Box to collect any accidental materials in the water. Most industrial process water entered at the Separator Box, then flowed through Spray Ponds 1, 2, and 3. Water from a specific unit was treated separately before entering the cooling system.

Historical Activities

In the Phase I RFI for SWMU 15, surface sediment and soil samples were taken from Area 11, including Spray Pond 2 and the Intake Channel. Analysis showed that the concentrations of VOCs, SVOCs, and metals were below Tier 1 SROs. Results were submitted to the Illinois EPA in the Main Plant Phase I RFI Report, and approval was granted on June 5, 2001. No further action is needed for Spray Ponds 1, 2, and the Intake Channel.

Current CA activities

No corrective action activities are currently being conducted in Area 11.

F.4.2.11 Area 12 - South Tank Farm

This area is owned by KM Phoenix Holdings and Permit Application of KM (RCRA Log No. B-214) has been approved recently. In February 2016, KM Phoenix Holdings LLC (KMPH) acquired 118 acres of Area 12, extending down to 408 feet above mean sea level (about 25 feet below ground surface). BP retains the land below this depth, including the uppermost aquifer beneath the entire BP Main Plant Property.

F.4.2.12 Area 13 - Wildlife Enhancement Area, SWMU 12

Area 13, a 45-acre parcel in the southeastern Main Plant, is entirely within SMWU 12, the Southeast Disposal Area. BP conducted soil improvements in the north and south fields of Area 13 from around 1996 to 2005. During refinery operations, oily wastes and sludge were disposed in the Southeast Corner Disposal Area (SCDA) within Area 13, necessitating further investigation due to Tier 1 SRO exceedances. Cooling Pond sludge from Areas 11 and 19 was placed in the Cooling Pond Sludge Disposal Area (CPSDA) west of Area 13. The former CPSDA, located in Area 12 adjacent to the northwest portion of Area 13, received nonhazardous sludge from Spray Ponds 2 and 3. The RCRA Facility Assessment (RFA) revealed disposal of asphalt, crude oil tank bottoms, and other wastes in trenches, low areas, and piles between the SCDA and the CPSDA.

Activities	Time period
During the phasc I RFI, Collection of 45 soil samples from 36 soil borings (15 to 30 feet Bgs) and Surficial Product Removal	1994

Installation of one monitoring well and six previously installed monitoring wells for GW investigation. SWMU12-GH1 (renamed G112 alter) well was not sampled due to the presence of LNAPL. • The monitoring wells sampled were screened in the ***ABA*** and the results were reported in the Phase I RFI Report.	June and July 1995
Excavation of southwest four portion (8-10'/15-45'/Depth 1-3') • Backfilled with clean clay in 6" lifts	2006
Former Deer Park Viewing Area (DPVA), 0.5-acre located in northeast corner of Area 13, six soil borings at the DPVA to depths of 0.5 feet bgs for analyzing COPCs (Constituents of Potential Concerns).	2007 and 2008
Additional soil investigation was recommended by CCR/characterization work plan	2011

Please provide the ABA abbreviation.

Current Corrective Action Activities

The initial phase of the Land Reuse Investigation for Area 13 began in August 2017. Soil samples were collected from 58 soil boring locations and analyzed for BTEX, PAHs, pH, and metals to delineate the extent of the COPCs in the identified RECs. Four perched groundwater monitoring wells were installed in November 2017. Groundwater samples were collected and analyzed for BTEX, PAHs, total and dissolved metals.

Between November and December 2018, Land Reuse Investigation activities were conducted to delineate the Area 13 remediation areas (A13RA01 through A13RA08).

	RA01	**RA02**	**RA03**	**RA04**	**RA05**	**RA06**	**RA07**	**RA08**
Location number of soil	8	2	18	18	1	4	4	4
Chemical parameters	Naphthalene, ethylbenzene, total xylene	Mercury	Naphthalene	Total lead and pH	dibenzo(a,h)anthracene, lead, mercury, and pH	Barium	Lead	Arsenic and pH

In early 2019, soil samples were taken from three areas (A12-1 to A12-3) as part of the Area 13 Land Reuse Investigation for analyzing BTEX, PAHs, total metals, and pH.

In January 2019 soil samples were collected from five surface tar locations and analyzed for synthetic precipitation leaching procedure (SPLP) VOC and PAHs, and for TPH by EPA Method 8015M. In March 2019, groundwater samples were collected and analyzed for BTEX, PAHs, total and dissolved metals.

F.4.2.13 Area 14-Southeast Corner

Area 14, spanning approximately four acres in the southeast corner of the Main Plant Property, has remained largely undeveloped since its establishment. It served as a non-process area as well as for the installation of BP and third-party underground and above-ground product pipelines in its central and southern regions.

Despite the absence of Solid Waste Management Units (SWMUs) or Potential Release Sites (PRSs), several Recognized Environmental Concerns (RECs) have been identified. These include hardened asphalt-like material near boring A14BH03 with exceedances of PAHs and lead, surface fill material at boring A14BH02 containing PAH exceedances, concrete rubble and debris in the southwest corner, a vegetated area with debris in the southeast, underground product pipelines, and a historic off-site benzene release associated with an underground pipeline beyond the southeast boundary.

Historical Activities	**Time period**
LRI for determining its suitability for redevelopment • Initially Two systemic soil borings and three biased soil borings	Dec 2002 to May 2003
25 additional soil borings for characterizing the soils and delineating the extent of impacts (depth from 3 to 11 feet bgs)	Feb 2003 through May 2003
Soil Borings for analyzing BTEX, PAHs, pH and metals	
Additional soil investigation was recommended by CCR/characterization work plan to delineate the exceedances of Tier 1 SROs for PAHs, arsenic and total and TCLP lead	2011

Current Corrective Action Activities

The initial phase of the Land Reuse Investigation for Area 14 began in September 2017. Soil samples were collected from 11 soil boring locations and analyzed for BTEX, PAHs, pH, and metals to delineate the extent of the COPCs in the identified RECs. Five perched groundwater monitoring wells and four additional borings were installed in November 2017 for delineating the impacted soil.

In 2019, Land Reuse Investigation activities commenced to further delineate the Area 14 remediation areas RA01, RA02 and RA01_RA02 and analyzed for the VOC, PAHs, TPH, BTEX, total and dissolved metals.

F.4.2.14 Area 15-Administration Building

Area 15 is located in the northwestern part of the Main Plant Property and consists of approximately 11.7 acres. Area 15 contained the following structures during the first mode of operation: ASTs, crude oil distillation structures, a Crane Shed, a Boiler House, a Power House, a Store House, an Experimental Laboratory, and an Engine Laboratory. On November 19, 2003, the Illinois EPA provided a NFA letter. ***The conditions of ELUC should be listed.***

F.4.2.15 Area 16 - Marketing Operations Area, SWMU 16/ SWMU 34

Area 16 is comprised of Areas 16A and 16B. Area 16A, the northern portion, is approximately three acres, and has concrete pavement over most of the surface. Area 16B, the southern portion, is approximately five acres, is partly paved with concrete and has gravel over part of the surface.

Area 16B contained two API oil water separators, identified as SWMU 16 (Old API Separator) and SWMU 34 (Amoco's Sewer System, an existing API Separator).

SWMU 16, or the Old API Separator, was a 50x120x21-foot underground concrete tank, active from the early 1900s to the late 1970s, producing hazardous waste K051. Its depth was matched to SWMU 34, suggesting simultaneous construction. SWMU 34, Amoco's Sewer System, remains active, with a similar 50x150x21-foot API Separator south of SWMU 16, operational since around 1937.

Activities

In 1995, Phase I RFIs were conducted at SWMU 16 and SWMU 34, involving soil borings and sample analysis for VOCs, SVOCs, metals, and other inorganic analytes. At SWMU 34, a spill of 800 gallons of water mixed with API Separator Sludge occurred in 1990, leading to immediate containment and cleanup measures. In 1994, a diesel release of 30-35,000 gallons from an underground pipe near the Marketing Truck Rack in Area 16A prompted recovery efforts and the installation of observation sumps for monitoring future spills.

In 2019, LRI activities commenced to further delineate the Area 16 remediation areas for (RA01 through RA02). RA02 is in Tract 16B and RA01 is in Tract 16A. ***The RA01 would be RA02.***

	RA01	**RA02**
Location number of soil sampling	21	9
Chemical parameters	total lead, toxicity characteristic leaching procedure (TCLP) for lead, synthetic precipitation leaching procedure (SPLP) for lead, and pH, Benzene	Total xylenes

Current Corrective Action Activities

I. Illinois EPA approval letter for RCRA Facility Investigation Phase I Report forth Main Plant 06/05/2001
II. Illinois EPA approval letter for the RFI Phase II/III Project Plan 06/21/2002
III. Illinois EPA approval of the Area 16 CCR/WP 05/05/2009
IV. Illinois EPA approval letter for the November 2008 Underground Piping Investigation Work Plan, Revision 1 07/06/2009
V. Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17. 02/10/2020

F.4.2.16 Area 17 - Liquid Propane Gas (LPG) Caverns

Area 17, Liquefied Propane Gas (LPG), is approximately 6.9 acres and is located in the south-central portion of the Main Plant Property. Area 17 included a propane and propylene storage, processing, and distribution operation that were used from the time of construction in 1961 until 2000. There are no SWMUs or PRSs located within Area 17. The LPG caverns were decommissioned by pumping nitrogen into the caverns to displace the propane and propylene for

removal from below ground. Propane and propylene were also removed from the aboveground piping during decommissioning and were flushed with water.

Historical Activities	Time period
Collection of 34 soil samples (including field duplicates) from 13 soil borings (10 biased borings and three systematic grid borings, max depth of 15 to 40 feet Bgs)	Dec 2011 – March 2012
No perched groundwater samples because of not encountering wet zones	

In 2019, LRI activities commenced to further delineate the Area 17 remediation areas for CERA01.

	CERA01
Location number of soil sampling	
Chemical parameters	benzo(a) anthracene, benzo (a) pyrene, dibenzo(a,h) anthracene, and total arsenic.

F.4.2.17 Area 18 - North Cell Spray Pond 1 and South Flare Pit, SWMU 14 and SWMU 33

SWMU 14: the North Cell/Spray Pond 1 (NC-SP1), a former surface impoundment of 3.5 acres, operated with cooling water and sour water from the Fluidized Catalytic Unit. It may have received sulfide reactive material. Closed in 2002, it no longer needs post-closure care.

SWMU 33: the South Flare Pit (SFP) which was in southwest of the Main Plant and stored non-hazardous APAC wastes and hazardous waste, including phosphorous pentasulfide. Initially closed in 1985, it underwent additional closure activities in 2001 and 2002. Now certified closed, it doesn't require further care.

F.4.2.18 Area 19 - Spray Pond 3, SWMU 15

Area 19 contains part of SWMU 15, which consists of Spray Ponds 1, 2, and 3, and an Intake Channel (Area 11). Spray Pond 3, the largest in the cooling pond complex, cooled process water from the Main Plant for reuse. Although the complex still exists, it's no longer used for cooling. Operational from around 1942 to 1981 for the Main Plant Refinery and until 1996 for APAC operations. A land reuse investigation at Area 19 in 2001-2002, following an approved plan, aimed to assess its potential for reuse. In 2000, asphalt-impacted soil was removed from the southernmost 500 feet of the drainage ditch east of Spray Pond 3. Sediment samples collected in 2002 confirmed the asphalt removal. Illinois EPA issued an NFA for soil and perched groundwater, with conditions, based on the submittal of Area 19 Land Reuse Investigation Report and Closure Plan on April 13, 2009.

F.6 Cost Estimate for Required Corrective Action

The proposed cost estimate for completion of corrective action at the BP Main Plant Property including groundwater remediation is $87,922,423 in 2020 dollars, including 5-10% contigency. The cost estimate backup is included in Exhibit F-2.

1191150001- BP Products North America, Main Plant
Review Notes: B-147R2; Reviewer: OF

Date Received by IEPA: Oct 09,2020
Start Date Reviewed: April 12, 2024

Though NFA was issued for the Area 1,2,4,15, still these area needs to be investigated for Vapor Intrusion (VI) from Upper Most Aquifer (UMA). So the VI investigation cost needs to be included.

the labor cost section in Corrective Action Cost Estimate Summary (Page 1 of 61) for COD System Operation & Well evaluation/rehabilitation and Bioremediation Pilot Systems Operation doesn't match with Project Management Detail (Page 2 of 61).

For area 5, task objective mentions about the four remediation areas (Page 9 of 61), but total five remediation areas are listed in the current corrective action activities (Page 13 of section F) under F.4.2.5

For Area 6, task objective mentions about the seven remediation areas (Page 13 of 61), but total five remediation areas are listed in the current corrective action activities (Page 20 of section F) under F.4.2.5.

BP must also provide a quotation from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.

BP must include a key to clarify the labor categories (P6, T4, etc.) and justify the selection of specific expertise levels for each task.

F.7 Financial Assurance for Corrective Action

The financial assurance mechanism documentation required by 35 Admin 724.243 for the amount noted in Section F.6 is included in Exhibit F-3. Ok.

After completing technical review, in a phone call on June 12, 2024, BP was informed that the NOD would be sent out soon, and a draft NOD would be shared via email so that BP can begin working on it earlier.

The following are my technical review comments (sent as NOD on June 18, 2024):

1. General Comment:
   a. Provide a list of acronyms for the permit renewal application.

   b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).

   c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program.

      i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved.

ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.

iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.

iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".

2. Exhibit A-1b, Hazardous Waste Permit Part A Form:
   a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.
   b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.

3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification:
   a. Update the information on the 39(i) Certification, Section B for the new liability manager.

4. Exhibit A-4, Public Notice Letter:
   a. Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated.

5. Exhibit B-1:
   a. Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.

6. Section B.2.2:
   a. Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).

7. Section C.3:
   a. Revise Section C.3 to also identify the groundwater classification.

8. Section C.4:
   a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically:

i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate with the exceptions listed in Comment 8.b below; and

ii. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comments 8.b and 9 below.

b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s) and 703.185(c). The facility must provide additional information to present the following:

i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

ii. An updated Water Well Survey (WWS) must be completed and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site.

9. Section C.8:

a. Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

10. Section C.8.1.1 and Figure C-5:

a. Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.

11. Section C.8.1.5:

a. Update Cone of Depression (COD) well information to reflect changes since the time of the submittal; and

b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

12. Section C.8.4:

a. The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.

13. Appendix C of Exhibit C-1:

    a. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

14. Section C.8.4.5 and Exhibit C-3:

    a. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

        i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

        ii. Indicate the most current version of the proposed software that will be used.

        iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

        iv. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations.

            1. The March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance), must be followed and percentages of non-detections handled accordingly; and

            2. Statistical requirements of 35 IAC 724.197 also apply.

        v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for antimony, G006 is only analyzed for arsenic, etc.

        vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

15. Section C.8.4.6:

a. Update Section C.8.4.6 to reflect changes since the time of the submittal.

16. Section C.8.4.8:

a. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.

17. Section C.8.4.9:

a. Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5.

18. Section C.9:

a. Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.5.

19. Section F (Groundwater Aspects)

a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.

b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.

20. Section F.4.2:

a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.

b. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application:

i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area.

ii. A copy of the certified ELUC for each applicable Land Reuse Area.

21. Section F.4.2.2.2:

a. Provide the total size of Area 2 in the detailed description of unit.

22. Section F.4.2.3.2:

a. Provide the screening interval during field screening investigation from November 2002 to July 2003.

23. Section F.6:

a. Revise Exhibit F-2 based on the following comments:

i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.

ii. Check for consistency between the task objective for Area 5, mentioning four remediation areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.

iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.

iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.

v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.

Based on the NOD response (received on August 30, 2024):

- Technical Review Comment (TRC) 1a - a List of Acronyms has been provided after the application cover page as requested.
  TRC 1b- A copy of the complete/updated renewal application will be mailed to the required Region V address, Attn: Norberto Gonzales.
  TRC 1c- GW part

- TRC 2a - added current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.
  TRC 2b - the figure for Item #10 has been revised to delineate and label all existing structures and SWMUs. Additionally, the figure for Item #9 has been revised to include the SWMUs, existing structures, and the approximate dimensions of both. There are no sites for future treatment, storage, or disposal areas.

- TRC 3- Exhibit A-2 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp in Section B of the 39(i) Certification and Sections II and IV of the LPC-PA23 Form.

- TRC 4- Exhibit A-4 has been revised to reflect the Liability Manager change from Sasa Jazic to Michelle Knapp.

- TRC 5- Exhibit B-1 has been revised by a professional land surveyor licensed to practice in Illinois to reflect all vertical parceling exceptions. A legal description of the three-dimensional parcel at and above elevation 408 ft MSL sold to KMPH has also been added to Exhibit B-1.
  * In the legal description, the facility was mismatched. After communicating with BP, they mentioned that the surveyors confirmed 561.30 acres is correct, noting that the legal description was re-recorded at the County in 2015, adding a little area. The incorrect legal description area on the second page was from before the 2015 correction. The surveyors have corrected page 2 of the attached file. Ok

- TRC 6- The Facility + 1,000 feet Topographic Maps (Figures B-5A, B-5B, and B5C) have been revised along with Section B.2.2. These maps include applicable items listed in the Map Requirements: Facility +1,000 Feet table of the Information Required in an Application for a RCRA Post Closure Permit. Figures B-5B and B-5C have been revised to include removal of the KMPH property from Area 12 and clearly describe or illustrate the vertical parceling. Exhibit B-2 has been revised to include an updated wind rose diagram dated June 25, 2024, including data from June 1, 2014, through June 25, 2024.

- TRC 19a- Section F.4.2.11 has been revised to reflect the issuance of a RCRA Permit to KMPH on March 4, 2024, and clearly describe the vertical parceling in Area 12.

- TRC 20a- Corrective action letters sent to the Illinois EPA and Illinois EPA responses are summarized in new Table F-2. Additionally, the status of each Land Reuse Area is summarized in new Table F-3 as requested by Illinois EPA via email on June 26, 2024.

- TRC 20b- All no further action letters are provided in new Exhibit F-4. All certified ELUCs are provided in new Exhibit F-5.

- TRC 21- Section F.4.2.2 has been revised to include the total size of Area 2 (43.17 acres)

- TRC 22 - Section F.4.2.3.2 has been revised to reflect that soil samples were collected at approximate depths of 3 to 8 feet below ground surface.

- TRC 23a- The labor costs on page 1 have been revised to align with the correct costs on page 2.

  TRC 23b- The task objective for Area 5 on page 9 has been revised to align with the correct text in F.4.2.5.

  TRC 23c- The text in F.4.2.6 has been revised to clarify five of seven remediation areas required delineation; the task objective for Area 6 on page 13 has been revised to align with the revised text.

TRC 23d- As stated in the Class 1* Permit Modification request dated December 20, 2017, the 2017 Corrective Action Cost Estimate for Financial Assurance was prepared using the Illinois EPA LUST Program Maximum Payment Amount for LUST lab rates were used for the laboratory rates. Amy Butler (GW) confirmed that LUST lab rates are acceptable.

Note: It was noted the cost estimate has a 5% contingency for groundwater-related items. A condition was added to the Compliance Section of the permit to require future cost estimates use a minimum of 10% for all items.

TRC 23e- A table summarizing bp Job Categories for Environmental Services has been added to Exhibit F-2.

DOCUMENT 7

GWU

Completeness Review

Halteman, Takako

From: Butler, Amy
Sent: Tuesday, November 24, 2020 10:08 AM
To: Halteman, Takako
Subject: RE: BP Completeness Review
Attachments: BP Main Plant B-147R2_completeness memo.docx

Here you go!

From: Halteman, Takako <Takako.Halteman@Illinois.gov>
Sent: Tuesday, November 24, 2020 9:03 AM
To: Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: BP Completeness Review

Hi Amy-
Could you send me your memo if you are done? So we can send out a letter 😊
Thanks!
Takako

State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397

JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: November 20, 2020

TO: Takako Halteman, P.E., RCRA Unit

FROM: Amy Boley, Groundwater Unit

SUBJECT: RCRA Post-Closure Permit Renewal Application; Completeness Review

RE: 1191150001 -- Madison County
BP Products North America Inc. – Main Plant
ILD980700967
Log No.: B-147R2
RCRA Permit

A completeness review has been completed on the groundwater portions of the subject submittal entitled, "RCRA Permit Renewal Application", dated October 8, 2020, and received by the Illinois EPA on October 9, 2020. This document was submitted to request renewal of the approved RCRA Corrective Action Permit for the BP Products North America Inc. (BP) Main Plant facility. The application was submitted by Mr. Sasa Jazic, Liability Manager for Remediation Management Services Company, an affiliate of BP Products NA Inc, and was prepared by Wood Environmental & Infrastructure Solutions Inc, on behalf of BP. The completeness review is completed for groundwater portions only.

BACKGROUND

The Permit was most recently revised on May 29, 2018 (Log Nos. B-147R-M-17 and M-18).

Section IV of the Permit, Corrective Action, and the associated Attachment C to the Permit, outlines requirements for remediation of hydrocarbon pilot programs on-going at the site.

Section V of the Permit, Groundwater Corrective Action Program, requires a site-wide groundwater monitoring program

SUBJECT SUBMITTAL

The facility followed the Illinois EPA RCRA Part B Permit Application Decision Guide (November 2019). The facility provides a completed version of the corresponding Checklist for the Guidance document, immediately after the cover letter to the subject submittal. Section D and E do not apply to a Correction Action Permit; therefore, those sections are not completed. All groundwater information is in Section C.

With regards to groundwater, a review of the facility's completed Illinois EPA RCRA Permit Application Decision Guide (November 2019) Checklist was completed for the following: Section C (Groundwater Monitoring), and Section F (Corrective Action).

ILLINOIS EPA COMMENTS AND RECOMMENDATIONS

The groundwater related portions of the Renewal Application are considered complete, based upon a review of Section C (Groundwater Monitoring), and Section F (Corrective Action).

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

MEMORANDUM

DATE: November 20, 2020

TO: Takako Halteman, P.E., RCRA Unit

FROM: Amy Boley, Groundwater Unit

SUBJECT: RCRA Post-Closure Permit Renewal Application; Completeness Review

RE: 1191150001 -- Madison County
BP Products North America Inc. – Main Plant
ILD980700967
Log No.: B-147R2
RCRA Permit

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Section V of the Permit, Groundwater Corrective Action Program, requires a site-wide groundwater monitoring program

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The facility followed the Illinois EPA RCRA Part B Permit Application Decision Guide (November 2019). The facility provides a completed version of the corresponding Checklist for the Guidance document, immediately after the cover letter to the subject submittal. Section D and E do not apply to a Correction Action Permit; therefore, those sections are not completed. All groundwater information is in Section C.

With regards to groundwater, a review of the facility's completed Illinois EPA RCRA Permit Application Decision Guide (November 2019) Checklist was completed for the following: Section C (Groundwater Monitoring), and Section F (Corrective Action).

ILLINOIS EPA COMMENTS AND RECOMMENDATIONS

The groundwater related portions of the Renewal Application are considered complete, based upon a review of Section C (Groundwater Monitoring), and Section F (Corrective Action).

DOCUMENT 8

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
1	**Revereware** **CWS not sampled** **Clinton** GW Offsite Migration- No data available to confirm the extent of GW constituents migration into off site areas PFAS Potential – Yes due to chrome plating activities Current exposure risk-Unknown due to lack of data	0390050004	SRP Focus Areas RCRA Closure / SRP / LUST The North Loading Dock TCE UST spill area had soil vapor extraction and groundwater pump and treat systems previously installed for source removal, and semi-annual groundwater monitoring also occurred. Illinois EPA approved an alternate standard within the GMZ of 0.40 mg/L for TCE, and a focused NFR for a 3.74-acre portion of the facility was issued March 25, 1999. For an area designated as the acid lagoon area, groundwater was investigated, and remediation included removal of copper and chromium contaminated soils, and no restrictions were required after soil removal.	The stability of the TCE plume is not being monitored even though TCE was present at 320 ppm when site closure occurred in 1998. Potential for off-site migration exists for the volatile constituents such as TCE. Emerging contaminants (PFAS) and other waste constituents not sampled at the nearby surface water body. TCE and PFAS pose risk to the off-site receptors.	Site is not currently in use while buildings remain. Surrounding land use is industrial and residential. Surface water and sediment in coon creek should be sampled for PFAS, 1,4 dioxane, chromium, copper and mercury due to historic chrome plating operations. Groundwater should also be sampled and analyzed for the above constituents along with chlorinated VOCs. Potential for offsite GW migration of cVOCs should be evaluated. If offsite GW migration is shown, site should update CA 725 and CA 750 determinations.

R000674

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
2	**Honey well** No closest CWS GW Offsite Migration- Yes PFAS Potential – Yes Current exposure Risk- No available data	0316000037	RCRA Closure	The facility continues to work towards completion of closure activities. The facility has engineered barriers on the entire facility, VIMS to mitigate indoor air, a PRB to prevent migration of GW and a GMZ to monitor, mitigation and control groundwater flow.	Town of Cicero North complex annex Building as well as New animal welfare building lie over the cVOC contaminant plume controlled by GMZ boundary. It is not clear if these buildings have vapor mitigation systems in place. Update CA 750 and CA 725 determinations based on current conditions. Evaluate indoor air data within the offsite buildings above the GMZ.
3	**Detrex** No closest CWS GW Offsite Migration- Yes PFAS Potential –Yes Current Exposure Risk – VI exposure risk exists due to GW migration	0311860003	Permit	Remedy is not functioning as intended. Data is still being collected for soil, GW, and soil gas in coordination with Illinois EPA as additional corrective measures/remedy are being finalized. There is potential that waste stored or transferred at the facility may have contained PFOs or PFAs.	Additional investigations underway through the existing permit conditions. Additional remedies may be necessary. Offsite buildings should be evaluated for potential VI exposure. GW PFAS sampling Recommended due to historic manufacturing or processing activities.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
4	**Caterpillar** GW Offsite Migration- possible PFAS Potential –yes Current Exposure Risk – potentially complete VI pathway	1790200019	SRP Currently under EPA oversight	IEPA inspection completed for A-X barriers, but site was subsequently redeveloped. Concrete barriers appear to be grass R-O-Ws now. VI was not a pathway evaluated in any of the 3 closure letters. NAPL migration potential only partially evaluated. PNAs/metals at former impoundments & former used oil pit above I/C SROs not addressed by barrier/restriction. Large areas of the site uninvestigated due to focus primarily on 3 areas, with impacts subsequently identified.	NFA request denied by EPA. As of October 2019, Vapor intrusion evaluation and related ELUCs were requested to be developed for 3 on-site buildings and two SWMUs. EPA is currently providing oversight.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
5	**U of I** GW Offsite Migration- No PFAS Potential – Yes Current exposure risk- None	0198270008	Permit	Reconfiguration of the campus could result in changing use from industrial-commercial to residential. This is unlikely at SWMU 52, which has been the focus of most of the active remediation and is the only parcel with an IC use restriction, since it is used as a power plant. The reports indicate the Police Training Institute Firing Range will eventually be closed and an investigation for lead completed at that time. Future use of the property should be considered when conducting the investigation.	Determine whether the University has a timetable for decommissioning the Police Training Institute Firing Range and what the University's future plans are for the property. If there are no plans to decommission the facility, consider feasibility of conducting soil sampling while facility remains operational. Lead and PFAS constituents should be evaluated at the present location of the Fire Services Institute.

R000677

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
6	**Airtex – Plant 1** GW Offsite Migration- Yes PFAS Potential –Yes Current exposure risk-Possible, VI Investigation under way	1918080002	Permit	AOC#2 off site – only area sampled; no actual remedy in place – deed restrictions – all off site sampling below reg limits – NFA given by state. Possible PFAS use at the facility – former plating operations. On July 21, 2016, detections of TCE/PCE were reported by the City of Fairfield's City Engineer in a sanitary sewer and manhole at the northeast corner of Airtex Plant 1	New investigation underway by state for possible TCE/PCE releases and indoor air investigation. PFAS investigation and sampling plan should be developed.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
7	**Arcelor Mittal** Hennepin CWS not sampled yet for PFOA GW Offsite Migration- Yes PFAS Potential – Yes Current Exposure Risk- None	1550105001	Permit	PCE (SWMUs 46 and 47 on Parcel #4); potential impact to municipal well; treatment system installed by AM at well to address VOCs; Hennepin Public Water District Building is located near the well; 2019 Q4 concentrations in monitoring wells closest to the building were below the VISLs and IEPA Tier 1 VI ROs	Review sampling data for the municipal well and ensure that cVOC levels are below MCL. Confirmation sampling recommended for PFAS due to VOC contamination from the site impacting the municipal well.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
8	**Pierce Technology** GW Offsite Migration -Yes, through permitted discharge PFAS Potential – potential exists due to chemical manufacturing operations Current Exposure risk-possible due to preferential VI migration pathway	2010300034	Permit Section 3004(u) of RCRA & 35 Illinois Administrative Code 724.201	Groundwater monitoring and reporting is on-going at the Facility; a GMZ is currently established and maintained at the Facility.100% of the recovered groundwater is now disposed of to the sanitary sewer in accordance with their wastewater discharge permit. However, Rural settings might favor the discharge.	Untreated groundwater contains TCE and other volatiles. If the sanitary sewer line is connected to residences, a preferential VI pathway may exist. If screening level data indicates a risk to human exposure pathway, the facility should be directed to treat the extracted groundwater before discharging to sanitary sewer district.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
9	**Xerox Corp** GW Offsite Migration-Not known PFAS Potential –Yes Current onsite and off-site exposure risk-due to residual contamination under the existing buildings and storm sewer impacts	0430705013	Section 3008(h) of RCRA On July 21, 1995, Xerox submitted a closure plan amendment, proposing soil excavation and ex-situ treatment to remediate the remaining contaminated soil at Area I and IV and higher site-specific cleanup objectives (CUOs) at the facility. On August 21, 1995, Illinois EPA approved the site-specific CUOs of 1 mg/kg for all parameters of concern	Contaminated Areas Inside PR&S Building (Areas III, IV, V, VI) - Area III, Area IV, Area V, and Area VI are located inside the PR&S building. These areas were identified as areas of soil contamination during soil investigations in 1986 to 1987. Area III is located along a solvent drain line in the southwestern portion of the building. The drain line ran east to the edge of the building, cutting across the Area VI and half of area V; the drain line was removed between 1993 and 1995. Area IV includes a former spray booth area and a number of solvent and storm sewer lines in an approximately 4,000 ft2 area.	The PR&S building is leased and currently occupied. VI concerns remain within the property. Sewer is potentially contaminated expected due to past solvent release practices. This site poses imminent risk due to ongoing exposure to volatile contaminants from vapor intrusion through soil volatilization and sewer vapor transport. Collect indoor air, sewer gas, soil gas and groundwater samples at this site and analyze for cVOCs.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
10	**Toyal** **No PFAS CWS results available** GW Offsite Migration- No PFAS Potential – Likely Current exposure risk- No vapor data available	1970500014	volunteer Clean up under SRP	The residual benzene concentrations were ranging from 2100 to 2700 µg/l where the RO was 5 µg/l. However, Tier 2 GW modeling at MW14D demonstrated compliance at the down-gradient property line predicting 140' to meet the Tier 1 RO, while the distance to the property line is 364'.	Onsite buildings should be evaluated for vapor intrusion based on residual soil and GW contamination under the foundation. Potential for exposure to benzene from vapor intrusion exists for onsite workers.
11	**North Branch Chicago River** GW Offsite Migration- No PFAS Potential – None Current Exposure risk- None	0971250007	RCRA Closure/3008(h)	Lead-contaminated soils and sediments were excavated and placed into a clay lined landfill. The landfill trench is subject to 30 yrs. of post closure care including GW monitoring.	None

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
12	**Modern Plating** PFAS above the draft guidance level GW Offsite Migration- No due to existing GMZ PFAS Potential – Yes Current Exposure Risk- None. Potential VI risk if contamination migrates towards existing buildings	1770200010	Permit MPC under the direction of the IEPA proposed a CAMU as the remedial action. Construction of the CAMU began in April 2000 and ended in February 2001. A Construction Certification and CAMU Landfill Construction Documentation was provided to the IEPA in July 2001. A RCRA Post-Closure Permit was issued to MPC on April 11, 2000.	A GMZ, was established as approved in the Illinois EPA letter dated May 25, 1999 (Log No. C-259-M-7), and was incorporated into the RCRA Permit, effective May 16, 2000. The facility is subject to post-closure care, which includes semi-annual groundwater monitoring.	Evaluate PFAS due to chromium plating if groundwater use occurs in the area. Monitored GW VOC levels exceed the VISL criteria. Evaluate VI potential due to soil gas and sewer gas intrusion.

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
13	**Best Blast** GW Offsite Migration- No data PFAS Potential – No data Current exposure risk-none based on no detected COCs in GW. However, GW was never sampled at the facility.	0894075833	Consent Order CH ILA 94314/RCRA Closure JB industries owns the property and has taken the responsibility of RCRA closure at this site. Remedy was completed due to lead and PAH contamination. No known COCs at the site.	No hydrogeologic investigation has ever been conducted at the site. the facility was required to remove soils from the Outdoor Drum Storage Area and interior satellite accumulation area. Closure certification issued on April 9, 2004 (Log No. C-783 certification).	Due to metal finishing and painting operations at the site, CVOCs and PFAS are potential concerns in GW. No VOCs were detected in soil during confirmation sampling in two areas after excavation. cVOCs and PFAS should be sampled in GW. Potential for VI should be evaluated in on-site buildings.

R000684

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
14	**BFI Davis Jnct** GW Offsite Migration- No PFAS Potential –No Current exposure risk-none based on no detected COCs in GW	1418210001	Permit There was no remedy implemented specifically for the two (2) Solid Waste Management Units (SWMUs) of concern. However, the groundwater detection monitoring is in place for the landfill and leachate monitoring is in place.	BFI Davis Junction is under Detection Monitoring as required by their most recent RCRA Part B Permit. GW sampling did not identify any COCs. The RFI Phase I Workplan which was approved by the Illinois EPA only required soil samples to be collected.	None

A3 Project – Illinois EPA Sites - Summary and Recommendations – February 2021

	Name of CA Site	State ID	Regulatory Status and completed Remedial Activities	Review Comments	Recommendations
15	**Cabot** GW Offsite Migration-Existing GMZ prevents off site migration. Current Exposure risk - None	0418080001	Permit	CA Order signed in Sept 2020. VI risk from VOCs in impoundment leachate exists, but no buildings are present, and permit prevents disturbance of cover and requires notification of land use change (II.C.2. allows additional restrictions). PFAS may have been used in firefighting foam used at the site for spills – sampling recommended.	GW PFAS sampling is recommended due to the past site activities.

DOCUMENT 9

From: Dodds, Jennifer
To: Watson, Rob; Halteman, Takako
Subject: [External] A3 Project - Access Request Letter
Date: Tuesday, February 1, 2022 10:13:11 AM
Attachments: Blistex-Xerox Access Request Letter - 1-31-22.pdf
Blistex-Xerox EPA Site Access Agreement-.docx

Rob and Takako,

Please find attached a copy of the letter and enclosure that was mailed out to Blistex yesterday afternoon requesting access at the former Xerox property for VI sampling. We'll keep you up to date on their response.

Thank you,

Jennifer Dodds
U.S. Environmental Protection Agency, Region 5
Land, Chemicals and Redevelopment Division
77 West Jackson Blvd, LR-16J
Chicago, IL 60604-3590
Tel: (312) 886-1484
dodds.jennifer@epa.gov

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, IL 60604-3590

Mr. Tim Grannan, President
Blistex Inc.
1800 Swift Drive
Oak Brook, IL 60523-1574

RE: Request for Access

Dear Mr. Grannan,

The United States Environmental Protection Agency (EPA) is seeking your cooperation in the performance of certain investigative activities at your facility located at 100 Windsor Drive in Oak Brook, Illinois. As you may know, your facility was the subject of corrective action cleanup activities performed under the authority of the Resource Conservation and Recovery Act (RCRA) in the 1980s and 1990s. Specifically, our information indicates that underground storage tanks were removed, and contaminated soil was excavated, treated on-site, and backfilled in accordance with an approved closure plan. However, the vapor intrusion pathway was not investigated at that time and EPA is concerned with the possibility that residual contaminants may be causing vapor intrusion into the buildings at the facility. Vapor intrusion is when vapors and gases from contaminated soil or sewer lines have the potential to seep into indoor spaces and build up to a point where the health of workers in these buildings could be at risk.

Accordingly, EPA seeks your cooperation in the performance of certain investigative activities which are designed to determine whether there are data gaps related to any vapor intrusion concerns at your facility. Some of the investigation activities may include sampling sewer conduits in and around the building, indoor air and if necessary sub-slab soil gas sampling in the main building. Attached please find a simple access agreement by which you consent to provide EPA access for these investigative activities.

After you have reviewed the access agreement, please contact me at dodds.jennifer@epa.gov or via phone at 312-886-1484 to discuss the matter further. Legal questions may be directed to Richard Murawski, Associate Regional Counsel, at murawski.richard@epa.gov or 312-886-6721. We look forward to working with you.

Sincerely,

Jennifer Dodds
Project Manager
Land, Chemicals and Redevelopment Division

Enclosure

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 5
77 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

CONSENT FOR ACCESS TO PROPERTY

Address of property: _____

Property Owner: _____

Phone #: _____

Email: _____

I consent to officers, employees, contractors, and authorized representatives of the United States Environmental Protection Agency (U.S. EPA) entering and having continued access to this property for the following purpose:

- Conducting monitoring and sampling activity, including installation of sampling equipment.
- Performing other actions to investigate contamination on the property that U.S. EPA may determine to be necessary; and,
- Taking any response action to address any release or threatened release of a hazardous substance, pollutant, or contaminant which U.S. EPA determines may pose an imminent and substantial endangerment to the public health or the environment.

I realize that these actions taken by U.S. EPA are undertaken pursuant to its authorities under the Resource Conservation and Recovery Act, 42 U.S.C. Section 6901, *et seq*., and the Comprehensive Environmental Response, Compensation and Liability Act of 1980, as amended, 42 U.S.C. Section 9601, *et seq*.

This written permission is given by me voluntarily, on behalf of myself and all other co-owners of this property, with knowledge of my right to refuse and without threats or promises of any kind.

_____ _____

Date **Signature**

_____

Name, Title

DOCUMENT 10

From: Halteman, Takako
To: McCurdy, Finnegan; Frost, Brad
Cc: Samson, Curtis; Butler, Amy
Subject: RE: BP Repository
Date: Thursday, August 24, 2023 1:21:00 PM
Attachments: image001.png
image003.png
image005.png

Hi Finn-
This is a renewal application for BP Main Plant (not to be confused with BP Riverfront facility; they are next to each other and the same company owns and operate both).
So this is a BP's copy in response to their Public Notice to apply for a renal permit.
I think as long as the library has a computer that people can use to look at the application, I would think it is ok.
BP has to make sure that every time they send IEPA an addendum to the application, they have to update the CD with a new set of application.
Also, this is NOT our depository copy. BP is required to send us a paper copy, and we update the original and depository copy every time we receive an update to their application (often in response to a NOD).
Our depository copy of a "complete application" will be on paper and will be screened at the Agency prior to sending it over to the library when a draft permit is ready to be issued.
This CD copy BP is providing to the library will not be our official "complete application" as the Agency has no control over what the facility place.
I am not sure if I answered your question/concern.
let me know if you need to discuss this further.
Thanks,
Takako

From: McCurdy, Finnegan
Sent: Thursday, August 24, 2023 11:51 AM
To: Halteman, Takako ; Frost, Brad
Subject: RE: BP Repository
It seems like they received a disc. I've attached the image the librarian sent me. Have you ever seen anything like this?

Finnegan McCurdy, he/him
Illinois EPA
GPSI Intern
Office of Community Relations
(217) 785 6653

From: Halteman, Takako <Takako.Halteman@Illinois.gov>
Sent: Thursday, August 24, 2023 9:44 AM
To: McCurdy, Finnegan <Finnegan.McCurdy@Illinois.gov>
Subject: RE: BP Repository
No I have not heard or seen anything related to this.

From: McCurdy, Finnegan <Finnegan.McCurdy@Illinois.gov>
Sent: Thursday, August 24, 2023 9:37 AM

To: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: BP Repository
Good morning!
I checked with Wood River library and they said they sent back the repository and received a disk of the information because they request the repository items digitally. They also were told they had to pay an additional fee for the package because the whole price wasn't covered.
Did you happen to hear anything in relation to that? I would assume the package was sent back to us but I was not given the package and I did not hear from Robbie.

Finnegan McCurdy, he/him
Illinois EPA
GPSI Intern
Office of Community Relations
(217) 785 6653

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DOCUMENT 11

From: Patel, Shilpa
To: Halteman, Takako; Ramanauskas, Peter
Cc: Lam, Doug; Cisneros, Jose; Cooperider, Jacki; Rhoades, Joshua; Butler, Amy
Subject: [External] RE: IL A3 Project Next Steps
Date: Monday, November 27, 2023 3:05:29 PM

Thank you Takako! Appreciate the update.

Take care
Shilpa

From: Halteman, Takako <Takako.Halteman@Illinois.gov>
Sent: Monday, November 27, 2023 3:02 PM
To: Patel, Shilpa <patel.shilpa@epa.gov>; Ramanauskas, Peter <ramanauskas.peter@epa.gov>
Cc: Lam, Doug <Lam.Doug@epa.gov>; Cisneros, Jose <Cisneros.Jose@epa.gov>; Cooperider, Jacki <Jacki.Cooperider@Illinois.gov>; Rhoades, Joshua <Joshua.Rhoades@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: RE: IL A3 Project Next Steps

> **Caution:** This email originated from outside EPA, please exercise additional caution when deciding whether to open attachments or click on provided links.

Hi Shilpa -
We are looking into the information. One of my staff is looking for the information this week.
I will let you know our progress by Thursday.

Thanks,
Takako

From: Patel, Shilpa <patel.shilpa@epa.gov>
Sent: Monday, November 27, 2023 2:13 PM
To: Ramanauskas, Peter <ramanauskas.peter@epa.gov>; Halteman, Takako <Takako.Halteman@Illinois.gov>
Cc: Lam, Doug <Lam.Doug@epa.gov>; Cisneros, Jose <Cisneros.Jose@epa.gov>
Subject: [External] RE: IL A3 Project Next Steps

Good afternoon Takako,

I wanted to follow up on the email below. Doug is working towards sending out the letters to the facilities listed below next week. Would you be able to share the information under Step 1?

Thanks and hope you had a great Thanksgiving,
Shilpa

From: Ramanauskas, Peter <ramanauskas.peter@epa.gov>
Sent: Thursday, November 16, 2023 7:08 AM
To: takako.halteman@illinois.gov
Cc: Lam, Doug <Lam.Doug@epa.gov>; Patel, Shilpa <patel.shilpa@epa.gov>; Cisneros, Jose <Cisneros.Jose@epa.gov>
Subject: IL A3 Project Next Steps

Hello Takako,

EPA is ready to initiate additional investigations as part of the IL A3 Project after a successful effort at Blistex/Xerox. Before doing so, we'd like to coordinate with you on next steps based on the information obtained from our investigation efforts. I've outlined our plan below for your review regarding the sites listed below. We can insert meetings/coordination points as needed. EPA's contact for this project is Doug Lam. Please let me know who he should reach out to for each of the sites listed below or if you'd prefer for him to work through you.

- Revereware: 1000 Sherman Street, Clinton, IL 61727
- Best Blast: 1500 East Dearborn Ave, Aurora, IL 60505
- Pierce Technology: 3747 North Meridian Road, Rockford, IL 61101

Step 1: EPA is requesting that ILEPA share the following information for the sites listed above, if available.

- Most recent groundwater data
- Any information on utility locations
- Updated contacts for the facilities
- ILEPA staff contact for the facilities

Step 2: EPA will be issuing letters to each facility to obtain access and explain our interest in pursuing further investigation.

Step 3: Once an access option is chosen, EPA will work with our contractors to start the investigation.

Step 4: The results of the investigation will be evaluated and next steps will be discussed with ILEPA. We propose that If the results of any VI investigation exceeds the Johnson and Ettinger Model's remediation objectives, ILEPA follow up on mitigation efforts through their state authorities and pursue a UECA. If the results of any VI investigations do not exceed the Johnson and Ettinger Model's remediation objectives, EPA will pursue any required mitigation efforts and pursue a UECA.

Please let me know if you have any questions or concerns about the plan I described above.

Thank you,

Peter Ramanauskas
Supervisor - Corrective Action Section 1
USEPA Region 5
77 W. Jackson Boulevard (LR-16J)
Chicago, IL 60604
(312) 886-7890

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DOCUMENT 12

From: Faruk, Omar
To: swright@sovcon.com
Cc: Halteman, Takako
Subject: RE: [External] Re: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)
Date: Friday, March 1, 2024 8:02:53 AM

Hi Starlet,
Thank you for providing the Figure 7!
Omar

From: Faruk, Omar
Sent: Friday, March 1, 2024 7:20 AM
To: Starlet Wright
Cc: Halteman, Takako
Subject: RE: [External] Re: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)
Good morning Starlet,
Yes, I am referring to the BP Main Plant Revised VI Evaluation and Work Plan dated August 28, 2019. Figure 7 (presents a summary of identified buildings in accordance with TACO section 742.200) is missing.
Thank you!
Regards,
Omar Faruk
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

From: Starlet Wright <swright@sovcon.com>
Sent: Thursday, February 29, 2024 4:14 PM
To: Knapp, Michelle <michelle.knapp@bp.com>; Faruk, Omar <Omar.Faruk@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: [External] Re: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)
Hi Omar,
We don't have a record of that Log No. yet, are you referring to the BP Main Plant Revised VI Evaluation and Work Plan dated August 28, 2019? If so, please let me know if this (attached) looks like the Figure 7 you are missing.
Thanks,

Starlet S. Wright

Senior Project Manager

email: swright@sovcon.com

mobile: 813-767-1959

Sovereign Consulting Inc.

www.sovcon.com

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Thursday, February 29, 2024 3:45 PM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; Starlet Wright <swright@sovcon.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: RE: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)

Omar,

It is nice to meet you (via e-mail). I'm looping in Starlet with Sovereign Consulting who should be able to help with the request below.

Let us know if you need anything else at this time.

Thanks,

Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, February 28, 2024 1:10 PM
To: Knapp, Michelle <michelle.knapp@bp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: Request for Figure 7 from RCRA Corrective Action Submittal (Log No. B-147R-CA-96)

You don't often get email from omar.faruk@illinois.gov. Learn why this is important

Good afternoon Knapp,

My name is Omar Faruk, and I recently joined the Illinois Environmental Protection Agency (IEPA) and working as RCRA unit engineer. Currently, I have started to review the RCRA Corrective Action submittals for BP main Plant, specifically dated **08/29/2019,** identified as log No. **B-147R-CA-96.** During my review, the **Figure 7** was not included in the attachment provided with the submittal. It would be great for us if you can send this figure copy. Thank you.

Regards,

Omar Faruk

Environmental Protection Engineer

RCRA Unit

Permit Section, Bureau of Land, Illinois EPA

217-557-9764

Omar.Faruk@Illinois.gov

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CAUTION: [EXTERNAL EMAIL] This email came from an external source. DO NOT CLICK links or attachments unless you recognize the sender and know the content is safe.

DOCUMENT 13

From: Samson, Curtis
To: Knapp, Michelle
Cc: Halteman, Takako; Faruk, Omar; Sovis, Visal
Subject: RE: Permit mod for bp Wood River Main Plant Facility
Date: Wednesday, May 1, 2024 12:03:26 PM
Attachments: image001.png

Michelle,
Takako and I had a discussion about the best course of action. To remove Kinder Morgan would require a Class III application. However, since Kinder Morgan has been issued its permit (RCRA Log No. B-214) and BP's permit renewal application is still under review, it would be best to submit an addendum to the permit renewal application.
Omar Faruk is now the permit project manager and he has also been assigned the corrective action duties for the facility. I plan to remain to be involved. Omar is cc'd in this email.
Thanks,
Curtis

From: Knapp, Michelle
Sent: Wednesday, May 1, 2024 11:44 AM
To: Samson, Curtis
Cc: Halteman, Takako
Subject: [External] FW: Permit mod for bp Wood River Main Plant Facility
Curtis,
I'm just following up on this.
Can you let us know what we need to submit as far as a permit mod to remove KM from the current MP permit?
Thanks,
Michelle

From: Knapp, Michelle
Sent: Thursday, April 18, 2024 10:05 AM
To: Samson, Curtis <Curtis.Samson@Illinois.gov>
Cc: Wright, Starlet (Sovereign Consulting) <swright@sovcon.com>; Michael Hoffman <michael.hoffman@wsp.com>
Subject: Permit mod for bp Wood River Main Plant Facility
Curtis,
Now that Kinder Morgan has their own RCRA Corrective Action permit, bp needs to take action to remove the Kinder Morgan property from the bp Main Plant Corrective Action Permit.
Can you let us know what class of permit submittal will be required for this?
Thanks,
Michelle
Michelle Knapp
Liability Manager
BP Remediation Management
847-346-7112



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DOCUMENT 14

From: Starlet Wright
To: Halteman, Takako; Faruk, Omar; Samson, Curtis; Butler, Amy
Cc: Knapp, Michelle
Subject: [External] bp Wood River - resubmittal of Main Plant Area 2 ELUCs
Date: Wednesday, May 1, 2024 3:48:20 PM
Attachments: Outlook-3qkz23b5
Outlook-lxk5px4c.png
ILWR240501 MP Area 2 ELUC Resubmittal.pdf

Good Afternoon,

As requested, please see attached Main Plant letter resubmitting the missing certified ELUCs for Area 2. The hard copy with original certified ELUCs from the Madison County Recorder's Office and CA form with a wet signature was mailed today.

Thank you,

Starlet S. Wright
Senior Project Manager | email: swright@sovcon.com
mobile: 813-767-1959

Sovereign Consulting Inc.
Greater St. Louis Area
www.sovcon.com

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Please consider the environment before printing this e-mail.

Remediation Management Services Company

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

May 1, 2024

Jacqueline M. Cooperider, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
RCRA Permit Log No. B-147R-CA-80
Area 2 – Police Station Donation Parcel II and BP Retained Parcel
Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529

Dear Ms. Cooperider:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting one original certified true copy of each of two environmental land use control (ELUCs) as requested by the Illinois Environmental Protection Agency (Illinois EPA or Agency). Electronic copies of this letter are being submitted directly to Ms. Amy Butler, Mr. Omar Faruk, and the Illinois EPA Collinsville Field Operations Section (Mr. Ali Al-Janabi). Enclosed with this letter is an Illinois EPA RCRA Corrective Action Certification Form (LPC 632).

In email correspondence dated April 12, 2024, Illinois EPA notified bp that certified ELUCs received by the Agency on June 22, 2017 (Log No. B-147R-CA-80) were officially missing/lost, and a new certified copy from Madison County is required. Based on the Illinois EPA receipt date, bp identified the missing ELUCs as follows:

Date of Original Submittal	Title of Original Submittal	RCRA Log No. Listed on Original Submittal
6/21/2017	Main Plant Facility – Area 2 – Police Station Donation Parcel II Certified True Copy of ELUC Recording 2017R18528	B-147R-CA-77
6/21/2017	Main Plant Facility – Area 2 – BP Retained Parcel Certified True Copy of ELUC Recording 2017R18529	B-147R-CA-78

Area 2 – Police Station Donation Parcel II: The original certified true copy of ELUC Recording 2017R18528 was submitted to the Agency to document that requirements under Items 8 and 9 of the Illinois EPA letter dated May 4, 2017 (Log No. B-147R-CA-77) were properly completed. Item 8 required recording of the aforementioned documents on the applicable property title by the county recorder of deeds within 45 days of that letter. The ELUC was recorded by the Madison County Recorder of Deeds on June 5, 2017. Item 9 required submittal of a certified true copy of the filed ELUC within 30 days of the recording. The original certified true copy submitted in the above-referenced bp letter dated June 21, 2017, fulfilled that requirement.

Area 2 – BP Retained Parcel: The original certified true copy of ELUC Recording 2017R18529 was submitted to the Agency to document that requirements under Items 9 and 10 of the Illinois EPA letter dated April 21, 2017 (Log No. B-147R-CA-78) were properly completed. Item 9 required recording of the aforementioned documents on the applicable property title by the county recorder of deeds within 45 days of that letter. The ELUC was recorded by the Madison County Recorder of Deeds on June 5, 2017. Item 10 required submittal of a certified true copy of the filed ELUC within 30 days of the recording. The original certified true copy submitted in the above-referenced bp letter dated June 21, 2017, fulfilled that requirement.

One certified true copy of each of the two above-referenced ELUCs is enclosed.

Should you have questions regarding the information provided, please contact me at (847) 346-7112.

Sincerely,



Michelle Knapp
Liability Manager
Remediation Management Services Company

Enclosures: Illinois EPA RCRA Corrective Action Certification Form (LPC 632)
Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529

cc: Amy Butler, Illinois EPA
Curtis Samson, Illinois EPA
Takako Halteman, Illinois EPA
Omar Faruk, Illinois EPA
Ali Al-Janabi, Illinois EPA
Tom Stalcup, Mayor of the City of Wood River
Michael J. Hoffman, P.E., WSP USA Environment & Infrastructure
Kevin Wheeler, Sovereign Consulting

Return to: (Fed Ex Env.)
FATIC
30 N. LaSalle St 96 17
Ste 2700
Chicago, IL 3/4
60602

8435106
Tx:4335443

2017R18528
STATE OF ILLINOIS
MADISON COUNTY
06/05/2017 4:13 PM
AMY M. MEYER, RECORDER
REC FEE: 76.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE: 9.00
 # OF PAGES: 51

PREPARED BY:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

RETURN TO:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

85.00 CK
6395

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control For Police Station Donation Parcel II Within Area 2
Parcel Index No. 19-2-08-27-10-101-002

as of

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 22 day of May, 2017, by BP Products North America Inc., a Maryland corporation, ("Property Owner"), of the real property located at 301 Evans Avenue, Wood River, Illinois (referred to as the "Main Plant Facility"), which includes the 7.5 acre tract of land having Parcel Index No. 19-2-08-27-10-101-002 (this tract of land is the "Property" which is the subject of this ELUC.

WHEREAS, 35 Il. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained for a portion of the Main Plant Facility known as "Area 2" on August 13, 2002 and is attached hereto as Exhibit C; the Property which is the subject of this ELUC is located in Area 2. In addition, on August 22, 2016, a no further determination was made for the indoor inhalation exposure route for the property which is the subject of this ELUC; a copy of this letter is attached hereto in Exhibit C. The relative layout of the Main Plant Facility, Area 2, and the Property which is subject of this ELUC is shown on Exhibit B-1. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against potential exposure to contaminated soil or groundwater or both that may be present on the Property as a result of prior industrial activities. Under 35 Il. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Il. Admin. Code Part 742 to obtain risk-based closure for the Property, which is a portion of the Main Plant Facility ("Site"), identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibits B-1, B-2, and B-3 are maps that show the boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of the contaminants of concern, as required under 35 Il. Admin. Code Part 742.

a. The parcel covered by this ELUC is 7.50 acres in size; its Parcel Index Number (PIN) is 19-2-08-27-10-101-002 and it extends from the ground surface down to the horizontal plane at elevation 428 feet above mean sea level [MSL] (approximately 15 feet in thickness).

b. Exhibit B-1 shows the relative boundaries of the Main Plant Facility, Area 2 and the Property covered by this ELUC.

c. Exhibit B-2 is the Final Plat of the Property covered by this ELUC.

d. Exhibit B-3 shows the location where soil contamination above 35 Il. Admin. Code 742, Subpart E (Tier 1) Remediation Objectives is located and the boundaries of the engineered barrier which must be maintained within the Property covered by this ELUC.

Section Two. Property Owner represents and warrants that it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., Photoionization Detector ("PID") readings > 100 parts per million ("ppm") of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for: benzene, toluene (ethylbenzene), and xylenes ("BTEX"); and polycyclic aromatic hydrocarbons ("PAHs") by laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the IEPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off site as clean fill if laboratory data indicates constituents are less than Tiered Approach to Corrective Action Objectives ("TACO") residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off-site for disposal as a special

waste in accordance with 35 Il. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

f. The area designated "EB 2B" of the Property, which is identified on Exhibit B-3 of the ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. The soil within the Property has met the remediation objectives set forth for the vapor intrusion exposure route in Il. Admin. Code 742, Appendix B, Table H. All future building constructed on this parcel must have a basement with concrete wall and floors, be of concrete slab-on-grade construction, or some combination thereof. BP has also specified the use of additional building control technologies (vapor membrane and contingency sub-slab vapor collection control system) for this donation parcel that are suitable pursuant to 35 Il. Admin. Code 742, Subpart L.

h. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: (1) the IEPA determines there is no longer a need for the ELUC as an institutional control; (2) the IEPA, upon written request, issues to the Property that received the no further remediation determination a new no further remediation determination approving modification or removal of the limitation(s) or requirement(s); (3) the new no further remediation determination is filed on the chain of title of the Property subject to the no further remediation determination; and (4) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies. Once filed, this ELUC will supersede the ELUC filed on February 5, 2003, as Document No. 2003R08605 for the Property described in Exhibit A.

DOC 2017R18528 Pg 5 of 51

WITNESS the following signature:

BP Products North America Inc.

By: Lisa Smith Attest: Allison Crane

Printed: LISA A SMITH Printed: Allison Crane

Its: VICE PRESIDENT Its: Liability Business manager

Date: Date:

STATE OF TEXAS)
) SS:
COUNTY OF HARRIS)

I, Mary J. Heinitz the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Lisa A. Smith and Allison Crane, personally known to me to be the Vice President and Liability Business Manager respectively, of **BP Products North America Inc.**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 15th day of May, 2017.

Mary J. Heinitz
Notary Public

MARY J. HEINITZ
Notary Public, State of Texas
Comm. Expires 04-06-2020
Notary ID 1086666

List of Exhibits

Exhibit A: Legal Descriptions and Parcel IDs

Exhibit B: Scaled Maps

B-1: Site Layout Map
B-2: Police Station Donation Parcel Survey/Legal Description Map
B-3: Area 2 ELUC Map

Exhibit C: Copies of NFA letters related to the Donation Parcel

Exhibit A

Legal Description and Parcel ID of the "Property" covered by this ELUC

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

This ELUC applies to that portion of the following described tract of land which extends from the ground surface down to a horizontal plane at elevation 428 feet above mean sea level. The approximate "thickness" of this property is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the

herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

Exhibit B

Scaled Maps showing:

A) The legal boundary of the property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which an ELUC applies; and
D) The nature, location of the source, and direction of movement of the contaminants of concern.

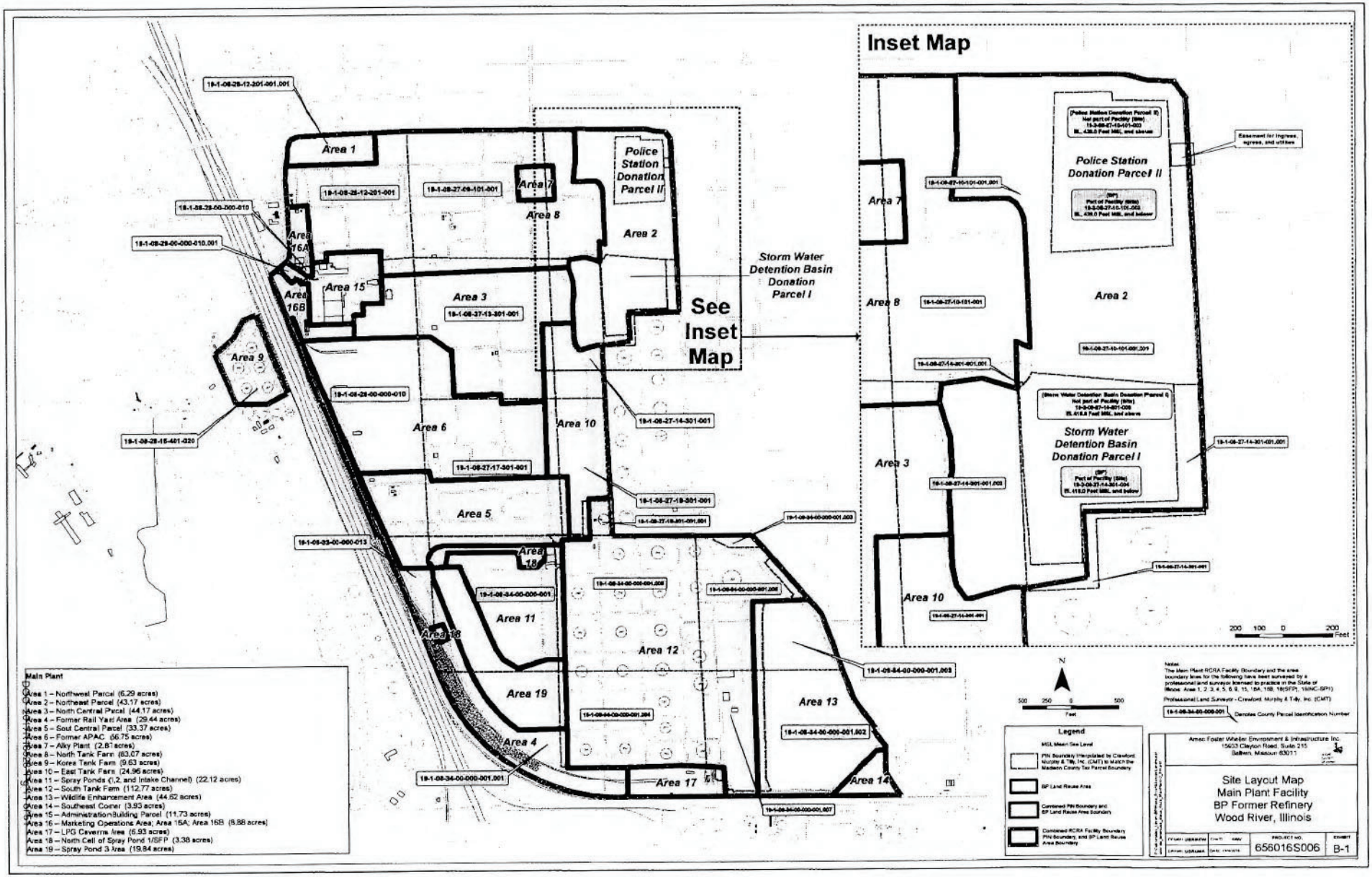
Maps Contained in Exhibit B

Exhibit B:

B-1: Site Layout Map
B-2: Police Station Donation Parcel Survey/Legal Description Map
B-3: Area 2 ELUC Map

PIN: 19-2-08-27-10-101-002

[See attached]


Inset Map
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
Area 14
Area 15
Area 16A
Area 16B
Area 17
Area 18
Area 19
Police Station Donation Parcel II
Storm Water Detention Basin Donation Parcel I
See Inset Map
Easement for ingress, egress, and utilities
200 100 0 200 Feet
500 250 0 500 Feet
N
Legend
MSL Mean Sea Level
PIN Boundary Interpolated by Crawford, Murphy & Tilly, Inc. (CMT) to Match the Madison County Tax Parcel Boundary
BP Land Reuse Area
Combined PIN Boundary and BP Land Reuse Area Boundary
Combined RCRA Facility Boundary PIN Boundary and BP Land Reuse Area Boundary
Main Plant
Area 1 – Northwest Parcel (6.29 acres)
Area 2 – Northeast Parcel (43.17 acres)
Area 3 – North Central Parcel (44.17 acres)
Area 4 – Former Rail Yard Area (29.44 acres)
Area 5 – Sout Central Parcel (33.37 acres)
Area 6 – Former APAC (36.75 acres)
Area 7 – Alky Plant (2.81acres)
Area 8 – North Tank Farm (63.07 acres)
Area 9 – Korea Tank Farm (9.63 acres)
Area 10 – East Tank Farm (24.96 acres)
Area 11 – Spray Ponds (1,2, and Intake Channel) (22.12 acres)
Area 12 – South Tank Farm (112.77 acres)
Area 13 – Wildlife Enhancement Area (44.62 acres)
Area 14 – Southeast Corner (3.93 acres)
Area 15 – Administration/Building Parcel (11.73 acres)
Area 16 – Marketing Operations Area; Area 16A; Area 16B (8.88 acres)
Area 17 – LPG Caverns Area (6.93 acres)
Area 18 – North Cell of Spray Pond 1/SFP (3.38 acres)
Area 19 – Spray Pond 3 Area (19.84 acres)
Notes:
Professional Land Surveyor - Crawford, Murphy & Tilly, Inc. (CMT)
Denotes County Parcel Identification Number
Amec Foster Wheeler Environment & Infrastructure Inc.
15403 Clayton Road, Suite 215
Ballwin, Missouri 63011
Site Layout Map
Main Plant Facility
BP Former Refinery
Wood River, Illinois
PROJECT NO.
656016S006
EXHIBIT
B-1

R000720

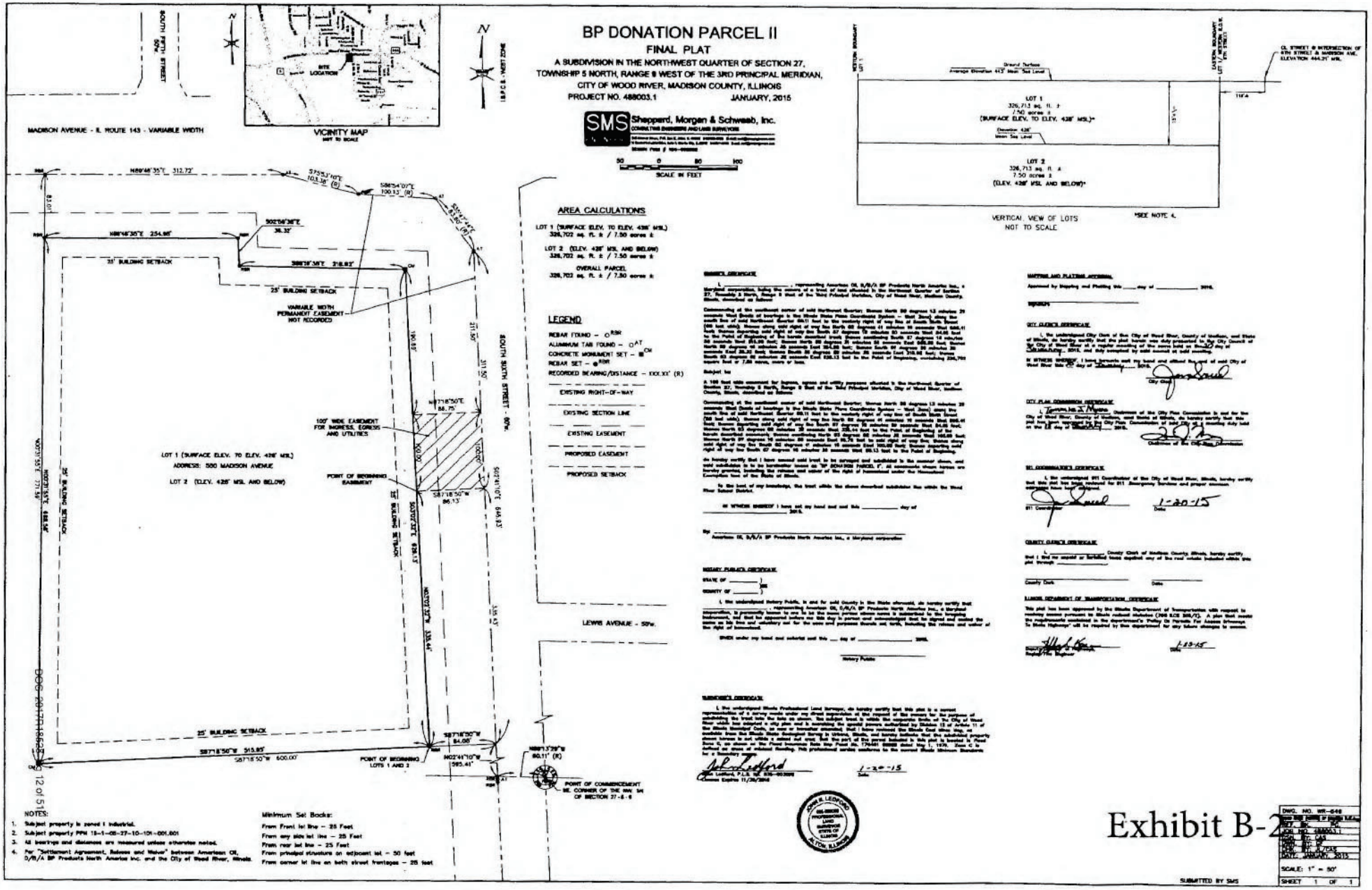
BP DONATION PARCEL II

FINAL PLAT

A SUBDIVISION IN THE NORTHWEST QUARTER OF SECTION 27, TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE 3RD PRINCIPAL MERIDIAN, CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS

PROJECT NO. 488003.1 JANUARY, 2015

Shepperd, Morgan & Schwaab, Inc.



AREA CALCULATIONS

LOT 1 (SURFACE ELEV. TO ELEV. 428' MSL)
326,702 sq. ft. ± / 7.50 acres ±

LOT 2 (ELEV. 428' MSL AND BELOW)
326,702 sq. ft. ± / 7.50 acres ±

OVERALL PARCEL
326,702 sq. ft. ± / 7.50 acres ±

LEGEND

REBAR FOUND – $\circ^{RBR}$
ALUMINUM TAB FOUND – $\circ^{AT}$
CONCRETE MONUMENT SET – $\blacksquare^{CM}$
REBAR SET – $\bullet^{RBR}$
RECORDED BEARING/DISTANCE – XXX.XX' (R)

EXISTING RIGHT-OF-WAY
EXISTING SECTION LINE
EXISTING EASEMENT
PROPOSED EASEMENT
PROPOSED SETBACK

OWNER'S CERTIFICATE

I, _____, representing Ameriton Oil, D/B/A BP Products North America Inc., a Maryland corporation, being the owner(s) of a tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the northeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System – West Zone), along the north line of said Northwest Quarter 80.11 feet to the westerly right of way line of South Sixth Street (80 feet wide); thence along said right of way line South 02 degrees 41 minutes 10 seconds East 648.83 feet to the Point of Beginning; said point of beginning being the northeast corner of Lot 1 of this plat; thence South 87 degrees 18 minutes 50 seconds West 84.08 feet; thence South 02 degrees 41 minutes 10 seconds East 385.41 feet; thence South 87 degrees 18 minutes 50 seconds West 515.85 feet; thence North 02 degrees 41 minutes 10 seconds West 190.69 feet; thence South 87 degrees 18 minutes 50 seconds West 86.13 feet; thence North 02 degrees 41 minutes 10 seconds West 324.44 feet; thence North 89 degrees 48 minutes 35 seconds East 698.94 feet; thence South 02 degrees 41 minutes 10 seconds East 315.50 feet; thence North 87 degrees 18 minutes 50 seconds East 515.85 feet; thence South 02 degrees 41 minutes 10 seconds East 190.69 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:

A 100 foot wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the northeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System – West Zone), along the north line of said Northwest Quarter 80.11 feet to the westerly right of way line of South Sixth Street (80 feet wide); thence along said right of way line South 02 degrees 41 minutes 10 seconds East 648.83 feet; thence South 87 degrees 18 minutes 50 seconds West 84.08 feet; thence South 02 degrees 41 minutes 10 seconds East 385.41 feet; thence South 87 degrees 18 minutes 50 seconds West 515.85 feet; thence North 02 degrees 41 minutes 10 seconds West 190.69 feet; thence South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning; said point of beginning being the northeast corner of Lot 2 of this plat; thence South 02 degrees 41 minutes 10 seconds East 324.44 feet; thence South 87 degrees 18 minutes 50 seconds West 600.00 feet; thence North 02 degrees 37 minutes 53 seconds East 777.54 feet; thence North 89 degrees 48 minutes 35 seconds East 698.94 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

I hereby certify that I have caused said tract to be surveyed and subdivided in the manner shown, and said subdivision to be hereinafter known as "BP DONATION PARCEL II", all easements shown hereon are hereby granted, including the streets and alleys of the plat of Subdivision as under the Subdivision Laws of the State of Illinois.

To the best of my knowledge, the tract within the above described subdivision lies within the Wood River School District.

IN WITNESS WHEREOF I have set my hand and seal this _____ day of _____ 2015.

By: _____
Ameriton Oil, D/B/A/ BP Products North America Inc., a Maryland corporation

NOTARY PUBLIC'S CERTIFICATE

STATE OF _____)
COUNTY OF _____)

I, the undersigned Notary Public, in and for said County in the State aforesaid, do hereby certify that _____, representing Ameriton Oil, D/B/A/ BP Products North America Inc., a Maryland corporation, is personally known to me to be the same person whose name is subscribed to the foregoing instrument, and that he appeared before me this day in person and acknowledged that he signed and delivered the said as his free and voluntary act for the uses and purposes therein set forth, including the release and waiver of the right of homestead.

GIVEN under my hand and notarial seal this ___ day of _____ 2015.

_____
Notary Public

SURVEYOR'S CERTIFICATE

I, the undersigned Illinois Professional Land Surveyor, do hereby certify that this plat is a correct representation of a survey made under my direct supervision of the tract of the owners for the purpose of subdividing the tract into the lots as shown. The subject tract is within the corporate limits of the City of Wood River which has adopted a city plan and is exercising the special powers authorized by Division 12 of Article 11 of the Illinois Municipal Code, as now or hereafter amended. I further certify that the Illinois East West Map, as available from the Illinois State Geological Survey, Champaign, Illinois, and known boundaries that the subdivision property adjoins between by and within a national real estate, that the part of the parcel included in this plat is located in Flood Zone C, as shown on the Flood Insurance Rate Map Panel No. 170451 0005B dated May 1, 1979. Zone C is defined as areas of minimal flooding. This professional service conforms to the current Illinois Minimum Standards for a boundary survey.

_____ 1-20-15
John E. Ledford, P.L.S. No. 035-003898 Date
License Expires 11/30/2016

JOHN E. LEDFORD 035-003898 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS ALTON, ILLINOIS

MAPPING AND PLATTING APPROVAL

Approved by Mapping and Platting this ___ day of _____ 2015.

SIGNED: _____

CITY CLERK'S CERTIFICATE

I, the undersigned City Clerk of the City of Wood River, County of Madison, and State of Illinois, do hereby certify that the plat hereon was duly passed by the City Council of the City of Wood River at a regular meeting of the said City Council of Wood River, Illinois, held on the ___ day of _____, 2015, and duly recorded by said council at said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said City of Wood River this 20th day of January, 2015.

_____
City Clerk

CITY PLAN COMMISSION CERTIFICATE

I, Jerome M. Mudra, Chairman of the City Plan Commission in and for the City of Wood River, County of Madison, and State of Illinois, do hereby certify that the plat hereon was approved by the City Plan Commission of said City at a meeting duly held on the 22 day of January, 2015.

_____
Chairman of the City Plan Commission

911 COORDINATOR'S CERTIFICATE

I, the undersigned 911 Coordinator of the City of Wood River, Illinois, hereby certify that this plat has been reviewed for 911 Addressing Standards and proper addresses have been assigned.

_____ 1-20-15
911 Coordinator Date

COUNTY CLERK'S CERTIFICATE

I, _____, County Clerk of Madison County, Illinois, hereby certify that I find no unpaid or forfeited taxes against any of the real estate included within this plat through _____.

_____ _____
County Clerk Date

ILLINOIS DEPARTMENT OF TRANSPORTATION CERTIFICATE

This plat has been approved by the Illinois Department of Transportation with respect to roadway access pursuant to Illinois revised statutes (605 ILCS 5/4-317). A plan that meets the requirements contained in the department's "Policy On Permits For Access Driveways To State Highways" will be required by this department for any future changes in access.

_____ 1-20-15
Regional Engineer Date

NOTES:

1. Subject property is zoned I Industrial.
2. Subject property PIN 18-1-08-27-10-101-001.801
3. All bearings and distances are measured unless otherwise noted.
4. Per "Settlement Agreement, Release and Waiver" between Ameriton Oil, D/B/A BP Products North America Inc. and the City of Wood River, Illinois.

Minimum Set Backs:

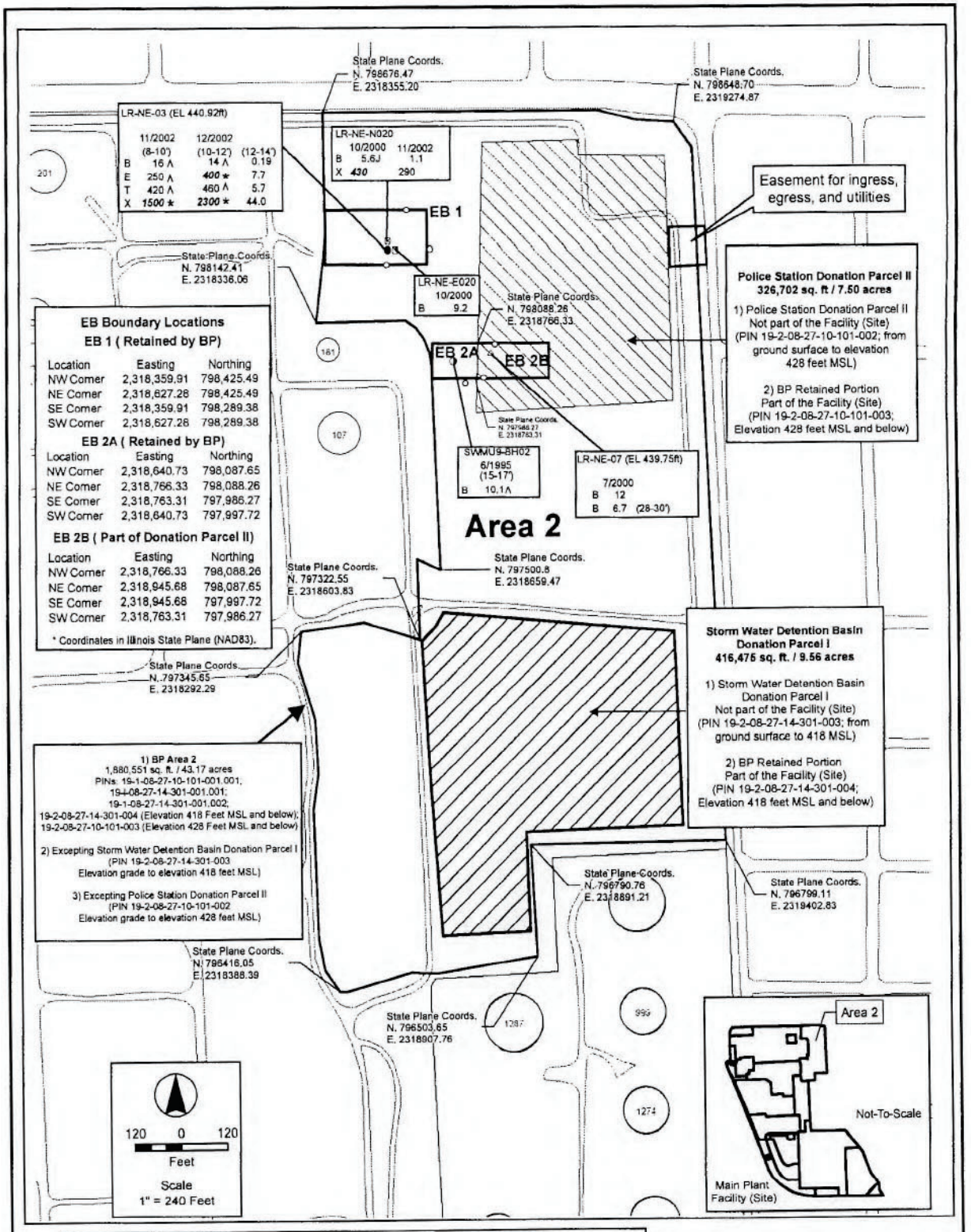
From Front lot line – 25 Feet
From any side lot line – 25 Feet
From rear lot line – 25 Feet
From principal structure on adjacent lot – 50 feet
From corner lot line on both street frontages – 25 feet

SUBMITTED BY SMS

DWG. NO. WR-648	
DES. BY:	JEL
DFT. BY:	JEL
JOB NO.	488003.1
FIELD BK.	CAS
PAGE	11-16
CHK. BY:	JEL/MAS
DATE:	JANUARY, 2015
SCALE:	1" = 50'
SHEET	1 OF 1

Exhibit B-2

R000721



Legend

B: Benzene
E: Ethylbenzene
T: Toluene
X: Xylenes
J Estimated Concentration based on QC Review

All Results are Presented in mg/kg

B9.2 Λ Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 6-10' Unless Specified)
X1500* Exceeds Soil Saturation Limit
B 1.1 Does Not Exceed Tier 2 Soil Inhalation RO
2016 BP Police Station Donation Parcel II; subject to 35 IAC 742.Subpart L Building Control Technologies

2011 Storm Water Detention Basin Donation Parcel I

Sampling Locations
(Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)

RFI Boring Location (1995)
Confirmation Boring Location of RFI Results (2000)
Former Aboveground Tank Boring Location (2000)
Step-Out Boring Location (2000)
Midpoint Between Samples With and Without Tier 2 Exceedence
Area of Engineered Barrier (EB)/Model of Soil Impact in Excess of Tier 2 Inhalation ROs

(MSL) Mean Sea Level

Amec Foster Wheller Environment & Infrastructure Inc.
15933 Clayton Road, Suite 215
Ballwin, Missouri 63011

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

DESIGN URS/JMA | DATE 11/18/2016 | DOC 2017R18528 Pg 13 of 51 | 656016S006 | EXHIBIT B-3

Exhibit C

Copies of NFA letters related to the Donation Parcel

1191150001 – Madison County
BP Products North America Inc. – Wood River Former Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

[See attached]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

August 13, 2002

CERTIFIED MAIL
7001 2510 0002 3279 8113

Gregory S. Jevyak, Environmental Business Manager
Global Environmental Management Business Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 – Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

Dear Mr. Jevyak:

This is in response to several recent submittals regarding RCRA corrective action activities at an area known as the "Northeast Corner Parcel (Area 2)" at the above-referenced facility (a list of these submittals is provided in Attachment 1 to this letter). A site layout map showing this area within the facility and the parcel's legal description, are provided as Attachments 2 and 3 respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The submittals identified in Attachment 1 to this letter contain information regarding the investigative and remedial activities completed to date in Area 2. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 2 on August 15, 2000. Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 2 provided the following requirements are met:

1. Two areas within Area 2 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 2 delineating the two areas where an engineered barrier must be established is presented in Attachment 4 to this letter.

2. Any excavation and subsurface construction work in Area 2 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 2 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 2 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 2 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

   (3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 2 must remain commercial/industrial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5, 7 and 8 will be met in the future.

7. Contaminated soil present at the following sample locations is properly managed via engineered barriers or SWMU9-BH02 addressed to achieve remediation objectives developed in accordance with 35 Ill. Adm. Code 742:

LR-NE-03	LR-NE-03-N020
LR-NE-03-E020	LR-NE-07

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

   a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications;

   b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the Parcel, except as required by Condition 8(a) above; and

   c. In an Illinois EPA letter dated March 13, 2002, the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility was revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following Illinois EPA's review of the associated permit modification request dated May 10, 2002 for the revised GMZ, the Illinois EPA will modify the RCRA Part B permit to incorporate the revision to the GMZ.

9. Prior to completion of a corrective action associated with a GMZ the groundwater quality standards (Class I or Class II) are not applicable while the GMZ is being monitored and maintained. As stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary,

and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code 742.1000(c).

10. Additional field duplicates must be collected in future groundwater sampling events. One (1) field duplicate must be collected for every ten (10) samples collected.

11. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

12. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\20021582s.doc

Attachments:
1. List of Area 2 Submittals
2. Topographic Map/Site Layout Map
3. Legal Description of Area 2
4. Portions of Area 2 Requiring an Engineered Barrier
5. Corrective Action Certification Form

Attachment 1
Log No. B-147-CA-14
Information Submitted by Facility

This document identifies the information received and reviewed by Illinois EPA as it evaluated a request for No Further Action in Area 2 of the Amoco/Main Plant Facility (Illinois EPA ID No 1191150001; USEPA ID No. ILD980700967). This information was assigned Log No. B-147-CA-14 by Illinois EPA.

1. A September 21, 2001 submittal from Frederick W. Johnson, URS, and Gregory S. Jevyak, BP which included a document entitled "Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

2. A October 12, 2002 submittal from Keith T. Wilcoxson, URS, containing revised tables in response to comments received from Harry Chappel.

3. A December 20, 2001 submittal from Frederick W. Johnson, URS which included a document entitled "Addendum 1—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

4. A January 22, 2002 submittal from Gregory S. Jevyak, BP America, Inc., which included a document entitled "Addendum 2—Northeast Corner (Area 2) Land Reuse and Investigation Report

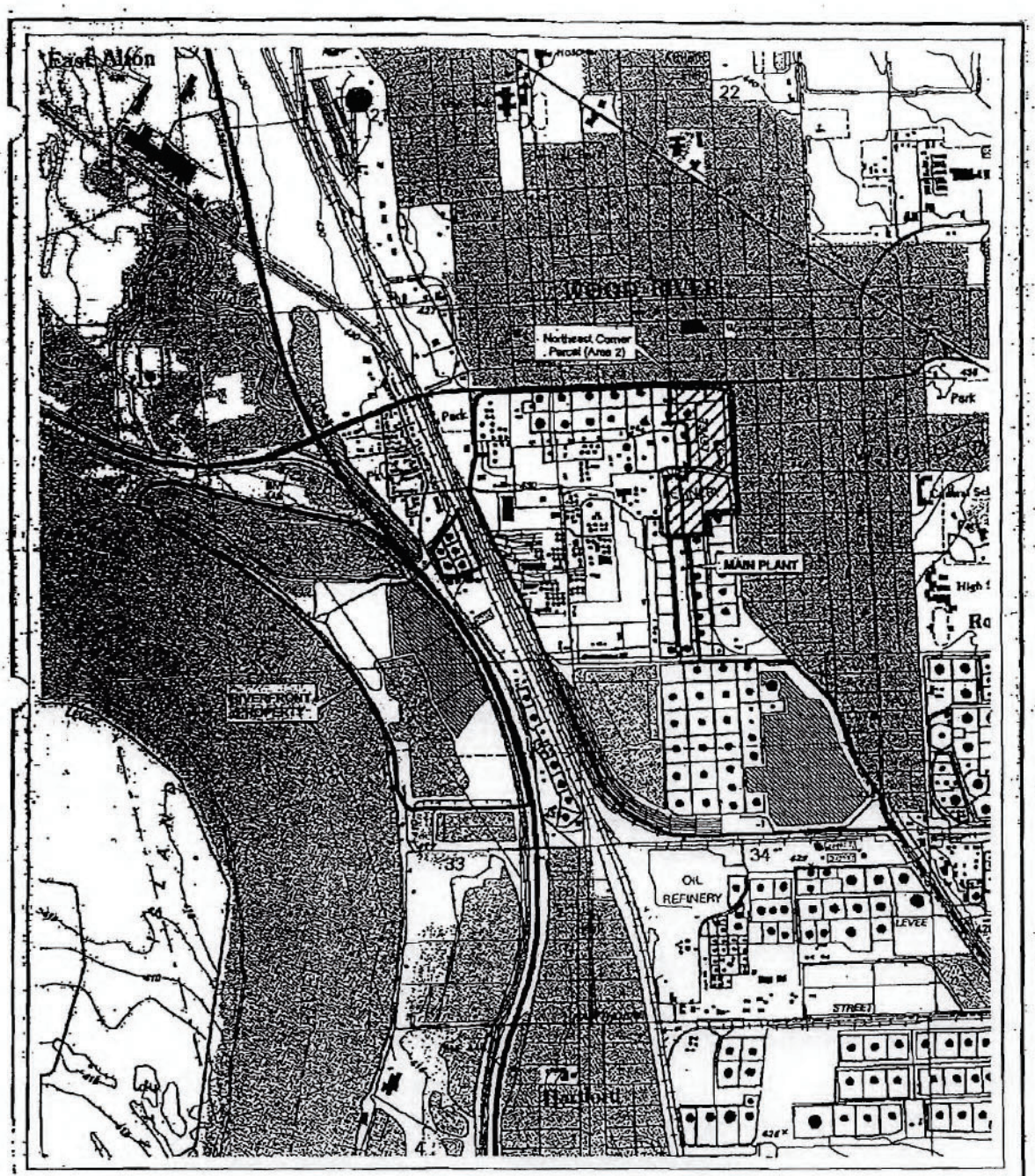
5. An April 5, 2002 submittal from Dennis A. Kasner and Frederick W. Johnson, URS which included a document entitled "Addendum 3—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

6. A May 16, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, URS which served as Addendum 4 to the Northeast Corner (Area 2) Land Reuse Investigation and Status Report.

7. A July 26, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, PE., URS, which contained additional information regarding issues addressed in Addendum 3.

8. A July 26, 2002 submittal from John Dennison, URS, which contained drawings of Area 2 and the legal description for Area 2.

att 1 b-147-ca-14



Legend

BP Property

Northeast Corner Parcel (Area 2)

Source: U.S.G.S. 7.5 Minute Series Topographic Map Wood River, IL-MO., 1994

1000 0 1000 Feet

Scale 1" = 2000 Feet

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: JTD	CHKD: KW	PROJECT NO. 83	FIG. NO.
DRAWN: MDC	DATE: 7/26/02		

Attachment 2

Attachment 3
B-147-CA-14

This document contains the legal description for that portion of the former BP refinery in Wood River, Illinois (Illinois EPA Site No. 1191150001; USEPA ID No. ILD980700967) referred to as the "Northeast Corner" or "Area 2." Area 2 is 43.17 acres and is composed of two tracts (a 36.91 acre tract referred to as "Leased Tract 2" and a 6.26 acre tract referred to as "Leased Tract 3"). A legal description of each of these individual tracts is provided on the following pages.

att2 b-147-ca-14

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET - P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 2
See Corlew Plat CC 2051A

(36.91 Acres in the Northeast Corner of Amoco Main Plant in Wood River, IL)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide), the POINT OF BEGINNING of the tract herein described; thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet; thence North 00° 37' 37" West a distance of 862.36 feet; thence North 00° 23' 02" East a distance of 205.96 feet; thence South 63° 47' 13" East a distance of 67.39 feet; thence North 00° 18' 42" West a distance of 533.37 feet; thence North 07° 12' 26" West a distance of 32.06 feet; thence North 20° 48' 32" West a distance of 36.49 feet; thence North 33° 45' 54" West a distance of 36.12 feet; thence North 54° 50' 03" West a distance of 33.22 feet; thence North 88° 59' 50" West a distance of 233.69 feet; thence North 08° 34' 18" East a distance of 210.75 feet; thence North 01° 07' 40" East a distance of 324.73 feet; thence South 88° 13' 21" East a distance of 719.43 feet; thence South 73° 53' 06" East a distance of 103.38

M. B. CORLEW & ASSOCIATES, INC.

feet; thence South 84° 54' 03" East a distance of 100.13 feet; thence South 33° 47' 40" East a distance of 83.60 feet; thence South 00° 41' 06" East a distance of 1242.50 feet to the point of beginning, containing 36.91 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.



(Seal)
Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET • P.O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 3
See Corlew Plat CC 2051A

(6.26 Acres in the Northeast Corner of Amoco Main Plant in Wood River, Illinois)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide); thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet to the POINT OF BEGINNING of the tract herein described; thence North 85° 28' 20" West a distance of 66.31 feet; thence South 76° 05' 07" West a distance of 176.24 feet; thence North 86° 57' 09" West a distance of 19.35 feet; thence North 32° 52' 02" West a distance of 68.25 feet; thence North 09° 08' 23" West a distance of 79.65 feet; thence North 00° 01' 05" West a distance of 331.70 feet; thence North 10° 17' 24" East a distance of 94.49 feet; thence North 01° 16' 11" West a distance of 140.22 feet; thence North 14° 34' 25" West a distance of 157.07 feet; thence North 08° 34' 56" East a distance of

M. B. CORLEW & ASSOCIATES, INC.

80.46 feet; thence North 83° 50' 58" East a distance of 167.06 feet; thence South 70° 15' 17" East a distance of 153.53 feet; thence South 00° 37' 37" East a distance of 862.36 feet to the point of beginning, containing 6.26 acres.

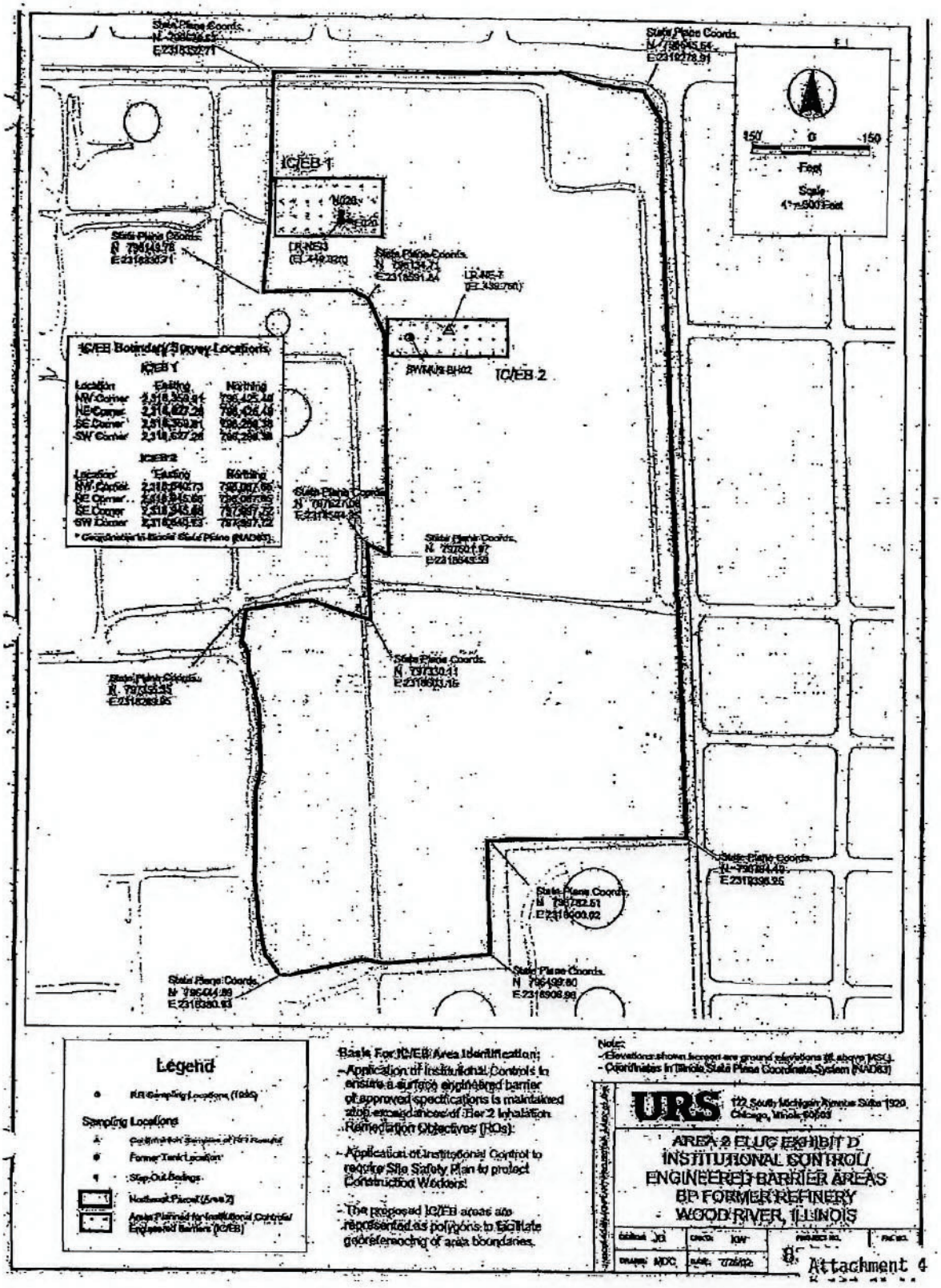
I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L. STAHLHUT
35-2214
REGISTERED LAND SURVEYOR

(Seal)

Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

MBC 99-168



Attachment 4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, ILLINOIS 60601 - (312) 814-6026

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/524-3300

November 3, 2011

CERTIFIED MAIL
7009 3410 0002 3751 3834

Mr. Tom Tunnicliff
Environmental Business Manager
Atlantic Richfield Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

Re: 1191150001 – Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-12
Received: August 12, 2011
RCRA Permit

Dear Mr. Tunnicliff:

This is in response to an August 11, 2011 submittal made on behalf of BP Products North America by George Valera and Ryan P. Hartley, P.E., URS Corporation regarding certain RCRA corrective action activities at the above-referenced facility. The RCRA corrective action program set forth in the subject facility's RCRA permit broke the facility up into several areas and required that each area be adequately remediated.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, No Further Action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft letter of the required institutional control, an Environmental Land Use Control (ELUC) on January 29, 2003 and BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

A revision of the Area 2 ELUC has become necessary as BP is donating a certain portion of Area 2 to the City of Wood River for use as a storm water basin (a drawing showing the location of this parcel of land is provided as Attachment 2 to this letter). The August 11, 2011 submittal mentioned above contained a proposed ELUC which would be established for the 9.56 acre parcel of land being donated to the city; it must be noted that this parcel only extends from the ground surface to an elevation depth of 418 mean sea level (approximately 25 feet below ground surface).

Illinois EPA has reviewed the draft ELUC for the parcel of land within Area 2 at the BP Products North America Inc. facility at 301 Evans Avenue in Wood River, Illinois which is to be donated to the City of Wood River and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 of the facility covered by the ELUC being approved herein is provided in Attachment 3. According to information provided by Mr. Valera, the PIN for this parcel is 19-2-08-27-14-301-003.

2. The recorded ELUC will supersede the ELUC recorded on February 5, 2003 for this property as Document No. 2003R08605.

3. The final ELUC filed with the Office of the Recorder or Registrar of Titles for Madison County must include a dated and notarized signature of the property owner.

4. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

5. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder or Registrar of Titles for Madison County, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

6. Within 30 days after filing the approved ELUC in accordance with Condition 3 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder or Registrar of Titles for Madison County that the ELUC was properly filed, must be submitted to Illinois EPA.

7. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Agency no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

8. The limitations or requirements of the ELUC apply in perpetuity or until:

   a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

   b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

9. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

10. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

    Illinois Environmental Protection Agency
    Bureau of Land -- #33
    Permit Section
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

11. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This action shall constitute Illinois EPA's final action on the subject submittal. Within 35 days after the date of mailing of Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of Illinois EPA. The 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days

by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Karen Nachtwey at 217/524-3233 of my staff.

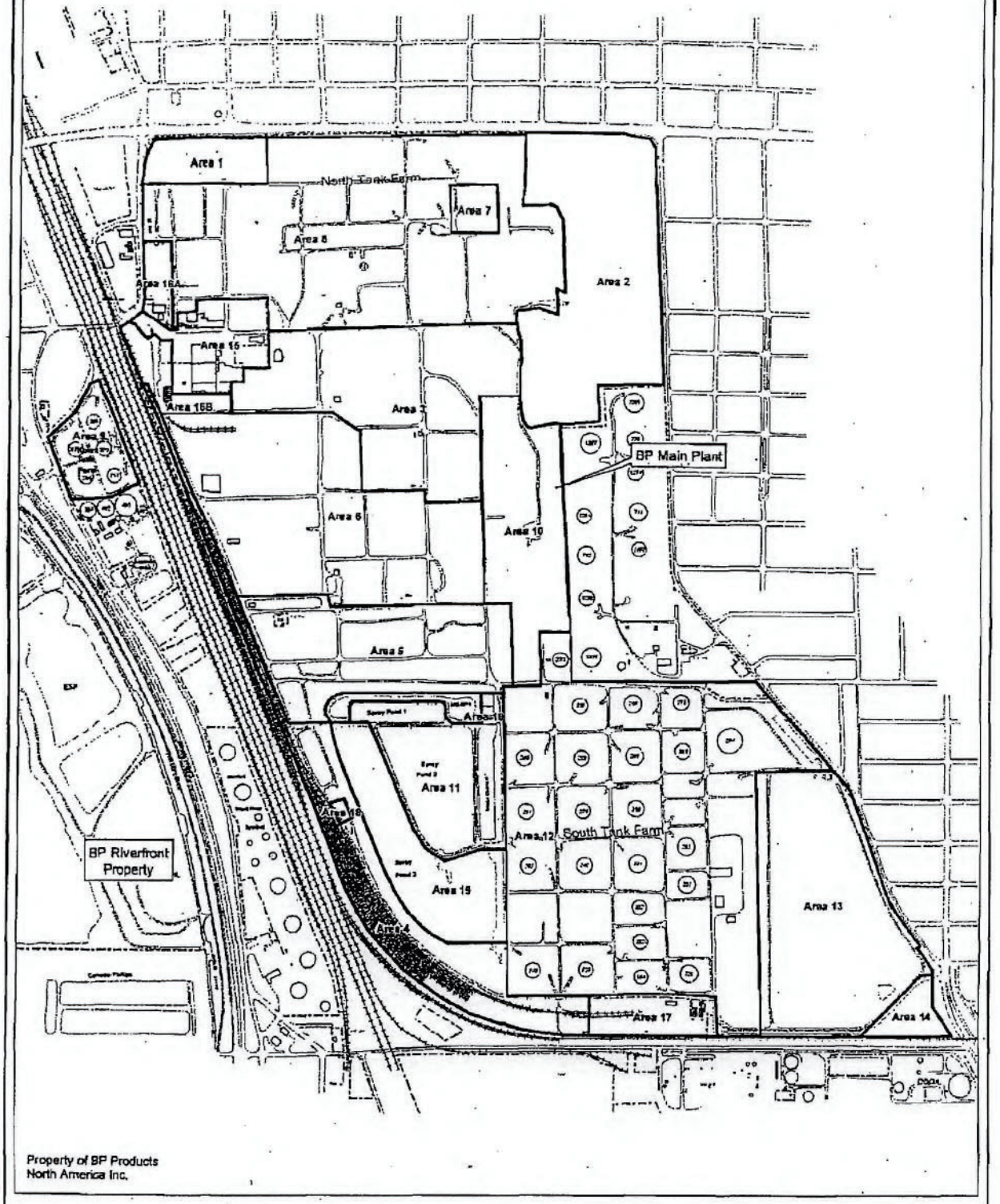
Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:KEN:bjh\111636s.doc
JCH
Attachment 1 – Site Layout Map
Attachment 2 - Map Showing Donated Parcel within Area 2
Attachment 3 – Legal Description of Donated Parcel

cc: Ryan P. Hartley, URS Corporation

Attachment 1



Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
Area 8 - North Tank Farm
Area 9 - Korea Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building Parcel
Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

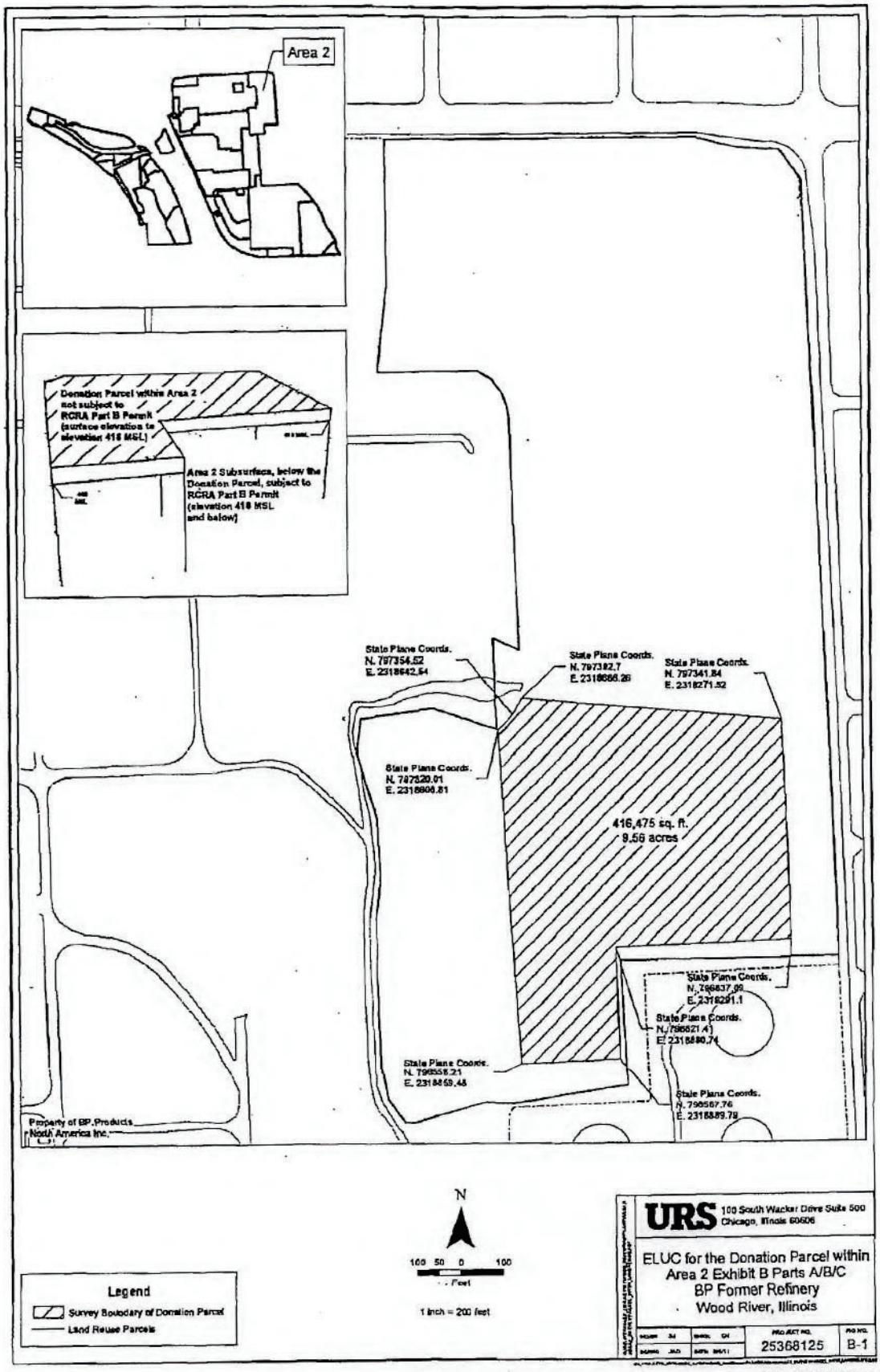
325 0 325
Feet

1 inch equals 750 feet

URS 100 South Wacker Drive Suite 900 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

B-147R-CA-12
Attachment 2



B-147R-Ch-12
Attachment 3

Exhibit A

Legal Description

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN NO. 19-2-08-27-14-301.003

Atlantic Richfield Company

Memorandum

DATE: December 1, 2011

TO: Madison County Recorder's Office, Edwardsville, Illinois - File

FROM: Thomas G. Tunnicliff, BP Products North America Inc.

SUBJECT: Minor Corrections to the Approved Donation Parcel within Area 2 ELUC dated November 3, 2011

The Illinois Environmental Protection Agency (Illinois EPA) approved the Environmental Land Use Control (ELUC) for the Donation Parcel within Area 2 on November 3, 2011. After review of this document, the following inconsistencies were identified:

Donation Parcel within Area 2 ELUC

- First page, last sentence, last paragraph - a reference to the approximate depth of the donation parcel indicates 25 feet. This should be 23 feet as stated in the August 11, 2011 submittal.
- Section 3.f of the Draft ELUC states the following: "BP is allowed access to the property for any groundwater monitoring or remediation efforts". This was not mentioned in the Illinois EPA letter. However, the Illinois EPA approved the Draft ELUC with this language and will be recorded as such.
- The PIN No. found in Attachment 3 needs to be changed from 19-2-08-27-14-301.003 to 19-2-08-27-14-301-003 which is changing the "." to "-".

Distribution
Stephen F. Nightingale, Illinois EPA
Ryan Hartley, URS Corporation

END OF DOCUMENT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/524-3300

August 22, 2016

CERTIFIED MAIL
7014 2120 0002 3289 3646

BP Products North America, Inc.
Attention: Lori G. Littrell, Operations Project Manager
180 West Warrensville Road
Naperville, Illinois 60563

RE: 1191150001—Madison County
BP Products North America, Inc. (BP/Main Plant)
ILD980700967
Log No. B-147R-CA-57 and CA-59
RCRA Permit

Dear Ms. Littrell:

This is in response to your December 2, 2015 and February 25, 2016 submittals regarding certain aspects of the corrective action program being carried out at the BP/Main Plant facility in Wood River, Illinois. This facility has a RCRA permit (Log No. B-147R and associated modifications) which, among other things, requires BP to properly remediate the site.

One of the portions of the BP/Main Plant facility being addressed under the RCRA corrective action provisions under its RCRA permit is referred to as "Area 2." BP has investigated, and as necessary, remediated this area in accordance with plans approved by Illinois EPA. Illinois EPA issued a no further action letter for the soils in this area on August 13, 2002; this determination was subsequently modified on February 27, 2012 to reflect the fact that the boundaries of Area 2 had been modified as a 9.56 acre parcel of land in the area had been donated to the City of Wood River for the construction of a storm water basin. A drawing showing the location of Area 2 within the subject facility is attached.

Your December 2, 2015 and February 25, 2016 submittals contained information regarding a 7.5 acre parcel of land in the northeast corner of Area 2; a drawing showing the location of this parcel within Area 2 is attached. This parcel of land is to be donated to the City of Wood River who will in turn construct a new police station within the parcel. Your December 2, 2015 submittal contained the legal description of the parcel of land being donated to the City of Wood River while your February 25, 2016 submittal contained the results of an investigation effort recently carried out at the facility to address the indoor air inhalation exposure route in accordance with 35 Ill. Admin. Code 742 (the regulations in 35 Ill. Admin. Code 742 regarding the indoor air inhalation exposure route did not become effective until July 15, 2013). Illinois EPA approved a plan to conduct this investigation effort on October 24, 2014.

Illinois EPA reviewed your December 2, 2015 and February 25, 2016 submittals as requests to modify the approved the RCRA corrective action program for the BP/Main Plant facility in Wood River, Illinois. Based on the results of this review, these submittals are hereby approved subject to the following conditions and modifications:

1. The boundaries of the proposed 7.5 acre parcel of land to be donated to the City of Wood River, as set forth in the December 2, 2015 submittal, are acceptable to Illinois EPA. As such, Parcel Identification Numbers should be obtained from the Madison County Recorder's Office for the portions of the parcel which:

   a. Extend from ground surface (average elevation 443' above mean sea level) downward to a subsurface plane which has an elevation of 428' above mean sea level; and

   b. Exist below a sub-surface plane which has an elevation of 428' above mean sea level.

2. The results of the analyses conducted on the samples collected during a soil gas investigation in the 7.5 acre parcel of land mentioned above met the remediation objectives set forth in 35 Ill. Admin. Code 742, Appendix B, Table H. An Environmental Land Use Control (ELUC) meeting the requirements of 35 Ill. Admin. Code 742.1010 must be established for this parcel of land which requires that all future buildings constructed on this parcel:

   a. Have a basement with concrete wall and floors:

   b. Be of concrete slab on grade construction; or

   c. Some combination of (a) and (b).

3. The donation of the 7.5 acre parcel of land mentioned above to the City of Wood River will modify the boundaries of Area 2 which is subject to an ELUC filed as Document 2011R45887 with the Madison County Recorder on December 7, 2011. In addition, this 7.5 acre parcel of land must be removed from the terms and conditions of the subject facility's RCRA permit (so that its ownership can be transferred to another entity). Thus, the following must be submitted to Illinois EPA for review and approval in support of these actions:

   a. A draft ELUC for the portion of Area 2 being retained by BP. This draft ELUC should be very similar to the one filed with the Madison County Recorder on December 7, 2011 modified as appropriate to reflect the new boundaries of Area 2 which result from the donation of the 7.5 acre parcel of land mentioned above to the City of Wood River.

   b. A draft ELUC developed for the 7.5 acre donation parcel in accordance with Condition 2 above and which also: (1) allows BP access to that parcel in the future for any groundwater monitoring or remediation efforts; and (2) contains any other restrictions on the parcel as set forth in the existing ELUC for Area 2.

   c. A request to modify the permit in accordance with 35 Ill. Admin. Code 703, Subpart G to remove the 7.5 acre parcel of land mentioned above from the definition of the facility covered by the BP/Main Plant facility's RCRA permit. Such a request would appear to be a Class 3 modification request. Thus, BP must submit the subject request in accordance with the procedures set forth in 35 Ill. Admin. Code 703.283 or it may request a determination by Illinois EPA that the request be viewed as a Class 1 or Class 2 modification request. If BP requests that the modification be classified as a Class 1 or Class 2 request, then the modification request must contain the necessary information to support the proposed classification. This modification request should not be submitted until

such time as the ELUCs described in this letter have been properly filed with the Madison County Recorder's office and certified copies of the filed documents are submitted to Illinois EPA.

4. Corrective action efforts at this facility must be carried out in accordance with: 35 Ill. Admin. Code 620, 724 and 742; (2) the facility's RCRA permit; and (3) Illinois EPA letters regarding such activities.

5. A completed RCRA Corrective Action Certification Form must accompany all submittals made to Illinois EPA regarding this project. To allow for the proper review of a submittal, two copies of each document should be submitted to Illinois EPA as well as the original.

6. A completed LPC-PA23 form must accompany any application to modify the subject facility's RCRA permit, along with: (a) detailed information regarding the modification request; and (b) a demonstration that the proposed modification meets the requirements of the applicable regulations in 35 Ill. Admin. Code 700-728 and the requirements of the facility's RCRA permit.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

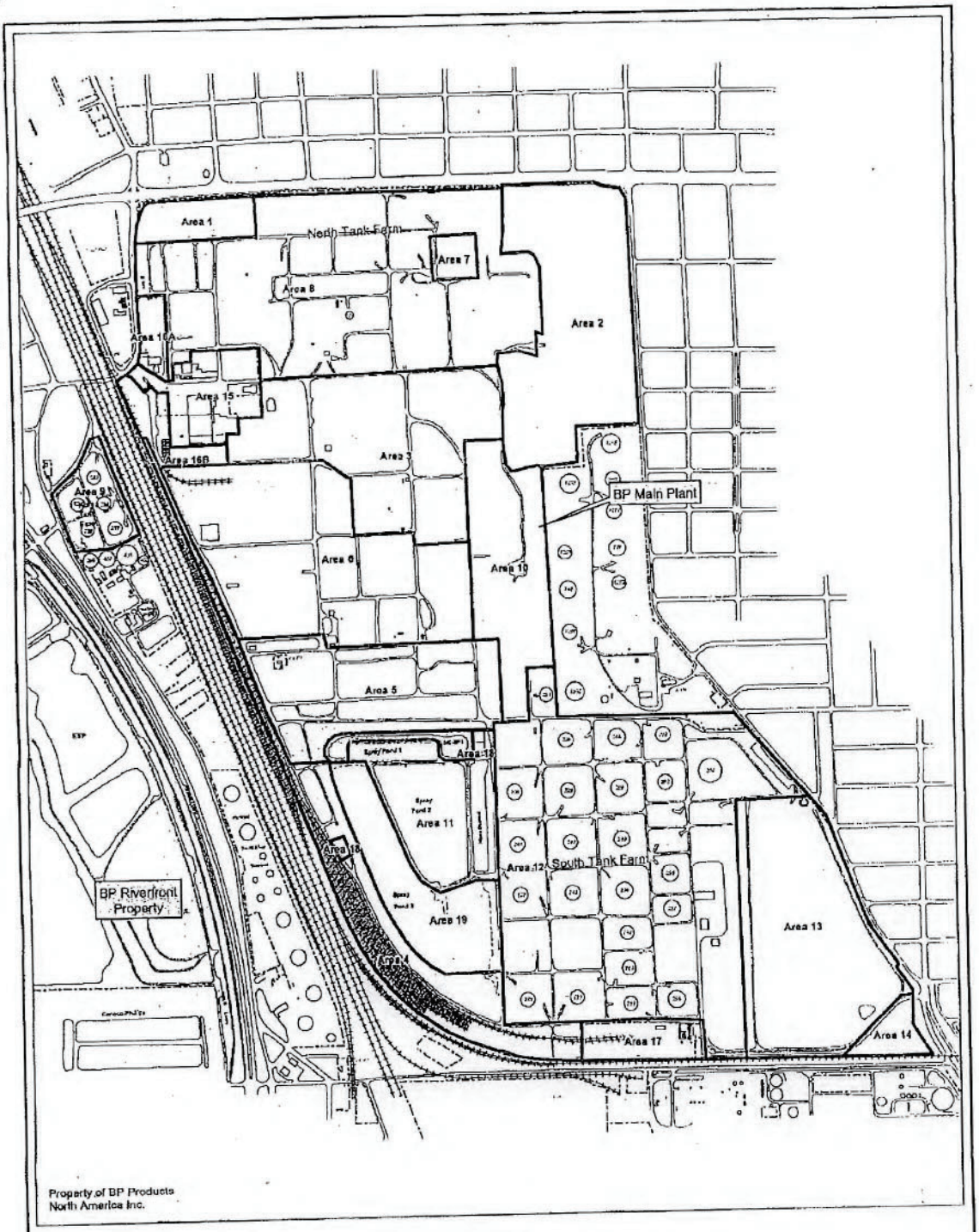
If you have any questions regarding the groundwater aspects of this letter, please contact Amy Boley at 217/558-4716. Questions regarding other aspects of this letter should be directed to Jim Moore at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:RCRA-1191150001-B-147R-CA-57
JKM AMB DM

Attachments: Site Layout Map
Location of Donation Parcel Within Area 2



Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
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Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

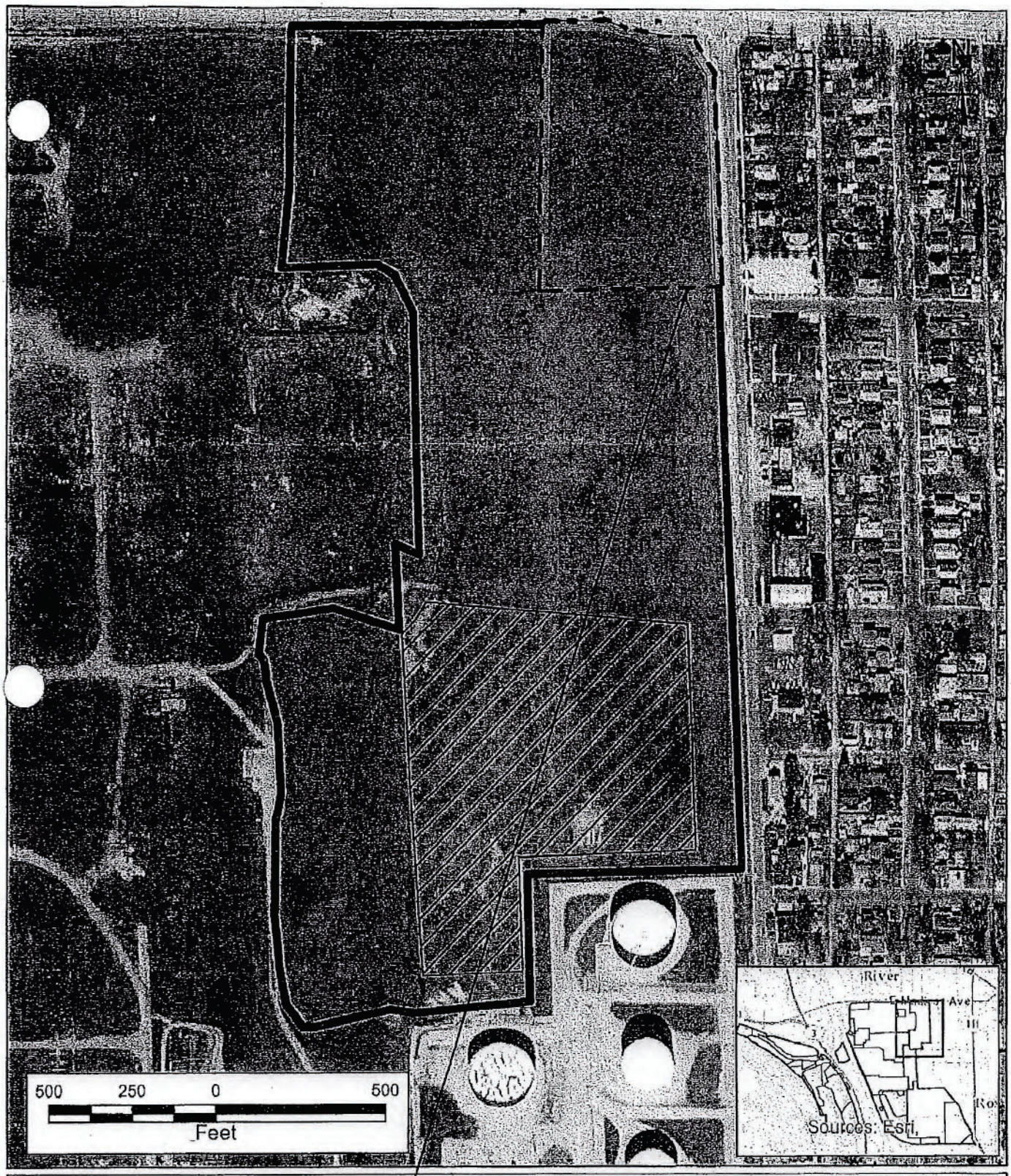
325 0 325
Feet

1 inch equals 750 feet

URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

PROJECT NO. 25366764



Legend

- Area 2 Land Reuse Parcel Boundary
- Area 2 Donation Parcel II Boundary
- Engineered Barrier Areas
- Exception Donation Parcel

FIGURE 1
SITE LOCATION MAP

AREA 2
BP Main Plant Property
Wood River, Illinois

amec

bp

Job No.	2424-13-034
Drawn By:	JLT
Reviewed By:	
Date:	2/26/2014

This map shown here has been created with all due care and information care and is solely for the use of AMEC Project Number 2424-13-034. This map has not been certified by a licensed land surveyor, and any third party use of this map owns is without warranty of any kind. AMEC assumes no liability, direct or indirect, whatsoever, for any such use, by or [illegible]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/524-3300

May 4, 2017

CERTIFIED MAIL
7014 2120 0002 3289 8054

BP Products North America Inc.
Attn: Lori G. Littrell, Operations Project Manager
150 West Warrenville
Naperville, Illinois 60563

Re: 1191150001 -- Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-77
Received: March 30, 2017
RCRA Permit

Dear Ms Littrell:

This is in partial response to your March 29, 2017 submittal regarding RCRA corrective action activities at the above-referenced RCRA permitted facility (Log No. B-147R and associated modifications). The subject facility is a closed oil refinery which is approximately 600 acres in size and located at 301 Evans Avenue, Wood River, Illinois. The RCRA corrective action program set forth in the subject facility's RCRA permit requires that BP properly remediate the entire facility. The RCRA permit broke the facility up into nineteen areas and sets forth a process for remediating the facility on an area by area basis. In addition, this permit contains provisions for removing remediated areas from the definition of the facility covered by the RCRA permit, thus allowing those areas to be more easily re-developed.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, no further action was necessary for the soils at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft Environmental Land Use Control (ELUC) on January 29, 2003 which would establish the required institutional controls for Area 2. BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

BP subsequently modified the ELUC for Area 2 to account for the fact that it desired to donate a 9.56 acre parcel within Area 2 to the City of Wood River for use as a storm water detention basin. This required that BP establish two new separate ELUCs which would supersede the

original one filed February 5, 2003, one for the parcel of land being donated to the City of Wood River and one for the remainder of Area 2 being retained by BP. As such, a draft ELUC for the parcel of land being donated to the City of Wood River was approved by Illinois EPA on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45888 on December 7, 2011. In addition, a draft ELUC for that portion of Area 2 retained by BP was approved by Illinois EPA in a second letter dated on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45887 on December 7, 2011.

BP is now donating a second parcel (7.5 acres in size) within Area 2 to the City of Wood River for the construction of a Police Station (this parcel is referred to as the "Police Station Donation Parcel"). Thus, BP must again establish two new ELUCs to replace the one filed on December 7, 2011 as Document No.2011R45887--one for the Police Station Donation Parcel and one for the remainder of Area 2 being retained by BP. The inset map to Attachment 1 to this letter shows the location of this 7.5 acre parcel of land within Area 2. It must be noted that the parcel being donated to the City only extends downward to a horizontal plane at elevation 428' above mean sea level (which is located approximately 15' below ground surface). BP will retain ownership of the parcel which exists below this plane as well as well as the remainder of Area 2. A legal description of the parcel being donated to the City of Wood River is provided as Attachment 2 to this letter.

A draft ELUC for Police Station Donation Parcel was approved by Illinois EPA on February 28, 2017. However, BP found that minor revisions needed to be made to this ELUC and Illinois EPA's letter before they could be filed with the Madison County, Illinois Recorder's Office. Your March 29, 2017 submittal described the minor revisions which needed to be made to the draft ELUC for the Police Station Donation Parcel and also included a revised draft ELUC for the Police Station Donation Parcel which incorporated these minor revisions.

Illinois EPA reviewed your March 29, 2017 submittal and the revised draft ELUC for the Police Station Donation Parcel as a request to modify the RCRA corrective action program at the BP/Main Plant facility and hereby approves them subject to the following conditions and modifications:

1. A legal description of the portion of 7.5 acre within Area 2 of the BP/Main Plant facility covered by the ELUC being approved herein is provided in Attachment 2. The Parcel Index No. for this parcel is 19-2-08-27-10-101-002. It must be noted that this parcel only extends vertically from the ground surface downward to a horizontal plane at elevation 428' above mean sea level (this horizontal plane is approximately 15' below the ground surface).

2. A copy of this letter must be filed along with the draft ELUC being approved herein with the Office of the Recorder for Madison County, Illinois.

3. As indicated above, Illinois EPA determined on August 13, 2002 that no further action was necessary for the soils within Area 2 provided an ELUC was established which placed certain restrictions on future activities within Area 2. The draft ELUC being approved

herein establishes the restrictions on the Police Station Donation Parcel required by Illinois EPA's August 13, 2002 letter.

4. Amendments to 35 Ill. Admin. Code 742 (Tiered Approach to Corrective Action Objectives) which became effective on July 15, 2013 required that the indoor air inhalation exposure route be addressed in developing remediation objectives for, among other things, RCRA corrective action projects. As a result, Illinois EPA's August 13, 2002 no further action determination for the soils within Area 2 did not address the indoor air inhalation exposure route. BP conducted further investigations in the subject 7.5 acre parcel in accordance with plans approved by Illinois EPA. On August 22, 2016, Illinois EPA determined that no further action was necessary to address the indoor air inhalation exposure route provided certain restrictions were placed on future activities within the subject 7.5 acre parcel. The draft ELUC being approved herein establishes the restrictions on the subject parcel required by Illinois EPA's August 22, 2016 letter.

5. Once the draft ELUC approved herein is recorded, it will supersede the ELUC recorded on December 7, 2011 as Document No. 2011R45887 as it pertains to the Police Station Donation Parcel.

6. The final ELUC filed with the Office of the Recorder for Madison County, Illinois must include a dated and notarized signature of the property owner.

7. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile

organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(2) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(4) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

f. The area designated as "EB 2B" of the Property, as shown in Attachment 3 to this letter and in Exhibit B-3 of the draft ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil

removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. The soil within the Property has met the remediation objectives set forth for the vapor intrusion exposure route in 35 Ill. Admin. Code 742, Appendix B, Table H. All future buildings constructed on this parcel must have a basement with concrete wall and floors, be of concrete slab-on-grade construction, or some combination thereof. BP has also specified the use of additional building control technologies (vapor membrane and contingency sub-slab vapor control system) for this donation parcel that are suitable pursuant to 35 Ill. Admin. Code 742, Subpart L.

h. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

8. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder for Madison County, Illinois, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

9. Within 30 days after filing the approved ELUC in accordance with Condition 8 above, a certified true copy of the filed ELUC, along with certification from the Office of the Recorder for Madison County, Illinois that the ELUC was properly filed, must be submitted to Illinois EPA.

10. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

11. The limitations or requirements of the ELUC apply in perpetuity or until:

a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

12. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification

request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

13. A completed Corrective Action Certification form must accompany all corrective-action related information submitted to Illinois EPA. To allow for the proper review of each submittal, please provide the original and one copy of each submittal (two copies if the submittal is groundwater related.

14. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

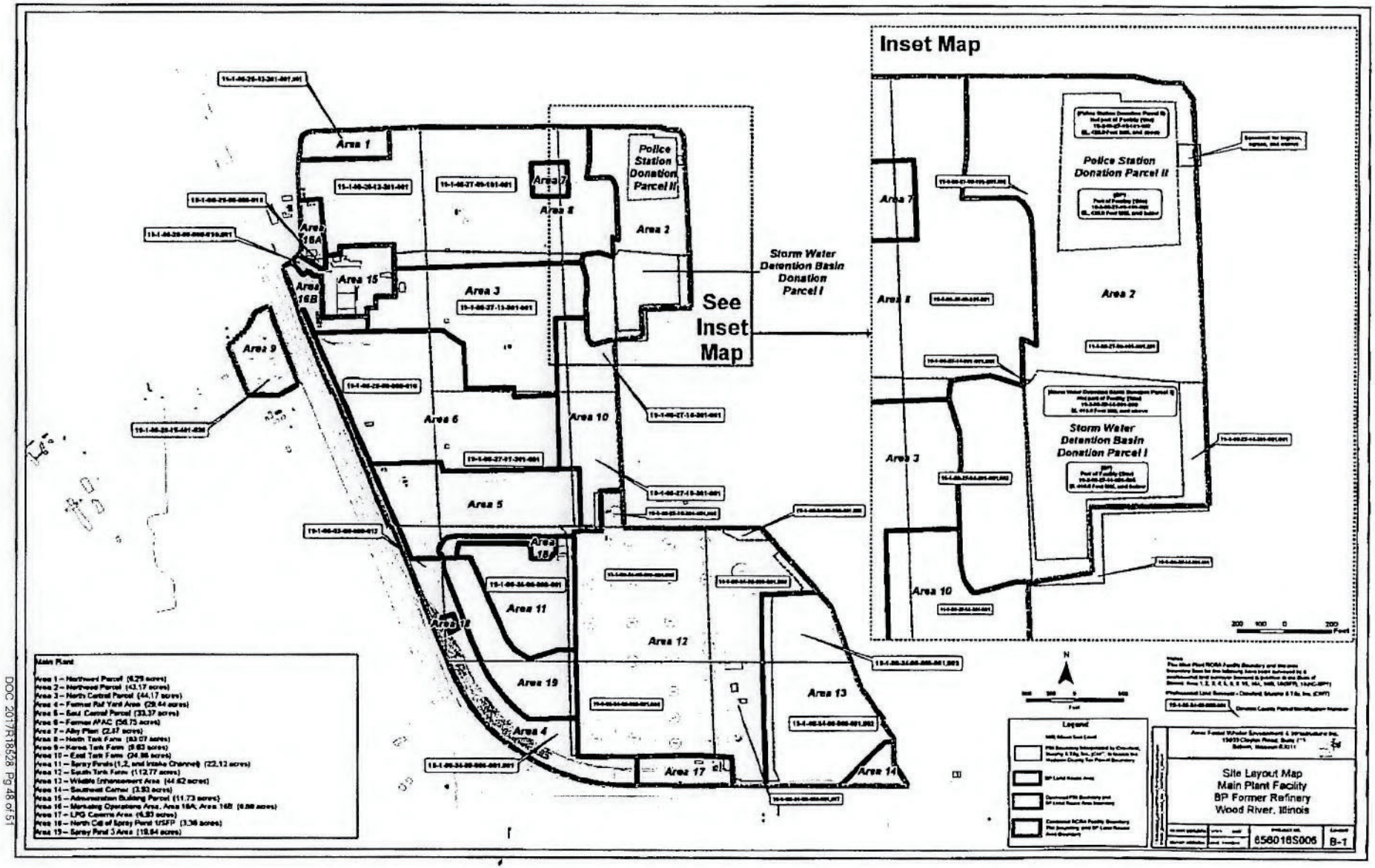
Should you have any questions regarding this matter, please contact Jim Moore of my staff at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:1191150001-RCRA-B-147R-CA-77
AND JKM TBM
Attachments: 1 – Site Layout Map
2 – Legal Description of Donation Parcel
3 – Location of Engineered Barrier Within the Donation Parcel

cc: Allison Crane, BP (via e-mail)



B-147R-CA-77
Attachment 1
Site Layout Map

DOC 2017R18528 Pg 46 of 51

R000757

B-147R-CA-77
Attachment 2
Legal Description of Donation Parcel

Exhibit A

Legal Description and Parcel ID of the "Property" covered by this ELUC

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

This ELUC applies to that portion of the following described tract of land which extends from the ground surface down to a horizontal plane at elevation 428 feet above mean sea level. The approximate "thickness" of this property is 15 feet.

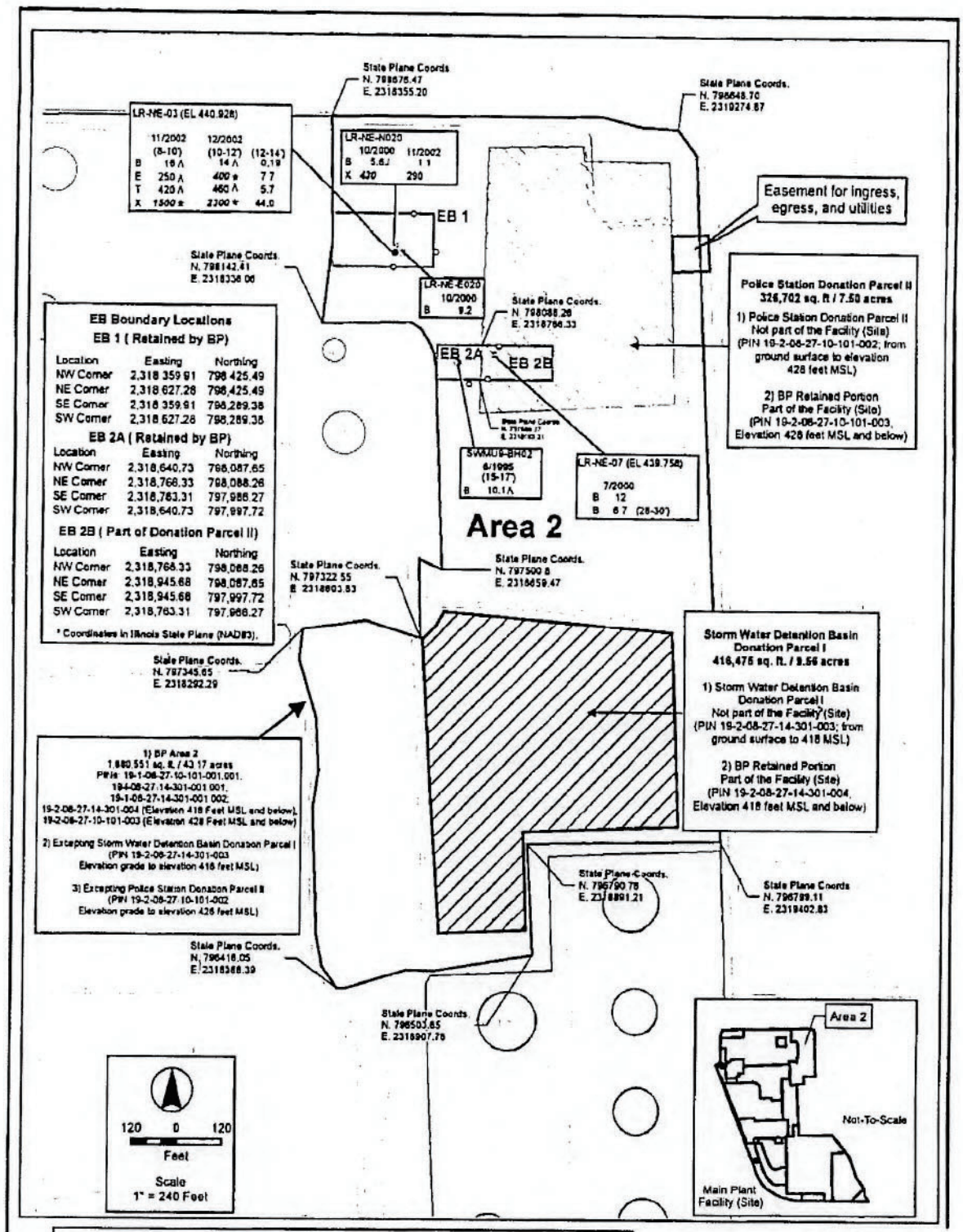
A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the

herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.



B-147R-CA-77
Attachment 3
Location of Engineered Barrier
Within the Donation Parcel

END OF DOCUMENT

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, Linda A. Andreas, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain ENVIRONMENTAL DISCLOSURE is the true and correct photocopy of said ENVIRONMENTAL DISCLOSURE from BP PRODUCTS NORTH AMERICA to NOTICES including the Certificate of Acknowledgment bearing date the 24th day of APRIL A.D. 2024 as the same appears in the records of my office in Document # **2017R18528** recorded on the 5th day of JUNE A.D. 2017

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 24th day of APRIL A.D. 2024.

Linda A. Andreas
RECORDER
in and for
MADISON COUNTY, ILLINOIS

R000761

Return to: (Fed Ex Env.)
FATIC
30 N. LaSalle St.
Ste 2700 699617 4/16
Chicago, IL 60602

PREPARED BY:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

8435108
Tx:4335443

2017R18529
STATE OF ILLINOIS
MADISON COUNTY
06/05/2017 4:13 PM
AMY M. MEYER, RECORDER
REC FEE: 73.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE: 9.00
 # OF PAGES: 48

RETURN TO:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

82.00 CK 6395

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control For Area 2

450F

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 22 day of May, 2017, by BP Products North America Inc., a Maryland corporation, ("Property Owner"), of the real property located at 301 Evans Avenue, Wood River, Illinois (referred to as the "Main Plant Facility"), which includes a 43.17 acre parcel of land referred to as "Area 2". Area 2 is the "Property" covered by this ELUC. This ELUC supersedes the ELUC recorded with the Madison County Recorder on December 7, 2011 as Document 2011R45887 for the Property which previously superseded the original ELUC recorded on February 5, 2003 as Document 2003R08605.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained for the Property on August 13, 2002 and is attached hereto as Exhibit C. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against potential exposure to contaminated soil or groundwater or both that may be present on the Property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure for the Property, which is a portion of the Main Plant Facility ("Site"),

identified by Bureau of Land LPC number 1191150001, utilizing an ELUC (Exhibit B-1 shows the location of Area 2 (i.e. the "Property" covered by this ELUC within the Main Plant Facility).

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibits B-1 and B-2 are maps that show the legal boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742.

a. The parcel covered by this ELUC is 43.17 acres in size; its Parcel Index Numbers (PINs) are:

   19-1-08-27-10-101-001.001;
   19-1-08-27-14-301-001.001;
   19-1-08-27-14-301-001.002;
   19-2-08-27-14-301-004 (only exists below 418' mean sea level [MSL]);
   19-2-08-27-10-101-003 (only exists below 428' MSL)
   Excepting
   19-2-08-27-14-301-003 (Ground surface to 418 Feet MSL) Donation Parcel I;
   19-2-08-27-10-101-002 (Ground surface to 428 Feet MSL) Donation Parcel II

b. Exhibit B-1 shows the layout of the Main Plant Facility and the location of the Area 2 within the Main Plant Facility.

c. Exhibit B-2 shows the locations where soil contamination is located that exceeds 35 Ill. Admin. Code 742, Subpart E (Tier 1) Remediation Objectives, and the boundaries of the engineered barriers which must be maintained within Area 2.

Section Two. Property Owner represents and warrants that it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater

and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., Photoionization Detector ("PID") readings > 100 parts per million ("ppm") of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will either be sampled for: benzene, toluene, ethylbenzene, and xylenes ("BTEX"); and polycyclic aromatic hydrocarbons ("PAHs") by laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the IEPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off site as clean fill if laboratory data indicates constituents are less than Tiered Approach to Corrective Action Objectives ("TACO") residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

f. Areas designated "EB 1" and "EB 2A" of the Property, which are identified on Exhibit B-2, require an engineered barrier ("EB") to restrict potential exposure to soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. BP is allowed access to the Property for any groundwater or remediation efforts.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: (1) the IEPA determines there is no longer a need for the ELUC as an institutional control; (2) the IEPA, upon written request, issues to the Property that received the no further remediation determination a new no further remediation determination approving modification or removal of the limitation(s) or requirement(s); (3) the new no further remediation determination is filed on the chain of title of the Property subject to the no further remediation determination; and (4) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

BP Products North America Inc.

By: Lisa G Smith Attest: Allison Crane

Printed LISA A SMITH Printed: Allison Crane

Its: VICE PRESIDENT Its: Liability Business manager

Date: Date:

STATE OF TEXAS)
) SS:
COUNTY OF HARRIS)

I, Mary J. Heinitz the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Lisa A. Smith and Allison Crane, personally known to me to be the Vice President and Liability Business Manager respectively, of **BP Products North America Inc.**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 18th day of May, 2017.

Mary J Heinitz
Notary Public

MARY J. HEINITZ
Notary Public, State of Texas
Comm. Expires 04-06-2020
Notary ID 1086666

List of Exhibits

Exhibit A: Legal Descriptions and Parcel IDs

Exhibit B: Scaled Maps
B-1: Site Layout Map
B-2: Area 2 ELUC Map (showing removed Donation Parcels I and II)

Exhibit C: Copy of the NFA letter from IEPA to BP dated August 13, 2002, with Attachments

Exhibit A

Legal Descriptions and Parcel IDs

The Property which is the subject of this ELUC, also referred to as Area 2, is located in the City of Wood River, Madison County, State of Illinois, within the BP/Main Plant Facility whose address is 301 Evans Avenue, Wood River, Illinois and more particularly described as (note that Attachment B-1 depicts the layout of the BP/Main Plant Facility, and the Property (Area 2) which is the subject of this ELUC):

LEGAL DESCRIPTION

The portion of the following described property:

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast comer of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road, and the POINT OF BEGINNING; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 537.69 feet; thence South 89 degrees 03 minutes 56 seconds West, 511.68 feet; thence South 03 degrees 17 minutes 51 seconds East, 287.59 feet; thence South 80 degrees 51 minutes 24 seconds West, 267.69 feet; thence North 87 degrees 28 minutes 33 seconds West, 15.25 feet; thence North 87 degrees 28 minutes 33 seconds West, 51.06 feet; thence South 74 degrees 04 minutes 54 seconds West, 176.24 feet; thence North 88 degree 57 minutes 22 seconds West, 19.35 feet; thence North 34 degrees 52 minutes 15 seconds West, 68.25 feet; thence North 11 degrees 08 minutes 36 seconds West, 79.65 feet; thence North 02 degrees 01 minute 18 seconds West, 331.70 feet; thence North 08 degrees 17 minutes 11 seconds East, 94.49 feet; thence North 03 degrees 16 minutes 24 seconds West, 140.22 feet; thence North 16 degrees 34 minutes 48 seconds West, 157.07 feet; thence North 06 degrees 34 minutes 43 seconds East, 80.46 feet; thence North 81 degrees 50 minutes 44 seconds East, 167.06 feet; thence South 72 degrees 15 minutes 30 seconds East, 153.53 feet; thence North 01 degree 37 minutes 11 seconds West, 205.96 feet; thence South 65 degrees 47 minutes 26 seconds East, 67.39 feet; thence North 02 degrees 18 minutes 55 seconds West, 533.37 feet; thence North 09 degrees 12 minutes 39 seconds West, 32.06 feet; thence North 22 degrees 48 minutes 45 seconds West, 36.49 feet; thence North 35 degrees 46 minutes 07 seconds West, 36.12 feet; thence North 56 degrees 50 minutes 16 seconds West, 33.22 feet; thence South 88 degrees 59 minutes 56 seconds West, 233.69 feet; thence North 06 degrees 34 minutes 04 seconds East; 210.75 feet; thence North 00 degrees

52 minutes 34 seconds West, 324.73 feet to the southerly right of way of Illinois Route 143, also known as Madison Avenue; thence continuing along said right of way for the following four courses: 1) North 89 degrees 46 minutes 26 seconds East, 719.43 feet; 2) South 75 degrees 53 minutes 19 seconds East, 103.38 feet; 3) South 86 degrees 54 minutes 16 seconds East, 100.13 feet; 4) South 35 degrees 47 minutes 53 seconds East, 83.60 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, 1242.49 feet to the POINT OF BEGINNING, containing 43.17 acres or 1,880,551 feet.

PIN: 19-1-08-27-10-101-001.001;
19-1-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below); and
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)

EXCEPT,

1. **Storm Water Detention Basin Donation Parcel I**

REAL ESTATE TAX INDEX #19-2-08-27-14-301-003
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence

South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN: 19-2-08-27-14-301-003 (Ground Surface Down to Elevation 418 Feet MSL)

AND EXCEPT,

2. Police Station Donation Parcel II

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 428 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described ae follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds

East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

PIN: 19-2-08-27-10-101-002 (Ground Surface Down to Elevation 428 Feet MSL)

Exhibit B

Scaled Maps showing:

A) The legal boundary of the property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which an ELUC applies; and
D) The nature, location of the source, and direction of movement of the contaminants of concern.

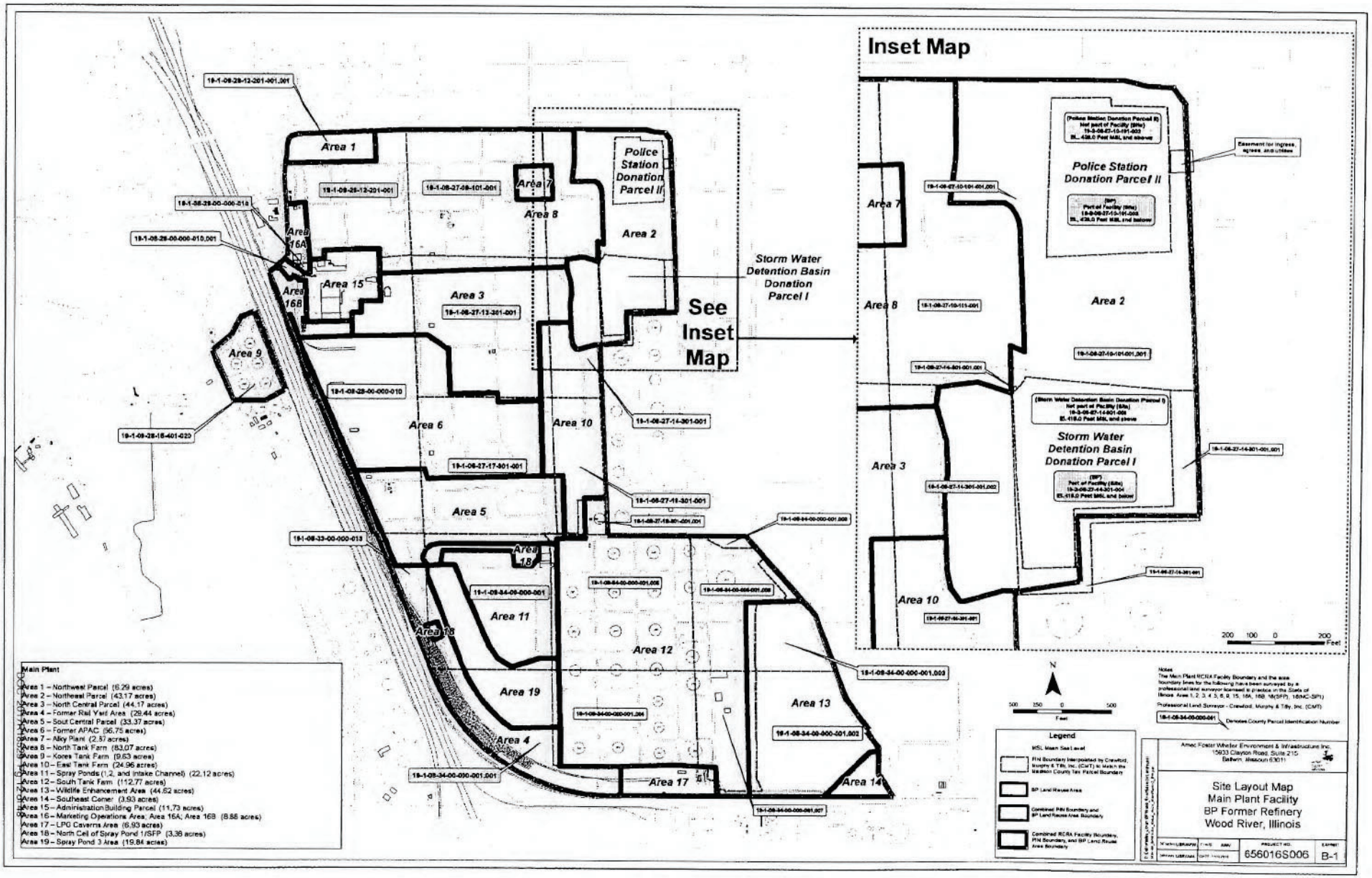
Maps Contained in Exhibit B

Exhibit B:

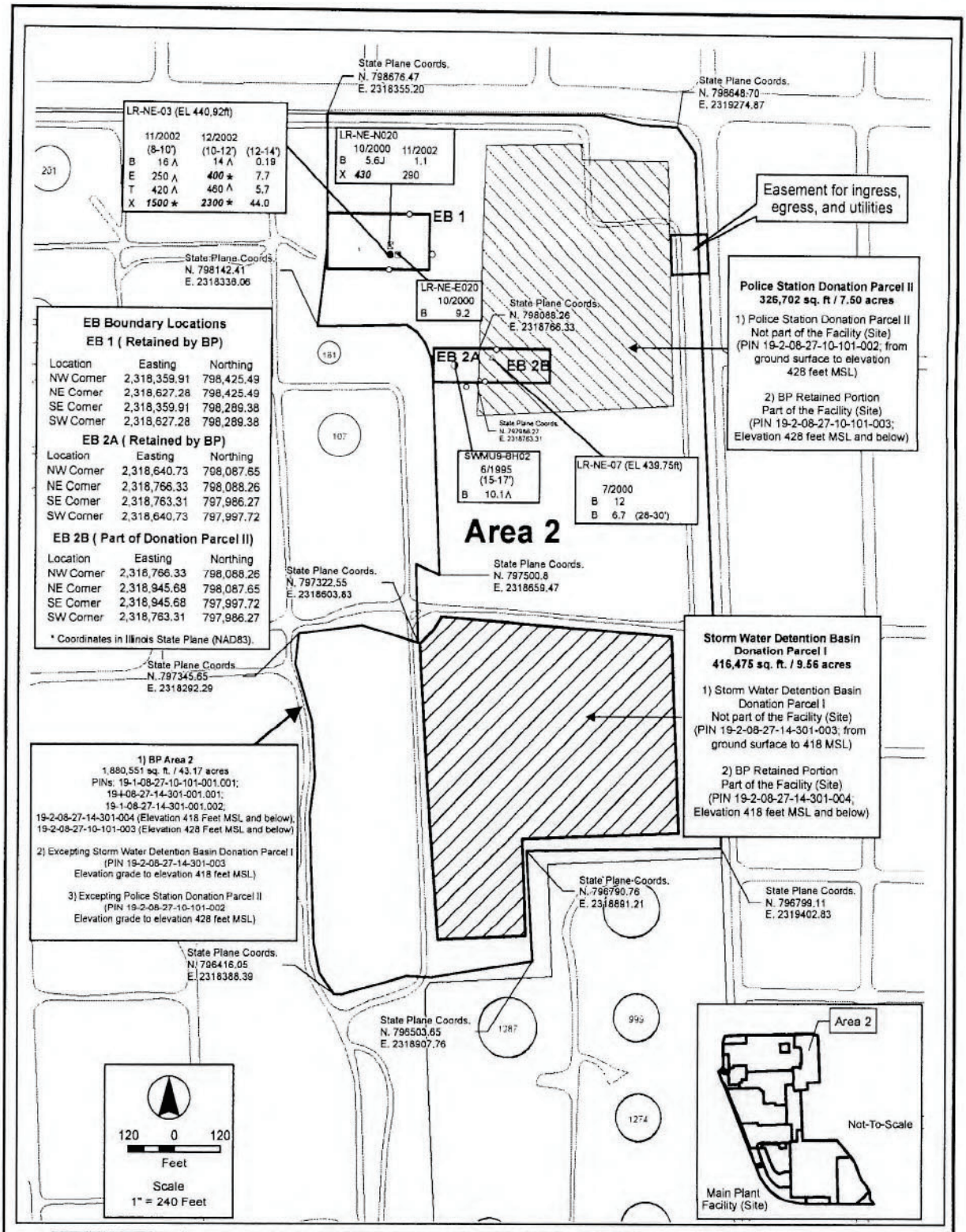
B-1: Site Layout Map
B-2: Area 2 ELUC Map (showing removed Donation Parcels I and II)

PINs: 19-1-08-27-10-101-001.001;
19-l-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below)
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)
Excepting
19-2-08-27-14-301-003 (Surface Elevation to Elevation 418 Feet MSL)
19-2-08-27-10-101-002 (Surface Elevation to Elevation 428 Feet MSL)

[See attached]


Inset Map
Police Station Donation Parcel II
Storm Water Detention Basin Donation Parcel I
See Inset Map
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
Area 14
Area 15
Area 16A
Area 16B
Area 17
Area 18
Area 19
Main Plant
Area 1 – Northwest Parcel (6.29 acres)
Area 2 – Northeast Parcel (43.17 acres)
Area 3 – North Central Parcel (44.17 acres)
Area 4 – Former Rail Yard Area (29.44 acres)
Area 5 – Sout Central Parcel (33.37 acres)
Area 6 – Former APAC (56.75 acres)
Area 7 – Alky Plant (2.57 acres)
Area 8 – North Tank Farm (83.07 acres)
Area 9 – Kores Tank Farm (9.63 acres)
Area 10 – East Tank Farm (24.96 acres)
Area 11 – Spray Ponds (1,2, and intake Channel) (22.12 acres)
Area 12 – South Tank Farm (112.77 acres)
Area 13 – Wildlife Enhancement Area (44.62 acres)
Area 14 – Southeast Corner (3.93 acres)
Area 15 – Administration Building Parcel (11.73 acres)
Area 16 – Marketing Operations Area; Area 16A; Area 16B (8.86 acres)
Area 17 – LPG Caverns Area (6.93 acres)
Area 18 – North Cell of Spray Pond 1/SFP (3.36 acres)
Area 19 – Spray Pond 3 Area (19.84 acres)
Legend
Amec Foster Wheeler Environment & Infrastructure Inc.
15603 Clayton Road, Suite 215
Ballwin, Missouri 63011
Site Layout Map
Main Plant Facility
BP Former Refinery
Wood River, Illinois
656016S006
B-1

R000773



Legend

B: Benzene
E: Ethylbenzene
T: Toluene
X: Xylenes
J Estimated Concentration based on QC Review

All Results are Presented in mg/kg

B9.2 Λ Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 6-10' Unless Specified)
X1500* Exceeds Soil Saturation Limit
B 1.1 Does Not Exceed Tier 2 Soil Inhalation RO
2016 BP Police Station Donation Parcel II; subject to 35 IAC 742.Subpart L Building Control Technologies

2011 Storm Water Detention Basin Donation Parcel I

Sampling Locations
(Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)

RFI Boring Location (1995)
Confirmation Boring Location of RFI Results (2000)
Former Aboveground Tank Boring Location (2000)
Step-Out Boring Location (2000)
Midpoint Between Samples With and Without Tier 2 Exceedence
Area of Engineered Barrier (EB)/Model of Soil Impact in Excess of Tier 2 Inhalation ROs

(MSL) Mean Sea Level

Amec Foster Wheller Environment & Infrastructure Inc.
15933 Clayton Road, Suite 215
Ballwin, Missouri 63011

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

DESIGN URS/JMA | DATE 11/18/2016 | DOC-2017R18529 Pg 13 of 48 | 656016S006 | EXHIBIT B-2

Exhibit C

Copy of the NFA letter dated August 13, 2002, with Attachments

1191150001 – Madison County
BP Products North America Inc. – Wood River Former Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

[See attached]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

August 13, 2002

CERTIFIED MAIL
7001 2510 0002 3279 8113

Gregory S. Jevyak, Environmental Business Manager
Global Environmental Management Business Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

Dear Mr. Jevyak:

This is in response to several recent submittals regarding RCRA corrective action activities at an area known as the "Northeast Corner Parcel (Area 2)" at the above-referenced facility (a list of these submittals is provided in Attachment 1 to this letter). A site layout map showing this area within the facility and the parcel's legal description, are provided as Attachments 2 and 3 respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The submittals identified in Attachment 1 to this letter contain information regarding the investigative and remedial activities completed to date in Area 2. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 2 on August 15, 2000. Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 2 provided the following requirements are met:

1. Two areas within Area 2 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 2 delineating the two areas where an engineered barrier must be established is presented in Attachment 4 to this letter.

2. Any excavation and subsurface construction work in Area 2 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 2 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 2 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 2 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

   (3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 2 must remain commercial/industrial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5, 7 and 8 will be met in the future.

7. Contaminated soil present at the following sample locations is properly managed via engineered barriers or SWMU9-BH02 addressed to achieve remediation objectives developed in accordance with 35 Ill. Adm. Code 742:

LR-NE-03	LR-NE-03-N020
LR-NE-03-E020	LR-NE-07

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

   a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications;

   b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the Parcel, except as required by Condition 8(a) above; and

   c. In an Illinois EPA letter dated March 13, 2002, the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility was revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following Illinois EPA's review of the associated permit modification request dated May 10, 2002 for the revised GMZ, the Illinois EPA will modify the RCRA Part B permit to incorporate the revision to the GMZ.

9. Prior to completion of a corrective action associated with a GMZ the groundwater quality standards (Class I or Class II) are not applicable while the GMZ is being monitored and maintained. As stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary,

and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code 742.1000(c).

10. Additional field duplicates must be collected in future groundwater sampling events. One (1) field duplicate must be collected for every ten (10) samples collected.

11. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

12. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\20021582s.doc

Attachments:
1. List of Area 2 Submittals
2. Topographic Map/Site Layout Map
3. Legal Description of Area 2
4. Portions of Area 2 Requiring an Engineered Barrier
5. Corrective Action Certification Form

Attachment 1
Log No. B-147-CA-14
Information Submitted by Facility

This document identifies the information received and reviewed by Illinois EPA as it evaluated a request for No Further Action in Area 2 of the Amoco/Main Plant Facility (Illinois EPA ID No 1191150001; USEPA ID No. ILD980700967). This information was assigned Log No. B-147-CA-14 by Illinois EPA.

1. A September 21, 2001 submittal from Frederick W. Johnson, URS, and Gregory S. Jevyak, BP which included a document entitled "Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

2. A October 12, 2002 submittal from Keith T. Wilcoxson, URS, containing revised tables in response to comments received from Harry Chappel.

3. A December 20, 2001 submittal from Frederick W. Johnson, URS which included a document entitled "Addendum 1—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

4. A January 22, 2002 submittal from Gregory S. Jevyak, BP America, Inc., which included a document entitled "Addendum 2—Northeast Corner (Area 2) Land Reuse and Investigation Report

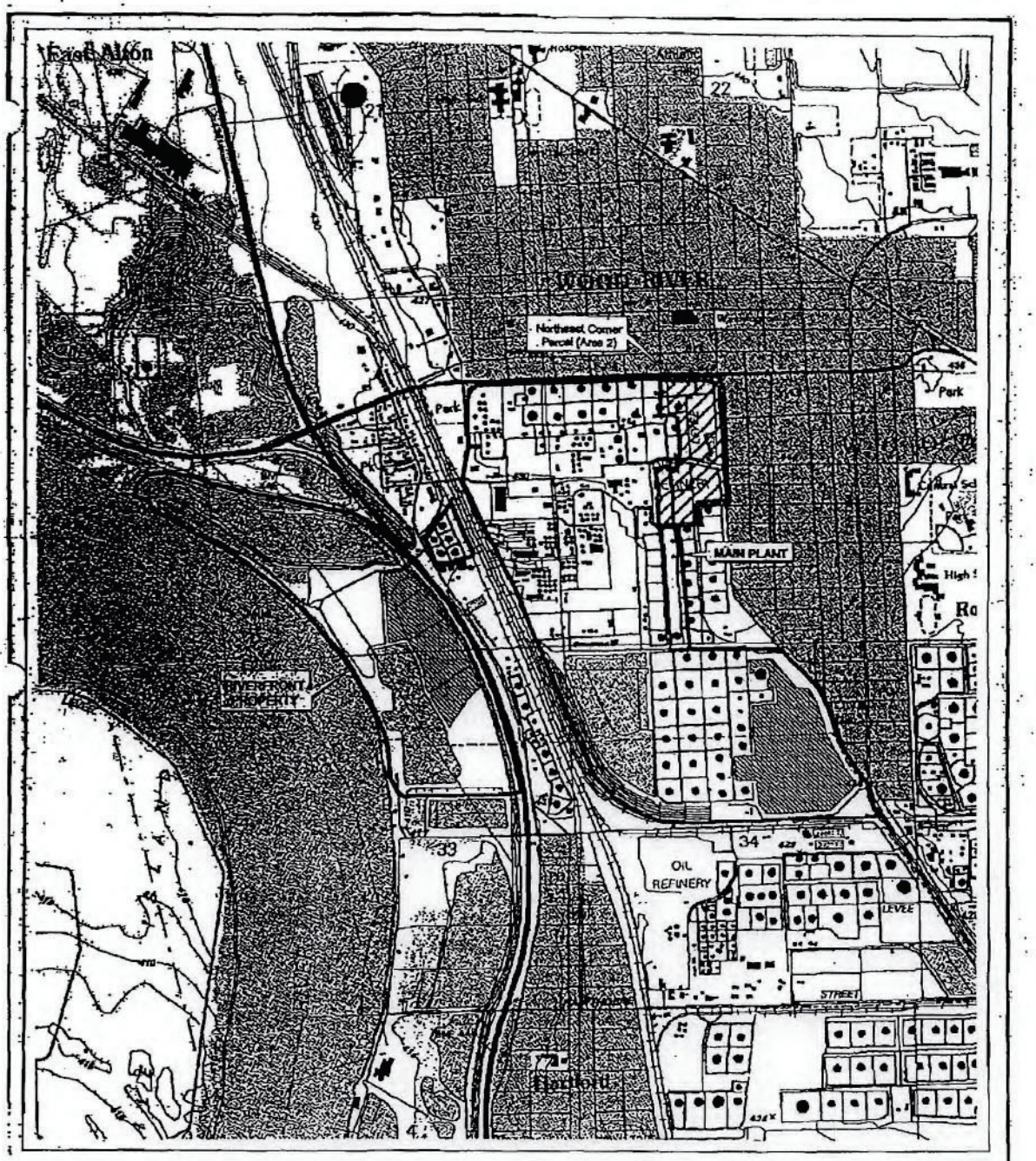
5. An April 5, 2002 submittal from Dennis A. Kasner and Frederick W. Johnson, URS which included a document entitled "Addendum 3—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

6. A May 16, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, URS which served as Addendum 4 to the Northeast Corner (Area 2) Land Reuse Investigation and Status Report.

7. A July 26, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, PE., URS, which contained additional information regarding issues addressed in Addendum 3.

8. A July 26, 2002 submittal from John Dennison, URS, which contained drawings of Area 2 and the legal description for Area 2.

att 1 b-147-ca-14



Attachment 2

Attachment 3
B-147-CA-14

This document contains the legal description for that portion of the former BP refinery in Wood River, Illinois (Illinois EPA Site No. 1191150001; USEPA ID No. ILD980700967) referred to as the "Northeast Corner" or "Area 2." Area 2 is 43.17 acres and is composed of two tracts (a 36.91 acre tract referred to as "Leased Tract 2" and a 6.26 acre tract referred to as "Leased Tract 3"). A legal description of each of these individual tracts is provided on the following pages.

att2 b-147-ca-14

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
917 NORTH MAIN STREET • P. O. BOX 197
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 2
See Corlew Plat CC 2051A

(36.91 Acres in the Northeast Corner of Amoco Main Plant in Wood River, IL)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide), the POINT OF BEGINNING of the tract herein described; thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet; thence North 00° 37' 37" West a distance of 862.36 feet; thence North 00° 23' 02" East a distance of 205.96 feet; thence South 63° 47' 13" East a distance of 67.39 feet; thence North 00° 18' 42" West a distance of 533.37 feet; thence North 07° 12' 26" West a distance of 32.06 feet; thence North 20° 48' 32" West a distance of 36.49 feet; thence North 33° 45' 54" West a distance of 36.12 feet; thence North 54° 50' 03" West a distance of 33.22 feet; thence North 88° 59' 50" West a distance of 233.69 feet; thence North 08° 34' 18" East a distance of 210.75 feet; thence North 01° 07' 40" East a distance of 324.73 feet; thence South 88° 13' 21" East a distance of 719.43 feet; thence South 73° 53' 06" East a distance of 103.38

M. B. CORLEW & ASSOCIATES, INC.

feet; thence South 84° 54' 03" East a distance of 100.13 feet; thence South 33° 47' 40" East a distance of 83.60 feet; thence South 00° 41' 06" East a distance of 1242.50 feet to the point of beginning, containing 36.91 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L STAHLHUT
35-2214
REGISTERED LAND SURVEYOR

(Seal)
Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
701 NORTH MAIN STREET • P. O. BOX 587
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 3
See Corlew Plat CC 2051A

(6.26 Acres in the Northeast Corner of Amoco Main Plant in Wood River, Illinois)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide); thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet to the POINT OF BEGINNING of the tract herein described; thence North 85° 28' 20" West a distance of 66.31 feet; thence South 76° 05' 07" West a distance of 176.24 feet; thence North 86° 57' 09" West a distance of 19.35 feet; thence North 32° 52' 02" West a distance of 68.25 feet; thence North 09° 08' 23" West a distance of 79.65 feet; thence North 00° 01' 05" West a distance of 331.70 feet; thence North 10° 17' 24" East a distance of 94.49 feet; thence North 01° 16' 11" West a distance of 140.22 feet; thence North 14° 34' 25" West a distance of 157.07 feet; thence North 08° 34' 56" East a distance of

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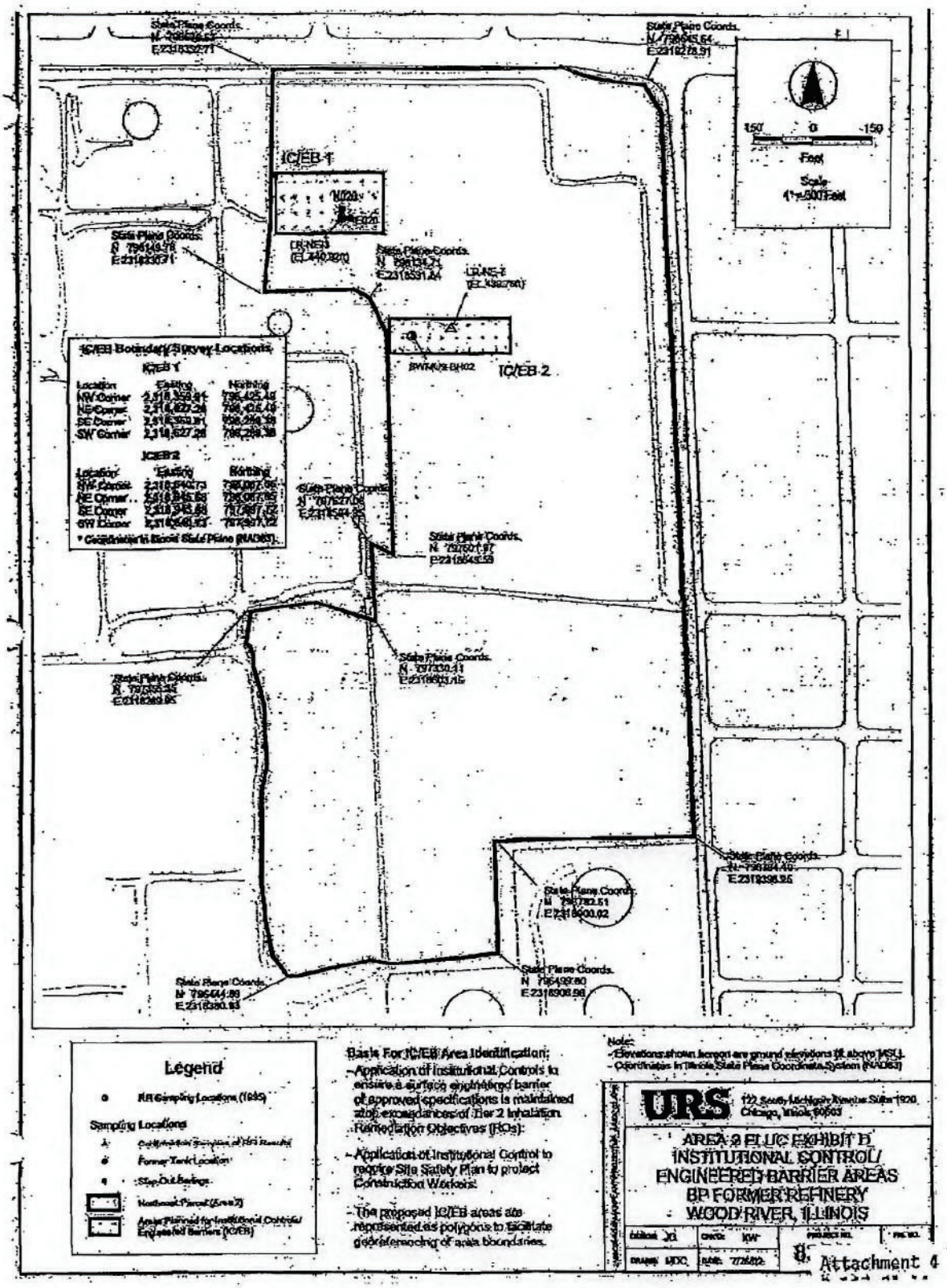
80.46 feet; thence North 83° 50' 58" East a distance of 167.06 feet; thence South 70° 15' 17" East a distance of 153.53 feet; thence South 00° 37' 37" East a distance of 862.36 feet to the point of beginning, containing 6.26 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L. STAHLHUT
35-2214
REGISTERED LAND SURVEYOR

(Seal)
Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

MBC 99-168


IC/EB-1
IC/EB-2
IC/EB Boundary Survey Locations
IC/EB 1
IC/EB 2
Legend
Sampling Locations
Former Tank Location
Basis For IC/EB Area Identification:
- Application of Institutional Controls to ensure a surface engineered barrier of approved specifications is maintained and exceedances of Tier 2 Inhalation Remediation Objectives (IROs).
- Application of Institutional Control to require Site Safety Plan to protect Construction Workers.
- The proposed IC/EB areas are represented as polygons to facilitate geodetic encoding of area boundaries.
Note:
- Elevations shown hereon are ground elevations ft. above MSL.
- Coordinates in Illinois State Plane Coordinate System (NAD83)
URS
AREA 9 ELUC EXHIBIT D
INSTITUTIONAL CONTROL/
ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS
8. Attachment 4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, ILLINOIS 60601 - (312) 814-6026

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/524-3300

November 3, 2011

CERTIFIED MAIL
7009 3410 0002 3751 3834

Mr. Tom Tunnicliff
Environmental Business Manager
Atlantic Richfield Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

Re: 1191150001 -- Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-12
Received: August 12, 2011
RCRA Permit

Dear Mr. Tunnicliff:

This is in response to an August 11, 2011 submittal made on behalf of BP Products North America by George Valera and Ryan P. Hartley, P.E., URS Corporation regarding certain RCRA corrective action activities at the above-referenced facility. The RCRA corrective action program set forth in the subject facility's RCRA permit broke the facility up into several areas and required that each area be adequately remediated.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, No Further Action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft letter of the required institutional control, an Environmental Land Use Control (ELUC) on January 29, 2003 and BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

A revision of the Area 2 ELUC has become necessary as BP is donating a certain portion of Area 2 to the City of Wood River for use as a storm water basin (a drawing showing the location of this parcel of land is provided as Attachment 2 to this letter). The August 11, 2011 submittal mentioned above contained a proposed ELUC which would be established for the 9.56 acre parcel of land being donated to the city; it must be noted that this parcel only extends from the ground surface to an elevation depth of 418 mean sea level (approximately 25 feet below ground surface).

Illinois EPA has reviewed the draft ELUC for the parcel of land within Area 2 at the BP Products North America Inc. facility at 301 Evans Avenue in Wood River, Illinois which is to be donated to the City of Wood River and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 of the facility covered by the ELUC being approved herein is provided in Attachment 3. According to information provided by Mr. Valera, the PIN for this parcel is 19-2-08-27-14-301-003.

2. The recorded ELUC will supersede the ELUC recorded on February 5, 2003 for this property as Document No. 2003R08605.

3. The final ELUC filed with the Office of the Recorder or Registrar of Titles for Madison County must include a dated and notarized signature of the property owner.

4. The proposed ELUC places the following restrictions on the subject property:

    a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

    b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

    c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

    d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

    e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

5. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder or Registrar of Titles for Madison County, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

6. Within 30 days after filing the approved ELUC in accordance with Condition 3 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder or Registrar of Titles for Madison County that the ELUC was properly filed, must be submitted to Illinois EPA.

7. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Agency no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

8. The limitations or requirements of the ELUC apply in perpetuity or until:

   a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

   b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

9. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

10. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

    Illinois Environmental Protection Agency
    Bureau of Land -- #33
    Permit Section
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

11. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This action shall constitute Illinois EPA's final action on the subject submittal. Within 35 days after the date of mailing of Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of Illinois EPA. The 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days

by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Karen Nachtwey at 217/524-3233 of my staff.

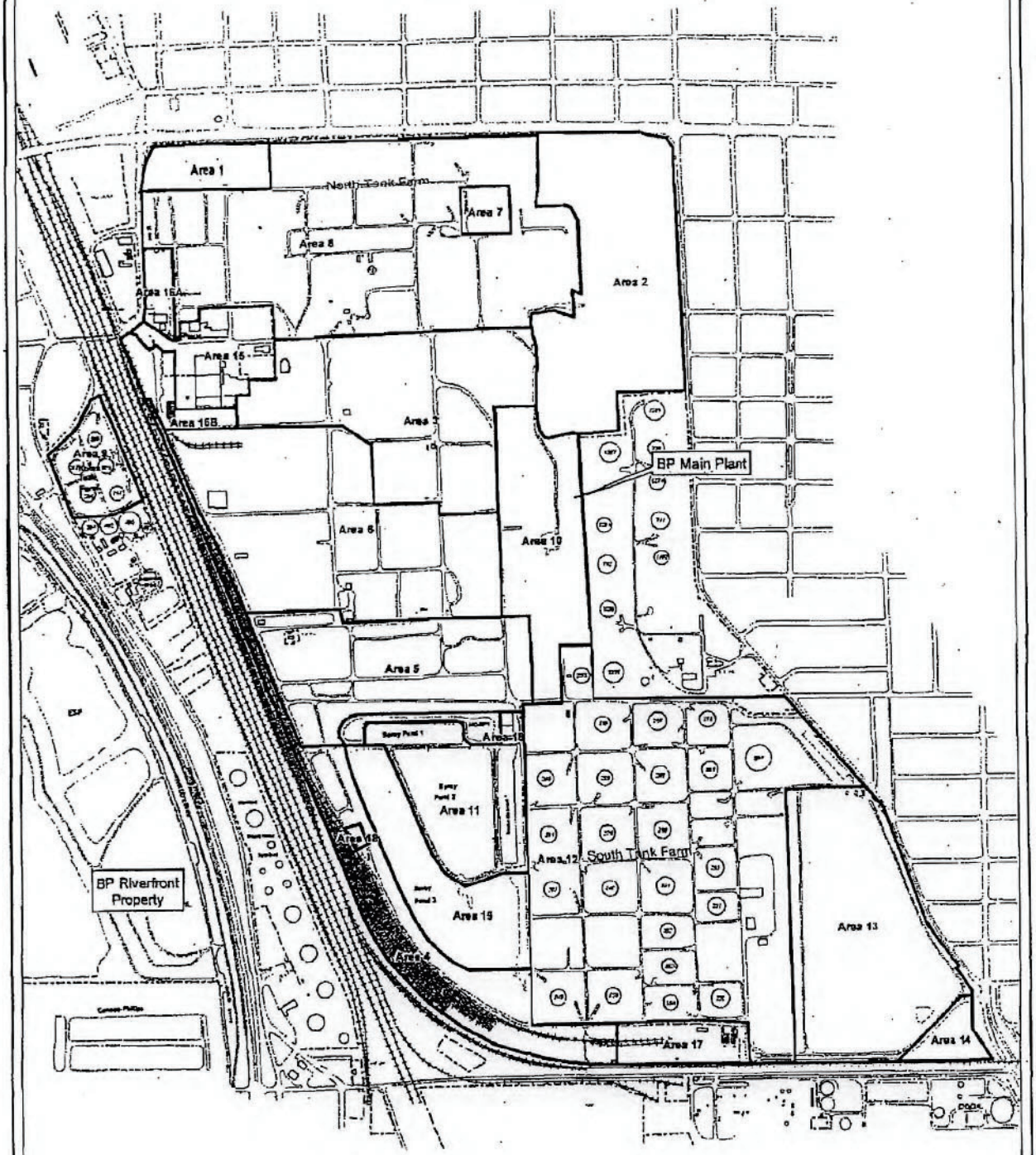
Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:KEN:bjh\l11636s.doc
JCH
Attachment 1 – Site Layout Map
Attachment 2 - Map Showing Donated Parcel within Area 2
Attachment 3 – Legal Description of Donated Parcel

cc: Ryan P. Hartley, URS Corporation

Attachment 1



Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
Area 8 - North Tank Farm
Area 9 - Korea Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building Parcel
Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

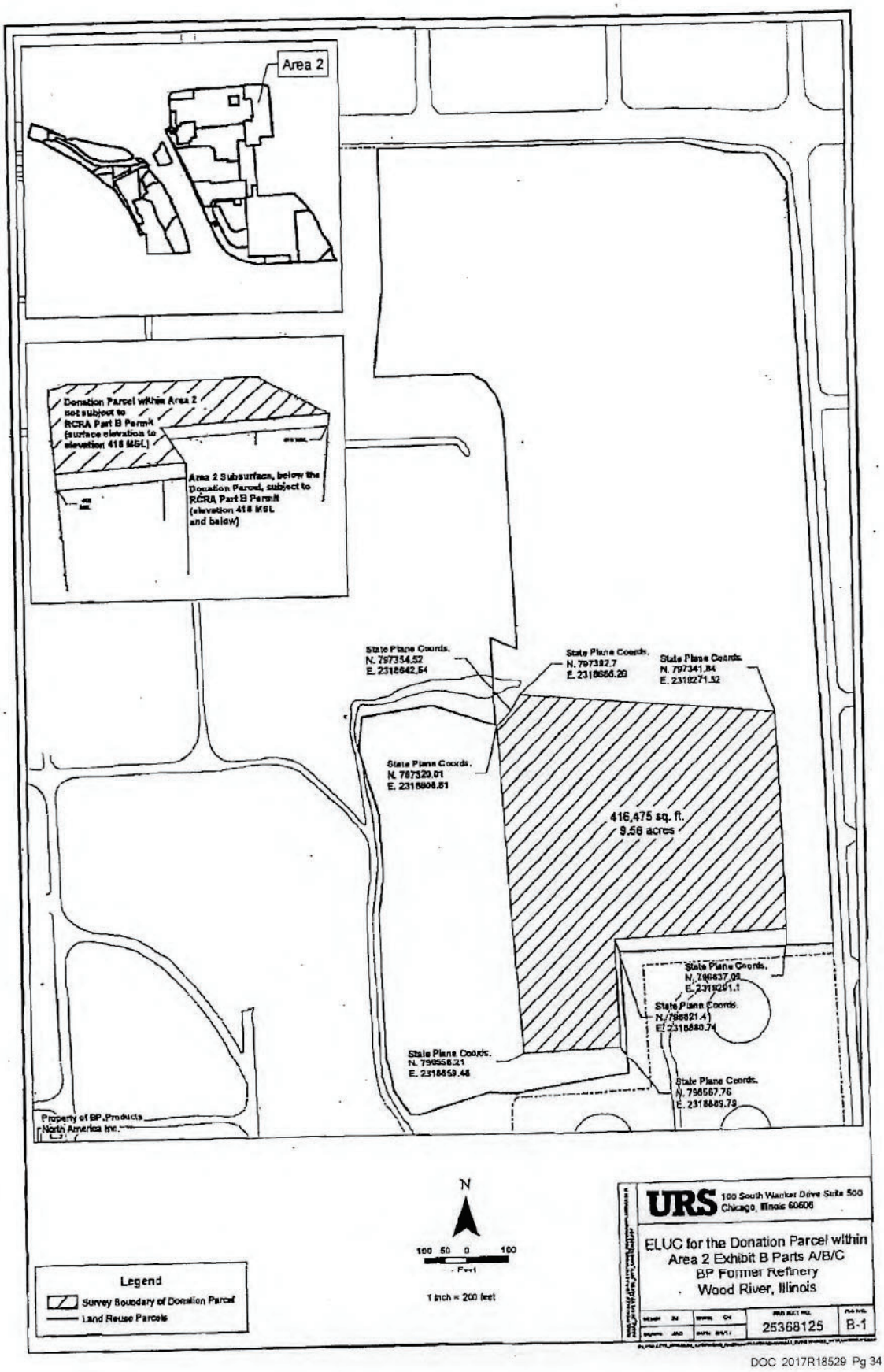
325 0 325
Feet

1 inch equals 750 feet

URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

B-147R-CA-12
Attachment 2



B-147R-Ch-12
Attachment 3

Exhibit A

Legal Description

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN NO. 19-2-08-27-14-301.003

Atlantic Richfield Company

Memorandum

DATE: December 1, 2011

TO: Madison County Recorder's Office, Edwardsville, Illinois - File

FROM: Thomas G. Tunnicliff, BP Products North America Inc.

SUBJECT: Minor Corrections to the Approved Donation Parcel within Area 2 ELUC dated November 3, 2011

The Illinois Environmental Protection Agency (Illinois EPA) approved the Environmental Land Use Control (ELUC) for the Donation Parcel within Area 2 on November 3, 2011. After review of this document, the following inconsistencies were identified:

Donation Parcel within Area 2 ELUC

- First page, last sentence, last paragraph - a reference to the approximate depth of the donation parcel indicates 25 feet. This should be 23 feet as stated in the August 11, 2011 submittal.
- Section 3.f of the Draft ELUC states the following: "BP is allowed access to the property for any groundwater monitoring or remediation efforts". This was not mentioned in the Illinois EPA letter. However, the Illinois EPA approved the Draft ELUC with this language and will be recorded as such.
- The PIN No. found in Attachment 3 needs to be changed from 19-2-08-27-14-301.003 to 19-2-08-27-14-301-003 which is changing the "." to "-".

Distribution
Stephen F. Nightingale, Illinois EPA
Ryan Hartley, URS Corporation

END OF DOCUMENT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/524-3300

April 21, 2017

CERTIFIED MAIL
7014 2120 0002 3289 8030

BP Products North America Inc.
Attn: Lori G. Littrell, Operations Project Manager
150 West Warrenville Road
Naperville, Illinois 60563

Re: 1191150001 -- Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-78
Received: March 30, 2017
RCRA Permit

Dear Ms. Littrell:

This is in partial response to your March 29, 2017 submittal regarding RCRA corrective action activities at the above-referenced RCRA permitted facility (Log No. B-147R and associated modifications). The subject facility is a closed oil refinery which is approximately 600 acres in size and located at 301 Evans Avenue, Wood River, Illinois. The RCRA corrective action program set forth in the subject facility's RCRA permit requires that BP properly remediate the entire facility. The RCRA permit broke the facility up into nineteen areas and sets forth a process for remediating the facility on an area by area basis. In addition, this permit contains provisions for removing remediated areas from the definition of the facility covered by the RCRA permit, thus allowing those areas to be more easily re-developed.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, no further action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft Environmental Land Use Control (ELUC) on January 29, 2003 which would establish the required institutional controls for Area 2. BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

BP subsequently modified the ELUC for Area 2 to account for the fact that it desired to donate a 9.56 acre parcel within Area 2 to the City of Wood River for use as a storm water detention basin. This required that BP establish two new separate ELUCs which would supersede the original one filed on February 5, 2003—one for the parcel of land being donated to the City of

Wood River and one for the remainder of Area 2 being retained by BP. As such, a draft ELUC for the parcel of land being donated to the City of Wood River was approved by Illinois EPA on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45888 on December 7, 2011. In addition, a draft ELUC for that portion of Area 2 retained by BP was approved by Illinois EPA in a second letter dated on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45887 on December 7, 2011.

BP is now donating a second parcel (7.5 acres in size) within Area 2 to the City of Wood River for the construction of a Police Station (this parcel is referred to as the "Police Station Donation Parcel"). Thus, BP must again establish two new ELUCs to replace the one filed on December 7, 2011 as Document No.2011R45887 -one for the Police Station Donation Parcel and one for the remainder of Area 2 being retained by BP. The inset map in Attachment 1 to this letter shows the location of the Police Station Donation Parcel within Area 2. It must be noted that the parcel being donated to the City only extends downward to a horizontal plane at elevation 428' above mean sea level located approximately 15' below the ground surface. BP will retain ownership of the parcel which exists below this plane as well as the remainder of Area 2. A legal description of the portion of Area 2 being retained by BP is provided as Attachment 2 to this letter.

A draft ELUC for the portion of Area 2 being retained by BP as it donates the 7.5 acre parcel within Area 2 as described above to the City of Wood River was approved by Illinois EPA on February 28, 2017 (Log No. B-147R-CA-65). However, BP found that minor revisions needed to be made to this ELUC and Illinois EPA's approval letter before they could be filed with the Madison County, Illinois Recorder's Office. Your March 29, 2017 submittal described these minor revisions and also included a revised draft ELUC for the portion of Area 2 being retained by BP.

Illinois EPA reviewed your March 29, 2017 submittal, including the revised draft ELUC for the portion of Area 2 being retained by BP, as a request to modify the RCRA corrective action program for the BP/Main Plant facility and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 within the BP/Main Plant facility covered by the ELUC being approved herein is provided in Attachment 2 to this letter. The Parcel Index Nos. for this parcel are:

   19-1-08-27-10-101-001.001
   19-1-08-27-14-301-001.001
   19-1-08-27-14-301-001.002
   19-2-08-27-14-301-004 (only exists below 418' mean sea level)
   19-2-08-27-10-101-003 (only exists below 428' mean sea level).

2. Parcel 19-2-08-27-10-101-003 is located directly beneath a 7.5 acre parcel being donated to the City of Wood River (The Parcel Index No. for the parcel being donated to the City of Wood River is 19-2-08-27-10-101-002); the parcel being donated only extends vertically

from the ground surface downward to a horizontal plane at elevation 428' above mean sea level (this horizontal plane is approximately 15' below the ground surface).

3. A copy of this letter must be filed along with the draft ELUC being approved herein with the Office of the Recorder for Madison County, Illinois.

4. As indicated above, Illinois EPA determined on August 13, 2002 that no further action was necessary for the soils within Area 2 provided an ELUC was established which placed certain restrictions on future activities within Area 2. The draft ELUC being approved herein establishes the restrictions required by Illinois EPA's August 13, 2002 letter for the portion of Area 2 being retained by BP.

5. Once the draft ELUC approved herein is recorded, it will supersede the ELUC recorded on December 7, 2011 as Document No. 2011R45888 as it pertains to the portion of Area 2 being retained by BP as identified in Condition 1 above.

6. The final ELUC filed with the Office of the Recorder for Madison County, Illinois must include a dated and notarized signature of the property owner.

7. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(2) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(4) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

f. The areas designated as "EB 1" and "EB 2A" of the Property, as shown in Attachment 3 to this letter and in Exhibit B 2 of the draft ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

9. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder for Madison County, Illinois, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

10. Within 30 days after filing the approved ELUC in accordance with Condition 9 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder for Madison County, Illinois that the ELUC was properly filed, must be submitted to Illinois EPA.

11. Failure to comply with the limitations or requirements of an ELUC may result in voidance of Illinois EPA's no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

12. The limitations or requirements of the ELUC apply in perpetuity or until:

    a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

    b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

13. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

14. A completed Corrective Action Certification form must accompany all corrective-action related information submitted to Illinois EPA. To allow for the proper review of each submittal, please provide the original and one copy of each submittal (two copies if the submittal is groundwater related.

15. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

16. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications letters issued thereafter by the Illinois EPA for this facility.

Work required by this letter, your submittals or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these Laws must be performed in compliance with them. The Illinois EPA may refer any discovered violations of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Jim Moore of my staff at 217/524-3295.

Sincerely,

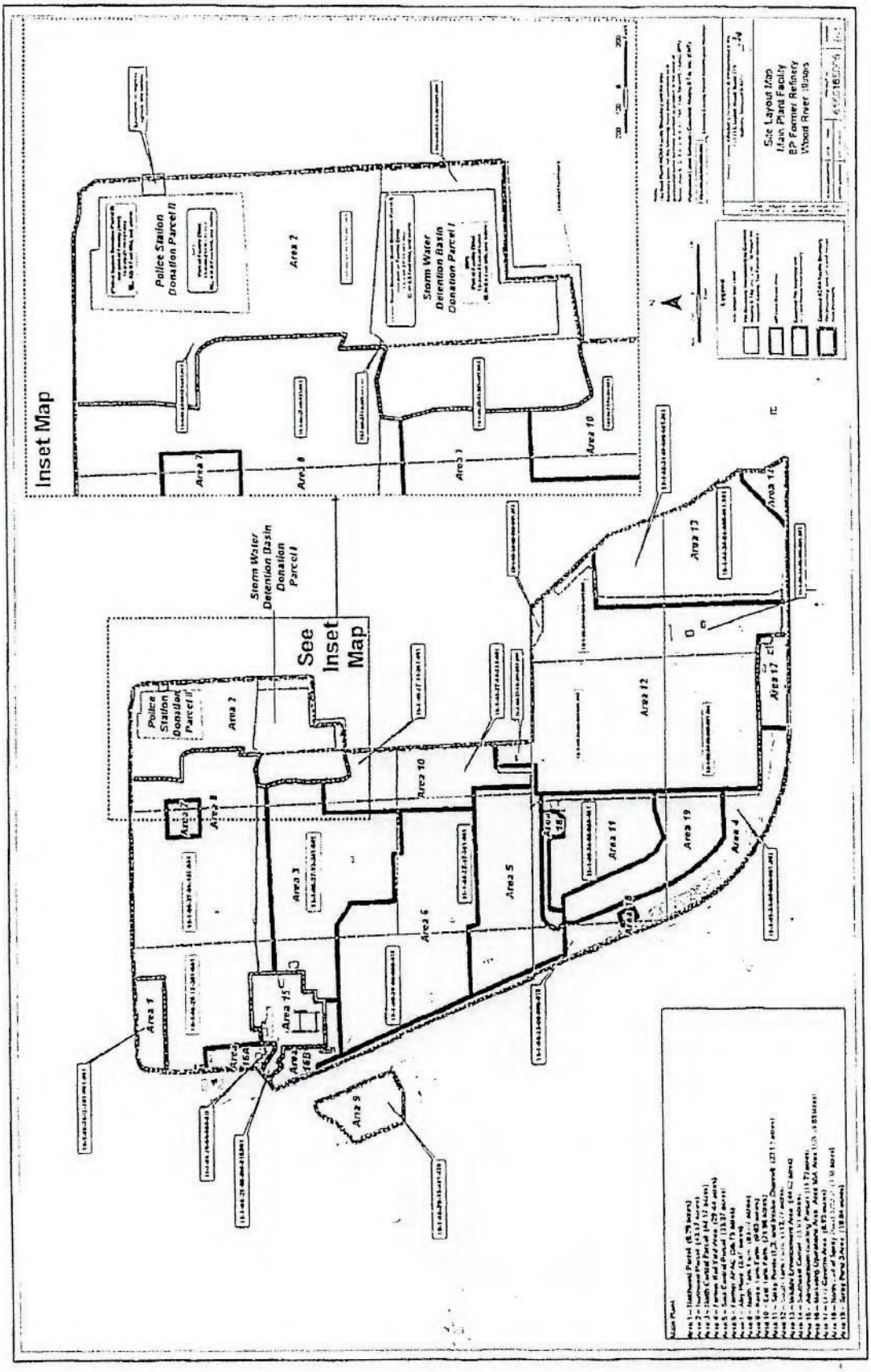
Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:LJ:9115000I-RCRA B 147R CA 78

Attachments: 1 – Site Layout Map
2 – Legal Description of Portion of Area 2 Retained by BP
3 – Location of Engineered Barriers Within the Portion of Area 2 Retained by BP

cc: Allison Crane (via e-mail)

cc: Bureau File
Collinsville Region
Terri Blake Myers
Takako Halteman
Amy Boley
Jim Moore



B-147R-CA-78
Attachment 1
Site Layout Map

B 147R CA 78
Attachment 2
Legal Description of Portion of Area 2
Retained by BP

Exhibit A

Legal Descriptions and Parcel IDs

The Property which is the subject of this ELUC, also referred to as Area 2, is located in the City of Wood River, Madison County, State of Illinois, within the BP Main Plant Facility whose address is 301 Evans Avenue, Wood River, Illinois and more particularly described as (note that Attachment B-1 depicts the layout of the BP Main Plant Facility, and the Property (Area 2) which is the subject of this ELUC):

LEGAL DESCRIPTION

The portion of the following described property:

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast comer of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road, and the POINT OF BEGINNING; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 537.69 feet; thence South 89 degrees 03 minutes 56 seconds West, 511.68 feet; thence South 03 degrees 17 minutes 51 seconds East, 287.59 feet; thence South 80 degrees 51 minutes 24 seconds West, 267.69 feet; thence North 87 degrees 28 minutes 33 seconds West, 15.25 feet; thence North 87 degrees 28 minutes 33 seconds West, 51.06 feet; thence South 74 degrees 04 minutes 54 seconds West, 176.24 feet; thence North 88 degree 57 minutes 22 seconds West, 19.35 feet; thence North 34 degrees 52 minutes 15 seconds West, 68.25 feet; thence North 11 degrees 08 minutes 36 seconds West, 79.65 feet; thence North 02 degrees 01 minute 18 seconds West, 331.70 feet; thence North 08 degrees 17 minutes 11 seconds East, 94.49 feet; thence North 03 degrees 16 minutes 24 seconds West, 140.22 feet; thence North 16 degrees 34 minutes 48 seconds West, 157.07 feet; thence North 06 degrees 34 minutes 43 seconds East, 80.46 feet; thence North 81 degrees 50 minutes 44 seconds East, 167.06 feet; thence South 72 degrees 15 minutes 30 seconds East, 153.53 feet; thence North 01 degree 37 minutes 11 seconds West, 205.96 feet; thence South 65 degrees 47 minutes 26 seconds East, 67.39 feet; thence North 02 degrees 18 minutes 55 seconds West, 533.37 feet; thence North 09 degrees 12 minutes 39 seconds West, 32.06 feet; thence North 22 degrees 48 minutes 45 seconds West, 36.49 feet; thence North 35 degrees 46 minutes 07 seconds West, 36.12 feet; thence North 56 degrees 50 minutes 16 seconds West, 33.22 feet; thence South 88 degrees 59 minutes 56 seconds West, 233.69 feet; thence North 06 degrees 34 minutes 04 seconds East; 210.75 feet; thence North 00 degrees

52 minutes 34 seconds West, 324.73 feet to the southerly right of way of Illinois Route 143, also known as Madison Avenue; thence continuing along said right of way for the following four courses: 1) North 89 degrees 46 minutes 26 seconds East, 719.43 feet; 2) South 75 degrees 53 minutes 19 seconds East, 103.38 feet; 3) South 86 degrees 54 minutes 16 seconds East, 100.13 feet; 4) South 35 degrees 47 minutes 53 seconds East, 83.60 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, 1242.49 feet to the POINT OF BEGINNING, containing 43.17 acres or 1,880,551 feet.

PIN: 19-1-08-27-10-101-001.001;
19-1-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below); and
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)

EXCEPT,

1. Storm Water Detention Basin Donation Parcel 1

REAL ESTATE TAX INDEX #19-2-08-27-14-301-003
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence

South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN: 19-2-08-27-14-301-003 (Ground Surface Down to Elevation 418 Feet MSL)

AND EXCEPT,

2. Police Station Donation Parcel II

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 428 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described ae follows:

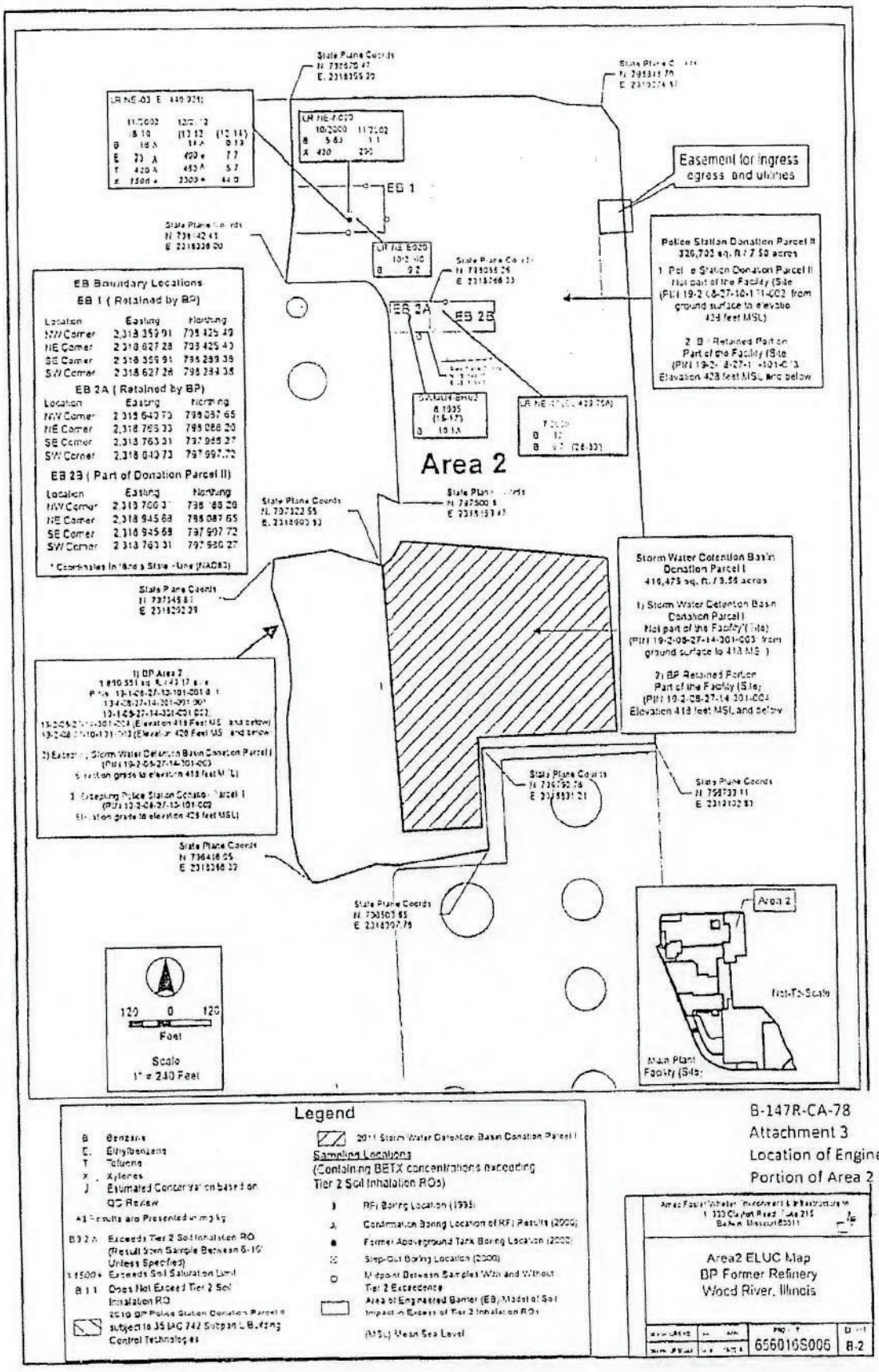
Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds

East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

PIN: 19-2-08-27-10-101-002 (Ground Surface Down to Elevation 428 Feet MSL)



B-147R-CA-78
Attachment 3
Location of Engineered Barriers
Portion of Area 2 Retained by BP

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, Linda A. Andreas, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain ENVIRONMENTAL DISCLOSURE is the true and correct photocopy of said ENVIRONMENTAL DISCLOSURE from BP PRODUCTS NORTH AMERICA to NOTICES including the Certificate of Acknowledgment bearing date the 24th day of APRIL A.D. 2024 as the same appears in the records of my office in Document **# 2017R18529** recorded on the 5th day of JUNE A.D. 2017

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 24th day of APRIL A.D. 2024.

Linda A. Andreas
RECORDER
in and for
MADISON COUNTY, ILLINOIS

R000810

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 Facility Identification

Name: BP Wood River Main Plant Property
Street Address: 301 Evans Avenue
City: Wood River
County: Madison
Site No. (IEPA): 1191150001
Site No. (USEPA): ILD980700967

2.0 Owner Information

Name: BP Products North America Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Michelle Knapp
Contact Title: Liability Manager
Phone: 847.346.7112

3.0 Operator Information

Name: BP Products North America Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Michelle Knapp
Contact Title: Liability Manager
Phone: 847.346.7112

4.0 Type of Submission (check applicable item and provide requested information, as applicable)

☐ RFI Phase I Workplan/Report
☐ RFI Phase II Workplan/Report
☐ CMP Report;
☑ Other (describe): Area 2 - Certified True Copy of ELUC Recordings

IEPA Permit Log No. B-147R-M-17 and 18
Date of Last IEPA Letter on Project November 20, 2023
Log No. of Last IEPA Letter on Project B-147R-CA-122

Does this submittal include groundwater information: ☐ Yes ☑ No

Date of Submittal May 1, 2024

5.0 Description of Submittal: (briefly describe what is being submitted and its purpose)

Resubmittal of one original certified true copy of each of two ELUCs for Main Plant Area 2 (previously submitted to Illinois EPA in June 2017) identified as officially lost files by Illinois EPA.

6.0 Documents Submitted (identify all documents in submittal, including cover letter; give dates of all documents)

Area 2 – Police Station Donation Parcel II and BP Retained Parcel Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529 and this LPC 632 Form, both dated May 1, 2024.

7.0 Certification Statement

(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below). The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

IEPA RCRA Corrective Action Certification
For: MP Area 2 - Certified True Copy of ELUC Recordings
Date of Submission: 5/1/2024

7.1 Owner/Operator Certification

(Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ Date: 5/1/2024

Title: _____

Operator Signature: _____ Date: 5/1/2024

Title: _____

7.2 Professional Certification (if necessary)

Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Professional's Signature: _____ Date: _____

Professional's Name _____

Address _____ Professional's Seal:

City _____

State _____ Zip Code _____

Phone _____

7.3 Laboratory Certification (if necessary)

The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory _____

_____ Date: _____

Signature of Laboratory Responsible Officer

Mailing Address of Laboratory

Address _____

City _____

State _____ Zip Code _____

_____

Name and Title of Laboratory Responsible Officer

DocuSign Envelope ID: D2B8B17E-0DE3-4FFA-992B-C7662A2AE474

POWER OF ATTORNEY

BP Products North America Inc., a corporation duly organized and subsisting in good standing under the laws of Maryland (the "***Company***") does hereby make, constitute, and appoint the following persons:

Bien-Curtin, Michelle	Greco, Chris	McAnulty, Mike
Bryson, Josh	Griffis, Dave	McDonald, Scott
Burmeister, Loren	Halsey, Ron	Melton, Wade
Campbell, Felton	Harris, Jenni	Onufrak, Nicholas
Crane, Allison	Hilmo, Tim	Peterson, Nick
Dippo, Ron	Jackson, Michael	Pokorny, Luke
Dunlap, Shannon	Johnson, Brian	Schaeffer, Jim
Emmet, Lisa	Johnson, Paul	Skance, John C
Ferry, Steve	Knapp, Michelle	Smith, Jim L
Frisch, Greg	Larson, Eric	Wojciechowski, Mary
Gallery, Patricia	Littrell, Lori	

each as its lawful Attorney-in-Fact (hereinafter referred to as ***"Attorney-in-Fact"***) for and in the name of the Corporation to take any and all of the following actions:

1. Preparation, execution, and submittal of all necessary applications to obtain permits and/or renewals of such permits, as may be required by state, federal or local authorities;

2. In coordination with legal counsel assigned by the Company or its affiliate, Remediation Management Services Company ("RMSC"), prepare and execute access agreements for the right of entry to properties owned by third parties;

3. At my direction, or the direction of my herein identified designee, prepare, execute and submit environmental reports and correspondence to any federal, state and/or local governmental agencies, as may be required by any federal, state or local laws, regulations or ordinances;

4. Preparation, execution, and submittal of all applications, forms, waste profiles and other documents, as required by applicable laws, to treat or dispose of non-hazardous contaminated soil, water, and related waste at or associated with such facilities in accordance with applicable laws and the waste disposal policies of the Company and RMSC.

5. Following review by and approval from me as the Vice President appointed by the Company, or from my designee as herein identified, the preparation, execution and submittal of applications, forms, waste profiles and other documents, as required by applicable laws, to treat or dispose of hazardous contaminated soil, water and related waste at or associated with such facilities, in accordance with applicable laws and the waste disposal policies of the Company and RMSC.

HEREBY GIVING AND GRANTING said Attorney-in-Fact full power and authority to do and perform all acts necessary and proper to accomplish the foregoing, and hereby ratifying and confirming all that said Attorney-in-Fact shall do or cause to be done by virtue thereof.

THIS POWER OF ATTORNEY contains the following restrictions:

1. The authorities described herein are not transferable nor can they be sub-delegated to any other individuals.

2. The power and authority hereby conferred upon the Attorney-in-Fact supersedes and replaces any previous delegation of power or authority, specifically if those previous delegation(s) are connected to the authorities described herein.

THIS POWER OF ATTORNEY shall be effective as of the execution date of this Power of Attorney and shall remain valid until the earlier of any of the following:

1. On and through March 31, 2025;
2. The date the Attorney-in-Fact ceases to be an employee of the Company or any wholly owned subsidiary of BP p.l.c.; or
3. The date this Power of Attorney is formally revoked by the Company.

BP Products North America Inc. has caused this Power of Attorney to be executed by its duly authorized officer on this day February 1, 2024.

BP Products North America Inc.

By: DocuSigned by: Joseph Sontchi

DocuSign Envelope ID: D2B8B17E-0DE3-4FFA-992B-C7662A2AE474

Name: Joe Sontchi
Title: Vice President

DOCUMENT 15

Faruk, Omar

From: Faruk, Omar
Sent: Wednesday, May 29, 2024 1:22 PM
To: Knapp, Michelle
Cc: Halteman, Takako; Butler, Amy; Wright, Starlet; michael.hoffman@wsp.com
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Follow Up Flag: Follow up
Flag Status: Completed

Michelle,

We are available 1 pm tomorrow. Already sent an Webex link for the meeting. Thank you.

Omar

From: Knapp, Michelle <Michelle.Knapp@bp.com>
Sent: Wednesday, May 29, 2024 1:13 PM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: [External] RE: Permit mod for bp Wood River Main Plant Facility

Sorry for the multiple e-mails, does 1:00 pm work for you?
Thanks,
Michelle

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Wednesday, May 29, 2024 12:04 PM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Omar,
Can you update this to meet at noon tomorrow?
Also, can you invite Starlet Wright (swright@sovcon.com) and Mike Hoffman (michael.hoffman@wsp.com).
Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, May 29, 2024 9:28 AM
To: Knapp, Michelle <michelle.knapp@bp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Michelle,

No problem. Thanks for getting back to us.
We are available at 10 am tomorrow. Please find the Webex link below for discussion. Thank you.

Omar

Meeting link:
https://illinois.webex.com/meet/omar.faruk

Meeting number:
2630 615 9549

Join from a video or application
Dial omar.faruk@illinois.webex.com
You can also dial 173.243.2.68 and enter your meeting number.

Join by phone
+1-312-535-8110 United States Toll (Chicago)
+1-415-655-0002 US Toll
Access code: 26306159549

Global call-in numbers
https://illinois.webex.com/illinois/globalcallin.php?MTID=ma41b38341408c66ede7fc3966cb0e9ef

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From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Tuesday, May 28, 2024 1:50 PM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: [External] RE: Permit mod for bp Wood River Main Plant Facility

Omar,
I'm sorry that I somehow missed this. Let me know if there is any time that works for you tomorrow or Thursday. (I'm out this Friday)
I'll also need to get a couple of others on the call on my end.
Thanks, and sorry again for the oversight.
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, May 22, 2024 2:29 PM
To: Knapp, Michelle <michelle.knapp@bp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Michelle,

Hope you are doing well. Can we discuss the removal of Kinder Morgan property from BP permit renewal application **on Friday (5/24/2024)**, with Amy, Takako, and myself? Thank you.

Omar

From: Samson, Curtis <Curtis.Samson@Illinois.gov>
Sent: Wednesday, May 1, 2024 12:03 PM
To: Knapp, Michelle <Michelle.Knapp@bp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Faruk, Omar <Omar.Faruk@Illinois.gov>; Sovis, Visal <Visal.Sovis@Illinois.gov>
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Michelle,
Takako and I had a discussion about the best course of action. To remove Kinder Morgan would require a Class III application. However, since Kinder Morgan has been issued its permit (RCRA Log No. B-214) and BP's permit renewal application is still under review, it would be best to submit an addendum to the permit renewal application.

Omar Faruk is now the permit project manager and he has also been assigned the corrective action duties for the facility. I plan to remain to be involved. Omar is cc'd in this email.

Thanks,
Curtis

From: Knapp, Michelle <Michelle.Knapp@bp.com>
Sent: Wednesday, May 1, 2024 11:44 AM
To: Samson, Curtis <Curtis.Samson@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: [External] FW: Permit mod for bp Wood River Main Plant Facility

Curtis,

I'm just following up on this.
Can you let us know what we need to submit as far as a permit mod to remove KM from the current MP permit?

Thanks,
Michelle

From: Knapp, Michelle
Sent: Thursday, April 18, 2024 10:05 AM
To: Samson, Curtis <Curtis.Samson@Illinois.gov>
Cc: Wright, Starlet (Sovereign Consulting) <swright@sovcon.com>; Michael Hoffman <michael.hoffman@wsp.com>
Subject: Permit mod for bp Wood River Main Plant Facility

Curtis,
Now that Kinder Morgan has their own RCRA Corrective Action permit, bp needs to take action to remove the Kinder Morgan property from the bp Main Plant Corrective Action Permit.
Can you let us know what class of permit submittal will be required for this?
Thanks,
Michelle

Michelle Knapp
Liability Manager
BP Remediation Management
847-346-7112



State of Illinois - CONFIDENTIALITY NOTICE: The information contained in this communication is confidential, may be attorney-client privileged or attorney work product, may constitute inside information or internal deliberative staff communication, and is intended only for the use of the addressee. Unauthorized use, disclosure or copying of this communication or any part thereof is strictly prohibited and may be unlawful. If you have received this communication in error, please notify the sender immediately by return e-mail and destroy this communication and all copies thereof, including all attachments. Receipt by an unintended recipient does not waive attorney-client privilege, attorney work product privilege, or any other exemption from disclosure.

DOCUMENT 16

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

June 24, 2024

Re: BP Products North America Inc.- Main Plant (Illinois EPA BOL ID# 1191150001)
Resource Conservation and Recovery Act Corrective Action Only Permit (B-147R2)

To Distribution List:

In accordance with the Illinois EPA's Environmental Justice Policy, the Office of Environmental Justice wants to provide you with information about a potential action. The Illinois EPA is sending this letter to notify you of an application received by the Bureau of Land (BOL).

The Illinois EPA has received an application for a renewal of a RCRA Corrective Action Only Permit for BP Products North America Inc.- Main Plant (BP) located at 301 Evans Avenue in Wood River. The application addresses the continuation of site-wide corrective action and also redefines the BP facility boundary to remove a portion of the land purchased by KM Phoenix Holdings LLC (KMPH) as KMPH is addressing any corrective action remaining at the portion of the land under its RCRA Corrective Action Only permit (issued on March 4, 2024; effective on April 8, 2024).

The application is currently under review by the BOL. Once ready for review, the Illinois EPA will post a public notice and draft permit on its website (https://epa.illinois.gov/public-notices/bol-permit-public-notice.html) and will accept comments during the public notice period. Inquiries concerning the availability of public comment or hearing in this matter may be addressed to Sabrina Bailey, Community Relations, at (217) 847-294-4394, Sabrina.Bailey@Illinois.gov.

If you would like to sign up to receive notifications by email, please visit the Illinois EPA Environmental Justice webpage: https://epa.illinois.gov/topics/environmental-justice.html

If you have questions about the application, please contact Chris Pressnall, Manager, Office of Environmental Justice at (217) 524-1284, EPA.OEJ@Illinois.gov.

Sincerely,

Chris Pressnall, Manager, Office of Environmental Justice

Distribution List

BP Products North America Inc.- Main Plant – Michelle Knapp*
State Senator Erica Harriss - State Senate District #56*
State Representative Amy Elik - State Representative District # 111*
U.S. Representative Nikki Budzinski - U.S. Congressional District #13*
U.S. Senator Richard J. Durbin*
U.S. Senator Tammy Duckworth*
City of Wood River – Tom Stalcup, Mayor*
City of Wood River – City Council*
Madison County Board*
Madison County Branch NAACP - #3021 – James Harrell, President*
Illinois NAACP – Gregory Norris*
Illinois NAACP – Teresa Haley*
American Lung Association of Illinois – Angela Tin*
Respiratory Health Association - Brian P. Urbaszewski*
Sierra Club – Jack Darin*
Sierra Club – Christine Nannicelli*
Sierra Club – Mila Marshall*
Faith in Place – Rev. Brian Sauder*
Illinois Environmental Regulatory Group – Kelly Thompson*
Chemical Industry Council of Illinois – Lisa Frede*
United States EPA – Kathy Triantafillou*
IL Manufacturers' Association - Donovan Griffith*
Shawnee Hills & Hollers – Georgia de la Garza*
Shawnee Hills & Hollers – Sabrina Hardenbergh*
Illinois Environmental Council – Jennifer Walling*
LVEJO – Juliana Pino*
Earthjustice – Jennifer Cassel*
Earthjustice – Debbie Chizewer*
Northwestern Pritzker School of Law – Robert A. Weinstock*
Great Rivers Environmental Law Center – Sarah Rubenstein*
Great Rivers Environmental Law Center – Cailtin Stiltner*
Stericycle – Susan Olavarria*
University of Illinois - Prairie Research Institute – Debra Jacobson*
Illinois Attorney General's Office – Andrew Armstrong*
Council of State Governments – Midwest – Jess Lienhardt*
Exxon Mobil Corporation – Brad Sims*
Taft Law – Ryan Rudich*
Mostardi Platt – Jena DiFiore*
Energy Infrastructure Partners – Matt Kok*
Geosyntec – Brian Valleskey*
Interdisciplinary Environmental Clinic – Liz Hubertz*
Langan – Vinicius De Paula*
Madison County Building & Zoning Department – Chris Doucleff*
Madison County Health Department – Eric Boeaster*
Madison County Planning and Development – Rhonda Niles*
Nuclear Energy Information Service – Stephanie Bilenko*
Rebuilding Together Southwest Illinois – Chris Azar*
Three Rivers Project – Virginia Woulfe-Beile*
United Congregations of Metro East – Victoria Galina*
Waste Management – Lisa Disbrow*

***Receiving E-Notifications**

EJ Review Request #6791

Site/Facility Information

Site Name: Dome Petroleum Corp
Site ID: 170000124700
Bureau Site ID: 1191150001
Bureau: LAND
Address: 301 Evans Avenue
EJ Status: 2 - EJ Area, Low Income
City/State/Zip: Wood River, Illinois 62095
Contact Name: Michelle Knapp
Contact Title: Operations Project manager
Contact Address: 301 Evans Avenue
Contact City/State/Zip: Wood River, Illinois 62095
Phone: 8473467112
Email: michelle.knapp@bp.com

Application Information

Reference Number: B-147R2
Activity Type: Permit
Activity Subtype: RCRA/HW
Application Scope/Description:
BP Permit Renewal Application
Other Relevant Information:
Request Submitted: 5/10/2024
Submitted by: Omar.Faruk
Application Received: 10/9/2020
Decision Due:
Reviewer Name: Omar.Faruk
Review Status: Review Pending
Review Status Notes:

Additional Permit Information

Waste Type: HW
Operating Status: Active
Activity Status: In Progress
Any Changes to footprint of facility, design, or operating procedures, and if construction is required:

DOCUMENT 17

From: Faruk, Omar
To: Knapp, Michelle; Wright, Starlet; Hoffman, Michael
Cc: Halteman, Takako; Butler, Amy
Subject: Listed NOD for BP Permit Renewal Application
Date: Wednesday, June 12, 2024 11:19:36 AM

Good morning everyone,

Hope you are doing well. As you aware, IEPA is trying to make a good progress on backlogs for BP projects. Now the priority is BP permit renewal application, with the objective of submitting the final application by September 30, 2024. The Listed NOD will be mailed out by the end of this week. In the meantime, please find the Listed NOD below to allow BP to begin work ahead of time.

The following comments are provided as part of the Illinois EPA's technical review of BP Products North America, Inc.'s (BP) Post Closure permit renewal application (renewal application) dated October 8, 2020 and received by the Illinois EPA on October 9, 2020.

1. General Comment:
    a. Provide a list of acronyms for the permit renewal application.
    b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).
    c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program.

i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved.

ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.

iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.

iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".

2. Exhibit A-1b, Hazardous Waste Permit Part A Form:
    a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.
    b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.
3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification:
    a. Update the information on the 39(i) Certification, Section B for the new liability manager.
4. Exhibit A-4, Public Notice Letter:
    a. Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road,

Naperville, IL 60563, (630) 386-1620) is outdated.

5. Exhibit B-1:

   a. Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.

6. Section B.2.2:

   a. Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).

7. Section C.3:

   a. Revise Section C.3 to also identify the groundwater classification.

8. Section C.4:

   a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically:

i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate to meet the requirements of 35 IAC 703.183(s), with the exceptions listed in Comment 8.b below; and

ii. Figures C-1 through C-5 and Exhibit C-1 meet the requirements of 35 IAC 703.183(s), with the exceptions listed in Comment 8.b below.

   b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s). The facility must provide additional information to present the following:

i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

ii. An updated Water Well Survey (WWS) must be completed, and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site, as required by 35 IAC 703.183(s).

9. Section C.8:

   a. Figures C-4 and C-5 must be revised as it does not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

10. Section C.8.1.1 and Figure C-5:

   a. Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) Boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I Groundwater Quality Standards (GQSs). Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells will likely result in the requirement for additional corrective action.

11. Section C.8.1.5:

   a. Update Cone of Depression (COD) well information to reflect changes since the time

of the submittal; and

b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

12. Section C.8.4:

a. The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.

13. Appendix C of Exhibit C-1:

a. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

14. Section C.8.4.5 and Exhibit C-3:

a. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved as proposed. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

ii. Indicate the most current version of the software will be used.

iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

iv. It is stated higher detection limits were reported for many Constituents of Concern (COCs) during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher and demonstrate why this is an appropriate approach for the evaluations.

v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for the antimony, G006 is only analyzed for arsenic, etc.

vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

15. Section C.8.4.6:
    a. Update Section C.8.4.6 to reflect changes since the time of the submittal.
16. Section C.8.4.8:
    a. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.
17. Section C.8.4.9:
    a. Revise Section C.8.4.9 to reflect the statistical approach being proposed.
18. Section C.8.4.9:
    a. Revise Section C.9 to reflect the frequency for the statistical approach being proposed.
19. Section F.4.2:
    a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.
    b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The time frame must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.
    c. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application:
        i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area.
        ii. A copy of the certified ELUC for each applicable Land Reuse Area.
20. Section F.4.2.2.2:
    a. Provide the total size of Area 2 in the detailed description of unit.
21. Section F.4.2.3.2:
    a. Provide the screening interval during field screening investigation from November 2002 to July 2003.
22. Section F.4.2.11.2:
    a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit on March 4, 2024 (Log No. B-214), which requires to complete corrective action at its facility.
23. Section F.6:
    a. Revise Exhibit F-2 based on the following comments:
        i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.
        ii. Check for consistency between the task objective for Area 5, mentioning four remediation

areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.

iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.

iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.

v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.

KMPH removal from BP Main Plant

1. Section B.1.1: Provide the description of KMPH property and removal from the BP Renewal Application in this section. Add the following text:

   An approximate 118.25-acre three-dimensional parcel above elevation 408 feet above mean sea level (ft-MSL), as shown in figure () and legal description contained in Exhibit () is not part of the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area at and below elevation 408 ft-MSL remains part of the facility and is subject to BP's Part B Permit.

2. Exhibit B1: In the legal description, exclude the parcel of land acquired by the KMPH and provide missing pages 3 and 4. This must contain 3-dimensional descriptions.

3. Section B.2.2: Facility + 1000 feet Topographic map with surrounding land use should be excluded from this map (Figure B-5B).

4. Section F: Proposed Land Reuse Area Boundaries (Figures-2) needs revised to remove upper portion now owned by KMPH. A cross-sectional map is needed. BP could provide a Figure 2A and 2B.

5. Section F.4.2.11.2: Revise the description to reflect KM has the permit now, and add the following the text (provided as an example):

   a. KM Phoenix Holdings LLC (KMPH) is responsible for RCRA Corrective action activities above elevation 408 MSL at the former BP Wood River Terminal (South Tank Farm), Land Reuse Area 12, and those portions of the following areas that were included in the purchase: 4, 5, 10, 11, 13, 17 and 19.

   b. BP (the Permittee) retains ownership and responsibility for RCRA Corrective Action activities at and below elevation 408 ft-MSL.

   c. BP and KMPH recognize that the post-closing conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closing conditions, operations, and activates at the property retained by the BP, or its successors could impact property owned and/or operated by KMPH or its successors.

   d. In the event that post-closing activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by BP, KMPH will be responsible for the environmental impacts and Corrective Action activities that result.

   e. In the event that post-closing activities at the property retained by BP impact the overlying and/or adjacent property owned by KMPH, BP will be responsible (if determined to be the result of BP's activities) for the environmental impacts and

Corrective Action activities that result.

If you have question, please reach out to us. Thank you everyone for your cooperation.

Regards,

Omar Faruk
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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TABLES

Table F-1 SWMUs and PRSs located within Land Reuse Areas
Table F-2 Land Reuse Area Document Summary
Table F-3 Land Reuse Area Status Summary

FIGURES

Figure F-1 Land Reuse Areas, SWMU and PRS Locations
Figure F-2 Proposed Land Reuse Area Boundaries

EXHIBITS

Exhibit F-1 Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems
Exhibit F-2 Main Plant Corrective Action Cost Estimate
Exhibit F-3 Financial Assurance Mechanism Documentation
Exhibit F-4 Land Reuse Area No Further Action Letters
Exhibit F-5 Land Reuse Area Recorded ELUCs

SECTION F—CORRECTIVE ACTION

As described in the current Part B Permit (Log. B-147R-M-17 and M-18 dated May 29, 2018) (Permit), and in accordance with Section 3004 of the Resource Conservation and Recovery Act (RCRA) and 35 Illinois Administrative Code (IAC) 724.201, bp is performing corrective action as necessary to protect human health and the environment from releases of hazardous wastes or hazardous constituents from any solid waste management unit (SWMU) at the bp Main Plant Property (referred to as Property or Site).

The original RCRA permit issued by Illinois Environmental Protection Agency (Illinois EPA) for the bp Main Plant Property on September 30, 1993, required bp to conduct corrective action for 21 SWMUs and 9 Product Release Sites (PRSs). SMWU and PRS locations are shown on **Figure F-1.**

Two hazardous waste management units at the Main Plant Property, the North Cell of Spray Pond 1 (NC-SP1) and the South Flare Pit (SFP), have been certified as closed by removal. Closure reports were submitted to the Illinois EPA for the NC-SP1 (URS, November 2002) and the SFP (URS, April 2005).

A letter from Illinois EPA dated January 7, 2008 granted approval for closure by removal of the NC-SP1 pending a Class 3 permit modification request to formally remove the unit from the Part B Post-Closure Permit. This letter also granted approval for the soils portion of the closure by a removal determination for the SFP, and requested further work on the groundwater portion for this unit. Subsequently, bp conducted additional work, and based upon Illinois EPA's review of the results of this work, the SFP was approved for closure by removal.

Section I.A of the renewed Main Plant RCRA Permit dated March 4, 2011, formally removed these two hazardous waste management units (the NCSP-1 and the SFP) from post-closure requirements. Since these were the only two hazardous waste management units at the Site, this renewal permit application now solely addresses corrective action at the Site.

Twenty-one SWMUs were listed in the Corrective Action portion (Section IV) of the 1993 Part B Permit. bp conducted Phase I RCRA Facility Investigations (RFI) for 16 SWMUs in 1995 and one SWMU in 1996. The following SWMUs did not require investigation for the reasons noted below:

- SWMUs 14 and 33, the former regulated units, which were subsequently closed by removal
- SWMU 30, the Korea Tank Farm Disposal Areas, will be investigated as part of PRS investigations
- SWMU 36, the Liquid Waste Collection Bin, was cleaned, and did not require investigation.

bp has received No Further Action (NFA) determinations for soils at 8 of the Main Plant SWMUs that required investigation under the Permit.

Nine PRSs were identified in Section VII of the 1993 Part B Permit. bp conducted remediation at four of the Main Plant Property PRSs in 1995, which was reported in the Phase I RFI Report.

The Phase I RFI Report for the Main Plant Property was submitted in December 1995, and a Phase I RFI Report for SWMUs 16 and 23 was submitted in August 1997. The Illinois EPA approved the Phase I RFI Reports in a letter dated June 5, 2001.

On, June 21, 2002, Illinois EPA approved a plan to expand the scope of the corrective action program at the Main Plant Property to include all recognized environmental conditions (RECs) in order to meet the requirements of Section 3004(u) and (v) and 35 IAC 724.201. To accomplish this, the Main Plant Property was divided into 19 Land Reuse Areas so that corrective action, and potential redevelopment could be addressed on an Area-by-Area basis as presented in the RFI Phase II/III Project Plan for the Main Plant. The Illinois EPA approved the RFI Phase II/III Project Plan on June 21, 2002. The Land Reuse Areas are listed below. Additionally, **Table F-1** lists the SWMUs and PRSs that are present within each Land Reuse Area.

Area 1 - Northwest Corner
Area 2 - Northeast Corner
Area 3 - North Central Area
Area 4 - Former Rail Yard
Area 5 - South Central Area
Area 6 - Former APAC Area
Area 7 - Former Alkyl Plant
Area 8 - North Tank Farm
Area 9 - Korea Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Pond Area (Ponds 1 & 2/Intake Channel Areas)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building
Area 16 - Marketing Operations Area
Area 17 - Liquid Propane Gas (LPG) Caverns
Area 18 - North Cell Spray Pond 1 and South Flare Pit
Area 19 - Spray Pond 3

bp has received NFA determinations for Main Plant land reuse areas 1, 2, 4, and 15 for soils (and perched groundwater, where appropriate). A portion of Area 12 was sold in February 2016; details are contained in Section F.4.2.11. In order to realign the Land Reuse Areas to reflect the property that bp retains ownership of proposed revisions to the Land Reuse Area boundaries are provided on **Figure F-2**.

The goal of the Land Reuse process for each Land Reuse Area is to obtain a NFA determination for the entire area. If bp determines that redevelopment is not likely to occur in a given Land Reuse Area, bp will follow the corrective action process for the SWMUs within the Land Reuse Area. However, if the potential for redevelopment of the Land Reuse Area becomes viable in the future, bp would pursue an NFA determination for the entire Land Reuse Area at that time. For the Land Reuse corrective action scenario, the following steps are implemented:

1. Current conditions will be established for the Land Reuse Area (Current Conditions Report – CCR);
2. A Work Plan incorporating the Current Conditions will be developed to investigate data gaps required to properly characterize the Land Reuse Area (Land Reuse Investigation – LRI);
3. The investigation, focused on obtaining soil and perched groundwater data, will be completed;
4. Data will be analyzed, and a risk assessment will be completed;
5. Identification of the required remedial activities and institutional controls will be made and incorporated into the Final Investigation Report;
6. Upon Illinois EPA review and approval of the LRI Report, a conditional NFA letter for soils and perched groundwater will be issued for the Land Reuse Area;
7. An Environmental Land Use Control (ELUC) will be submitted for approval by Illinois EPA;
8. ELUC Institutional Controls will be recorded on the property deed following approval;
9. Development of the Land Reuse Area will proceed; and
10. Submittal of reporting and engineered barrier construction/documentation if applicable.

In addition to the above steps, bp is conducting an independent evaluation of the groundwater component of the indoor air inhalation pathway for the site-wide Main Plant property to address the vapor intrusion evaluation requirements of Tiered Approach to Corrective Action Objectives (TACO).

F.1 Identification of SWMUs

Not applicable. 35 IAC 724.201 requires that the information identified in Items F.1 through F.3 be contained in the original permit application; only the information in Item F.4 needs to be submitted for renewed RCRA permits.

F.2 Characterization of SWMUs

Not applicable. 35 IAC 724.201 requires that the information identified in Items F.1 through F.3 be contained in the original permit application; only the information in Item F.4 needs to be submitted for renewed RCRA permits.

F.3 Characterization of Releases from SWMUs

Not applicable. 35 IAC 724.201 requires that the information identified in Items F.1 through F.3 be contained in the original permit application; only the information in Item F.4 needs to be submitted for renewed RCRA permits.

F.4 Information Required for Renewal Applications

F.4.1 Information Required if USEPA Oversaw Initial CA Program

Not applicable.

F.4.2 Information Required if IEPA Oversaw Initial Corrective Action Program

A Land Reuse Area document summary is provided as **Table F-2** in addition to the information below. A copy of each NFA letter issued to bp by Illinois EPA is provided in **Exhibit F-4**. A copy of each recorded ELUC is provided in **Exhibit F-5**. The status of investigations and corrective action for each Land Reuse Area as of June 2024 is summarized in **Table F-3**.

Listed below are documents submitted that are applicable to the entire Main Plant Property:

- 06/1993: Illinois EPA conducted Amoco Main Plant RCRA Facility Assessment;
- 03/31/1994: bp submitted to Illinois EPA the Product Release Site Corrective Action Work Plan;
    - 09/07/1994: Illinois EPA approval letter for the Product Release Site Corrective Action Work Plan;
- 03/31/1994: bp submitted to Illinois EPA the RCRA Facility Investigation RFI Phase I Work Plan;
    - 09/07/2024: Illinois EPA approval letter for the RCRA Facility Investigation RFI Phase I Work Plan;
- 12/15/1995: bp submitted to Illinois EPA the RCRA Facility Investigation Phase I Report, Main Plant, Wood River, Illinois;
    - 06/05/2001: Illinois EPA approval letter for RCRA Facility Investigation Phase I Report for the Main Plant;
- 03/19/2001: bp submitted to Illinois EPA the RCRA Facility Investigation Phase II/III Project Plan;area

  - 06/21/2002: Illinois EPA approval letter for the RCRA Facility Investigation Phase II/III Project Plan;
- 06/03/2001: bp submitted to Illinois EPA the Revised Engineered Barrier Specification Report;
  - 07/03/2001: Illinois EPA approved the Revised Engineered Barrier Specification Report;
- 02/06/2002: bp submitted to Illinois EPA the Memorandum of Understanding Between the City of Wood River, Illinois and the Illinois Environmental Protection Agency Regarding the Use of Local Groundwater or Water Well Ordinance as an Environmental Institutional Control.
  - 03/28/2002: Illinois EPA issued the Memorandum of Understanding Between City of Wood River, Illinois and Illinois EPA;
- 08/27/2002: bp submitted to Illinois EPA the Wood River Soil Sampling Strategy;
- 12/14/2006: bp submitted to Illinois EPA the Underground Piping Investigation Work Plan;
- 03/07/2007: bp submitted to Illinois EPA the Comprehensive Quality Assurance Project Plan (QAPP) Main Plant and Riverfront Site Investigations;
- 11/30/2007: bp submitted to Illinois EPA the Summary Letter for Asphalt and Impacted Soil Remediation;
- 05/09/2008: bp submitted to Illinois EPA the Site-Wide Class II Groundwater Demonstration;
- 11/14/2008: bp submitted to Illinois EPA an Underground Piping Investigation Work Plan (UPI/WP) Revision 1;
- 03/24/2009: bp submitted to Illinois EPA revisions (updated Figure 4) to the UPI/WP, Revision 1 via email;
  - 04/13/2009: Illinois EPA response letter to the November 14, 2008 and March 24, 2009 submittals;
- 05/27/2009: bp submitted to Illinois EPA revisions (updates to Section 3.3) to the UPI/WP, Revision 1;
  - 07/06/2009: Illinois EPA approved the November 2008 UPI/WP, Revision 1;
- 04/2010: bp submitted to Illinois EPA the Site-Wide Geology Report;
- 03/04/2011: Illinois EPA renewed the Hazardous Waste Management RCRA Part B Permit (Permit), Main Plant, Wood River, Illinois, ILD980700967. Issued September 30, 1993; renewed March 4, 2011;
- 04/06/2012: bp submitted to Illinois EPA a document entitled Additional Information for Sitewide Class II Groundwater Demonstration; and,
  - 12/17/12: Illinois EPA letter disapproving the Site-Wide Class II Groundwater Demonstration;

F.4.2.1 Area 1 - Northwest Corner

F.4.2.1.1 Chronological List of Documents Submitted to Illinois EPA

- 06/06/2000: bp submitted to Illinois EPA the Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan;
  - 08/15/2000: Illinois EPA partial approval of the Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan;
- 10/30/2000: bp submitted to the Illinois EPA the Land Reuse Investigation (PRS 5 NW Corner) Report and Partial Closure Plan;
- 06/19/2001: bp submitted to Illinois EPA the Revised Land Reuse Investigation (PRS 5 NW Corner) Report and Closure Plan;

- 12/05/2001: Illinois EPA sent No Further Action letter for Northwest Corner Parcel (Area 1);
- 11/07/2002: bp submitted to Illinois EPA the ELUC for Area 1;
  - 01/10/2003: Illinois EPA letter approving the ELUC for Area 1 ;
- 01/27/2003: bp submitted the ELUC as recorded by Madison County for Area 1 to Illinois EPA; and,
  - 03/25/2005: Illinois EPA approval of the Recorded ELUC for Area 1.

F.4.2.1.2 Detailed Description of Unit

Area 1 is a 6.3-acre area known as the Northwest Corner Land Reuse Area, and is situated at the northwest corner of the Main Plant Property and includes portions of PRS 5. Product lines were removed and the tank dikes were leveled and graded at the northwest corner parcel area of PRS 5 in spring 2000. Contouring to direct surface water drainage toward the Main Plant Property was not necessary as the adjacent roadway (Madison Avenue) is at a higher elevation.

Current Corrective Action Activities

Illinois EPA issued a NFA letter for soil and perched groundwater for Area 1 on December 5, 2001.

F.4.2.1.3 Current Groundwater Corrective Action Activities

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.2 Area 2 - Northeast Corner

F.4.2.2.1 Chronological List of Documents Submitted to the Illinois EPA

- 06/06/2000: bp submitted to Illinois EPA the Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan;
  - 08/15/2000: Illinois EPA partial approval of the Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan;
- 09/21/2001: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation Status Report;
- 10/12/2001: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation and Status Report- Letter for Replacement Tables;
- 12/20/2001: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation and Status Report-Addendum 1;
- 01/22/2002: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation and Status Report-Addendum 2;
- 04/05/2002: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation and Status Report-Addendum 3;
  - 06/04/2002: Illinois EPA Comments on Northeast Corner Land Reuse Investigation and Status Report-Addendum 3;
- 05/16/2002: bp submitted to Illinois EPA the Northeast Corner Land Reuse Investigation and Status Report-Addendum 4;

- 07/26/2002: bp submitted to Illinois EPA the Final Response to Illinois EPA Comments on Addendum 3;
    - 08/13/2002: Illinois EPA issued No Further Action letter for the Northeast Corner Parcel (Area 2);
- 01/20/2003: bp submitted to Illinois EPA the ELUC for Area 2;
    - 01/29/2003: Illinois EPA approved the ELUC for Area 2;
- 02/06/2003: bp submitted to Illinois EPA the Recorded ELUC for Area 2;
- 07/15/2003: bp submitted to Illinois EPA the Resolution of Soil Saturation Limit Exceedances in Area 2;
    - 08/11/2003: Illinois EPA approved the Resolution of Soil Saturation Limit Exceedances in Area 2;
- 06/10/2011: bp submitted to Illinois EPA the Draft Revised ELUC for Area 2;
- 05/18/2011: bp submitted to Illinois EPA the RG36 Arsenic Investigation Report;
- 06/10/2011: bp submitted to Illinois EPA the RG36 Arsenic Investigation Report-Addendum;
- 06/10/2011: bp submitted to Illinois EPA the Draft ELUC for the Donation I Parcel within Area 2;
- 08/11/2011: bp submitted to Illinois EPA the revised Draft ELUC for the Donation Parcel I within Area 2;
    - 11/03/2011: Illinois EPA approval letter for the Donation Parcel I within Area 2 ELUC;
- 01/06/2012: bp submitted to Illinois EPA the certified ELUC for the bp retained parcel within Donation Parcel I within Area 2;
    - 02/27/2012: Illinois EPA approved the Area 2 ELUC for the Donation I Parcel;
- 01/06/2012: bp submitted to Illinois EPA the certified ELUC for Donation Parcel I within Area 2;
    - 03/13/2012: Illinois EPA approved the Area 2 ELUC for the Donation Parcel I;
- 02/25/2016: bp submitted to Illinois EPA the Area 2 Donation Parcel II – Vapor Intrusion Report and Boundary Approval Request;
- 11/22/2016: bp submitted to Illinois EPA the Area 2 Class 2 Permit Modification Request;
    - 02/28/2017: Illinois EPA conditional approval of the Area 2 Class 2 Permit Modification Request; and,
- 12/20/2016: bp submitted to Illinois EPA the summary of the December 8, 2016, Public Meeting for the Area 2 Class 2 Permit Modification.

F.4.2.2.2 Detailed Description of Unit

Area 2 is a 43.17-acre of the Main Plant Property that consisted of petroleum storage; however, no refinery operations were conducted at this location. The entire area encompassing and including Donation Parcels I and II was investigated and the results reported in the "Northeast Corner (Area 2) Land Reuse Investigation and Status Report" prepared by URS in September 2001.

Investigation activities were conducted in March 2001, in accordance with the June 2000 *Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan* (approved August 2000), and with Illinois' TACO regulations (35 IAC 742).

Current Corrective Action Activities

Illinois EPA issued an NFA letter for soil and perched groundwater for Area 2 on August 13, 2002.

F.4.2.2.3 Current Groundwater Corrective Action Activities

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.3 Area 3 - North Central Area, SWMU 24/SWMU 26

F.4.2.3.1 Chronological List of Documents Submitted to Illinois EPA

- 09/03/1998: Illinois EPA issued Violation Notice M-1998-00104;
- 06/03/2002: bp submitted to Illinois EPA the Area 3 Current Conditions Report/Characterization Work Plan (CCR/WP);
    - 09/27/2002: Illinois EPA approved the Area 3 CCR/WP with conditions and modifications;
- 12/22/2006: bp submitted to Illinois EPA the Area 3 Land Reuse Investigation Report and Closure Plan;
    - 03/29/2007: Illinois EPA email request for Tier 2 evaluation clarification;
- 07/12/2007: bp submitted to Illinois EPA a Response Letter addressing Illinois EPA concerns from March 29, 2007 and June 22, 2007 Comments;
- 05/08/2012: bp submitted to the Illinois EPA the Area 3 Comprehensive Land Reuse Investigation Report and Remediation Plan;
- 02/12/2013: bp response to Illinois EPA emailed concerns regarding Area 3 Comprehensive Land Reuse Investigation and Remediation Plan;
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
- 03/27/2013: Illinois EPA issued Leaking Underground Storage Tank (LUST) Incident Number 940183;
- 07/15/2013: bp submitted to the Illinois EPA the Site Investigation Completion Report in response to LUST Incident No. 940183;

F.4.2.3.2 Detailed Description of Unit

Area 3 is located in the central section of the Main Plant Property and is approximately 44 acres. Area 3 is bounded on the south by Area 6, on the west by Areas 15 and 16B, on the north by Area 8, and on the east by Areas 2 and 10.

SWMU 24 (Former Finished Slop Oil Tank 70) and SWMU 26 (Former Slop Oil Tanks 189, 190, 845, and 846) are present in Area 3. There are no PRSs in Area 3. The process areas and associated RECs in Area 3 include: (First mode of operations) petroleum refining and processing of heavy oils; (Second mode of operations) processing and distribution of asphalt and fuel oil using underground product pipelines and support of Amoco Petroleum Additives Company (APAC) operations.

SWMU 24 is former Finished Slop Oil Tank 70, which had a capacity of approximately 282,000 gallons. Tank 70 was used for storage of boiler fuel and for emergency storage of No. 6 fuel oil in the event of natural gas shortages. Tank 70 was installed between 1971 and 1979 and removed between 1994 and 2000. PBP slop oil that was generated by APAC during phenols production was blended in Tank 70 and in Tank 657. The PBP slop oil was blended with light polymer from the Polybutene Unit, No. 6 fuel oil, and general slop oil for use as boiler fuel.

SWMU 26 consists of former Slop Oil Tanks 189, 190, 845, and 846. Former Slop Oil Tanks 189 and 190 were used for storage of slop oil generated from the American Petroleum Institute (API) Separator located west of Area 3. Former Slop Oil Tanks 845 and 846 were utilized for storage of slop oil that met specifications for boiler fuel or for sale. Tanks 189 and 190 were installed between 1971 and 1979, while tanks 845 and 846 were installed between 1991 and 1994. The SWMU 26 tanks were removed between 1994 and 2000.

General slop oils were used in fuel oil blends for the Power Station. Slop oil was placed in the slop oil tanks through piping or by vacuum trucks that were filled from the API Separator located west of Area 3. The slop oil was unloaded from the vacuum trucks through a strainer and pumped into Slop Oil Tanks 189 and 190. The slop oil that met specifications for boiler fuel or for sale was transferred to Tanks 70, 845, or 846.

Tank 209 was present at SWMU 26 from as early as 1937 and was removed sometime prior to 1971.

Six process areas were identified in Area 3 during the first mode of operation: Crude Oil Distillation Areas; Propane Dewaxing Area; Heavy Oils Finishing Area; Heavy Oils Storage and Filling Area; Power Station Area; and, Work Shops Area.

Area 3 was divided into the following five process areas for the second mode of operation: Asphalt Plant Area; Caustic Tanks Area; Distribution Area; Power Station Area; and, Railroad and Truck Loading/Unloading Racks Area.

The refining process began in the Crude Oil Distillation Areas where crude oil was processed by distillation and thermal cracking to break it down into distilled petroleum products. The Crude Oil Distillation Areas produced gases, gasoline, naphtha, kerosene, diesel, gas oils, asphalt, and heavy oils. The heavy oils were processed in Area 3. The light oils were processed in other areas of the refinery, not Area 3.

The heavy oils were transferred to the Propane Dewaxing Area where waxes were removed and lubricating oils were produced. The distilled products were then cleaned at the Heavy Oils Finishing Area using various acids. The finished products, such as lubricating oils and heavy greases, were transferred to the Heavy Oils Storage and Filling Area for packaging and distribution. The Power Station and the Work Shops Areas supported the Area 3 processes.

Investigation/Remediation Efforts

A Phase I RFI was performed at 21 Main Plant SWMUs, including SWMUs 24 and 26 in Area 3, in 1994 through 1996. SWMU 24 and SWMU 26 are located within Area 3 and were investigated during the RFI.

The 1995 Phase I RFI including advancing six soil borings at SWMUs 24 and 26. The soil borings were advanced to a maximum depth of 35 feet below ground surface (bgs). The soil borings were screened using a photoionization detector (PID), and soil samples were collected from each location based on headspace readings and visual observations.

Seven soil samples were collected at SWMU 24 and SWMU 26 during the Phase I RFI. The Illinois EPA approval letter for the Main Plant Phase I RFI required a Phase II shallow soils investigation for SWMU 24. No further investigation was required at SWMU 26. The additional soil borings were advanced during subsequent investigations.

A field screening investigation was performed by bp at the Main Plant from November 2002 to July 2003 to obtain qualitative results of soil samples to facilitate redevelopment decisions. Soil samples were collected at approximate depths of 3 to 8 feet bgs. Soil samples were field screened for lead, carcinogenic polycyclic aromatic hydrocarbons (cPAHs), and volatile organic compounds (VOCs). Lead screening analyses were performed using an X-ray fluorescence (XRF) meter, cPAHs were analyzed using immunoassay kits, VOCs were analyzed using a PID, and benzene was screened using Draeger tubes.

A total of 88 field screening borings in Area 3; analytical soil samples were collected from seven of the soil borings.

The soil and groundwater sampling activities conducted from 2006 through 2011 during the LRI activities are discussed below.

Seventy-eight borings were advanced in August through October 2006, at depths from 4 to 30 feet bgs. Twenty-one additional soil borings were advanced from October to November 2006 for supplemental and/or delineation purposes. A total of 127 soil samples (including 10 field duplicates) were collected during the 2006 soil sampling events.

bp advanced 39 soil borings to delineate the vertical and horizontal extents of impact from previous soil investigations during October through November 2009. Nineteen soil borings were advanced to address the previously identified elevated lower explosive limit (LEL) readings during sampling activities in 2006. Twelve of these additional soil borings were advanced in order to collect physical samples and to log deeper geology for cross-sections. In addition, 8 soil borings were advanced for supplemental and/or delineation purposes. Sixty-six soil samples (including field duplicates) were collected from the soil borings

Three monitoring wells were installed in June and July 2010. An attempt was made to install a fourth well; however, due to refusals, this well was not installed. Perched wells were sampled and analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX), PAHs, and total and dissolved metals in July 2010.

bp conducted a physical soil investigation at the Main Plant in 2010 for the purpose of developing site-specific Tier 2 Remediation Objectives (ROs) in accordance with TACO, 35 IAC 742. Additional borings were advanced adjacent to previously advanced borings in Area 3 to collect either physical and/or environmental samples. Three environmental soil samples were collected from these borings and analyzed for BTEX and PAHs.

bp conducted an investigation of the underground product pipelines in Area 3 from September 16, 2010 to June 9, 2011. Soil borings were advanced to identify and evaluate potential releases or previous impacted locations due to underground product pipelines.

Current Corrective Action Activities

In 2018, LRI activities commenced to further delineate the Area 3 Remediation Areas ([RAs], RA01 through RA03) identified based on the results of previous investigations. Soil samples were collected from 16 locations in RA01 for benzo(a)pyrene. Soil samples were collected from two locations for physical soil analyses including: organic carbon content, moisture content, sieve analysis, particle density, bulk density, total soil porosity, air-filled soil porosity, and water-filled soil porosity.

Soil samples were collected and analyzed from ten locations in RA02 for benzo(a)pyrene. Two of the ten

locations were also analyzed for physical soil parameters analyses including: organic carbon content, moisture content, sieve analysis, particle density, bulk density, total soil porosity, air-filled soil porosity, and water-filled soil porosity. Soil samples were collected from seven locations in RA03 for total and Toxicity Characteristic Leaching Procedure (TCLP) lead.

The field activities and results for all investigations will be summarized in the forthcoming Area 3 Comprehensive LRI Report.

bp currently operates a Pilot-Scale Biovent System in Area 3; additional information is contained in **Exhibit F-1**.

F.4.2.3.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.4 Area 4 - Former Rail Yard

F.4.2.4.1 Chronological List of Documents Submitted to the Illinois EPA

- 11/30/2001: bp submitted to Illinois EPA the Area 4 Current Conditions Report/Characterization Work Plan;
  - 02/10/2002: Illinois EPA conditionally approved the Area 4 CCR/WP;
- 03/25/2002: bp submitted responses to Illinois EPA comments on Area 4 CCR/WP;
- 10/04/2002: bp submitted to Illinois EPA the Area 4 Land Reuse Investigation Report and Closure Plan;
  - 01/08/2003: Illinois EPA comments on the Area 4 LRI Report and Closure Plan;
- 5/30/2003: bp submitted responses to Illinois EPA comments on the Area 4 LRI Report and Closure Plan;
  - 08/22/2003: Illinois EPA issued a No Further Action letter for Area 4, subject to conditions;
- 07/16/2004: bp submitted to Illinois EPA the Area 4 Removal of TCLP and Total Lead Impacted Soils documentation;
- 01/24/2005: bp submitted to Illinois EPA a draft ELUC for Area 4;
  - 06/01/2005: Illinois EPA approved the draft ELUC for Area 4
- 07/29/2005: bp submitted to the Illinois EPA the Recorded ELUC for Area 4
  - 09/29/2005: Illinois EPA approved the Recorded ELUC for Area 4

F.4.2.4.2 Detailed Description of Unit

The former rail yard area is located along the bp Main Plant western property boundary and runs northwest to southeast and curves east at the south end of the bp Main Plant Property. Area 4 is approximately 26.3 acres in size. The rail yard area was divided into seven RECs based on historical use:

- The Rail Car Storage Areas (including northern and southern);
- SWMU 13 (the API Separator Sludge Landfarm);
- SWMU 21 (the Former APAC Waste Transfer Area);
- SWMU 33 (the SFP);
- The area east of the southern Rail Car Storage Area;

- The Former Rail Car Maintenance Area; and
- The Overflow basin for Spray Pond 3.

Current Corrective Action Activities

Illinois EPA issued a NFA letter for soil and perched groundwater for Area 4 on August 22, 2003.

F.4.2.4.3 Current Groundwater Corrective Action Activities

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.5 Area 5 - South Central Area

F.4.2.5.1 Chronological List of Documents Submitted to the Illinois EPA

- 07/03/2002: bp submitted to Illinois EPA the Area 5 Current Conditions Report/Characterization Work Plan (CCR/WP);
- 12/22/2006: bp submitted to Illinois EPA the Area 5 Land Reuse Investigation Report and Closure Plan;
    - 03/29/2007: Illinois EPA email request for Tier 2 evaluation clarification;
    - 06/22/2007: Illinois EPA response letter providing comments regarding the Tier 2 evaluation, perched groundwater, and Class II groundwater demonstration;
- 07/12/2007: bp submitted to Illinois EPA a Response to the Illinois EPA March 29, 2007 Comments;
- 11/30/2007: bp submitted to Illinois EPA a Response Letter to address the Illinois EPA June 22, 2007 comments;
- 03/05/2008: bp submitted to Illinois EPA a Revised Area 5 Land Reuse Investigation Report and Closure Plan;
    - 07/11/2008: Illinois EPA emailed comments regarding soil and perched groundwater;
- 10/24/2008: bp submitted to Illinois EPA responses to the Illinois EPA July 11, 2008 email comments;
    - 01/30/2009: Illinois EPA response letter with several conditions/comments to be addressed before a NFA determination can be made for soil and perched groundwater;
- 12/28/2011: bp submitted to Illinois EPA the Area 5 Comprehensive Land Reuse Investigation Report and Remediation Plan and Response to Illinois EPA Comments; and,
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 5 LRI environmental sampling performed in 2018-2019.

F.4.2.5.2 Detailed Description of Unit

Area 5 is located within the south-central area of the Main Plant Property and is referenced as the South Central Area in the Permit. Area 5 is approximately 38 acres. Amoco conducted operations at Area 5 from at least 1937 to 1981.

Area 5 is bounded on the south by Areas 4, 11 and 18, on the west by Area 4, on the north by Area 6, and on the east by Areas 10 and 12. The RECs in Area 5 include SWMU 27, PRS 3, former aboveground storage tanks (ASTs) and underground product pipelines, former Union Tank Car Area, Number 2 Fluid Catalytic Unit Area, and the Number 5 Pipe Still Area.

The RECs in Area 5 include SWMU 27, PRS 3, former ASTs and underground product pipelines, former Union Tank Car Area, Number 2 Fluid Catalytic Unit Area and the Number 5 Pipe Still Area.

The ASTs, pipelines, and pump house were used to manage petroleum products such as gasoline and crude oil. The ASTs and pump houses were removed from Area 5 between 1981 and 1994. It is estimated that at least 10 percent (%) of the remaining underground product pipelines in Area 5 were removed in 2002 and 2003.

Additional investigation of underground piping in this area was conducted in 2009 and 2010 to determine the potential of a spills from pipelines in this area.

Historical Investigation/Remediation Efforts

In 1995, Phase 1 RFI baseline soil sampling was conducted at five soil borings adjacent to the former AST locations and SWMU 27.

In 2002 through 2003, soil sampling was conducted at 12 soil borings as part of a Field Screening Investigation.

In August through November 2006, soil sampling was conducted at 58 additional soil borings as part of the LRI to investigate the potential impacts and in Area 5, and to identify the boundaries for barriers or remediation. Additionally, two perched groundwater wells were installed to evaluate the presence of light non-aqueous phase liquid (LNAPL).

In July 2007, a confirmation sample was collected to confirm the removal of asphalt impacted soil during asphalt removal activities.

In 2007, eight perched groundwater wells were installed and sampled to evaluate the perched groundwater.

In October through December 2008, bp conducted additional soil sampling of 124 soil samples from 61 soil borings and perched groundwater sampling at 10 perched groundwater wells to delineate impacts identified in Area 5.

In June 2009, soil sampling was conducted at 15 soil borings for further delineation. In July 2009, bp conducted a physical soil investigation of 15 samples from 5 borings.

In July 2010, 56 soil samples were collected from 17 soil borings at an underground product pipeline to evaluate a potential release from underground piping. An additional 102 locations were investigated and 67 additional soil samples were collected as part of additional investigation through January 2011.

bp conducted perched groundwater investigation activities from 2010 until 2011 to further delineate soil/perched groundwater impacts and to confirm the presence of potential LNAPL.

Current Corrective Action Activities

In 2018, LRI activities commenced to further delineate the Area 5 RAs (RA01 through RA05) identified based on the results of previous investigations.

Soil samples were collected from 5 locations in RA01 for total arsenic. Soil samples were collected from 63 locations in RA02 for PAHs. Perched groundwater samples were collected from 12 locations. Soil samples were collected from 11 locations in RA03 for total and TCLP lead. Soil samples were collected from five locations in RA04 for total xylene, ethylbenzene, and Fraction of Organic Carbon (FOC). Soil samples were collected from five locations in RA05 for xylenes and FOC.

The field activities and results for all LRIs will be summarized in the forthcoming Area 5 Comprehensive LRI Report.

bp currently operates a Pilot-Scale Biosparge/Biovent System in Area 5; additional information is contained in **Exhibit F-1**.

F.4.2.5.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.6 Area 6 - Former APAC Area, SWMUs 17, 18, 22, 23, 31 and 36

F.4.2.6.1 Chronological List of Documents Submitted to the Illinois EPA

- 06/28/2002: bp submitted to Illinois EPA the Area 6 Current Conditions Report/Characterization Work Plan (CCR/WP);
    - 09/05/2002: Illinois EPA approval letter for the Area 6 CCR/WP;
- 12/22/2006: bp submitted to Illinois EPA the Area 6 Land Reuse Investigation Report and Closure Plan;
    - 03/29/2007: Illinois EPA requested clarification regarding the Tier 2 risk evaluation included in the Area 6 Land Reuse Investigation Report and Closure Plan;
- 07/12/2007: bp submitted to Illinois EPA the requested Tier 2 evaluation revisions to the Area 6 LRI and Closure Report;
    - 07/11/2008: Illinois EPA sent draft comments via email concerning additional soil and perched groundwater investigation necessary in Area 6;
- 01/08/2009: bp submitted to Illinois EPA responses to the July 11, 2008 comments which included a Supplemental Investigation Work Plan (SIWP);
    - 09/2009: Illinois EPA sent draft comments regarding the Area 6 SIWP;
- 02/24/2010: Illinois EPA provided final comments to the Area 6 LRI Report and Closure Plan and the Area 6 SIWP;
- 03/03/2012: bp submitted to the Illinois EPA the Area 6 Comprehensive Land Reuse Investigation Report and response to the February 24, 2010 Illinois EPA comments; and,
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 6 LRI environmental sampling performed in 2018-2019.

F.4.2.6.2 Detailed Description of Unit

Area 6 is approximately 55 acres and was operated from at least 1957 to 1996, based on reviews of

historical orthophotographs. Area 6 is bounded on the north by Areas 3 and 16B, on the east by Area 10, on the south by Area 5, and on the west by Area 4. Approximately 250 ASTs containing at least 31 different products were present in Area 6 at some point during this time period. Railroad tracks with and without loading racks were present at the northern and southern boundaries of Area 6, presumably to facilitate product and equipment transport to and from this area.

Area 6 had two modes of operation. The first mode of operation occurred from at least 1937 until 1957 and primarily included petroleum blending, storage, and transport processes. The second mode of operation occurred from 1957 until 1996 and primarily included additive processing as part of APAC operations.

SWMUs 17, 18, 22, 23, 31 and 36 are present in Area 6. There are no PRS in Area 6. The following RECs were identified during the first mode of operation: ASTs, pump houses, pits, railroad tracks and loading/unloading areas, pipe and pressure stills, and underground product pipelines.

Descriptions of each process area in Area 6 during the first mode of operations, including the RECs identified within each, are as follows:

- The Compound House Area was located at the northern border of Area 6 between 1937 and 1996, and included, the Compound House, the Union Tank Car Company Shop, storage facilities, three pits, numerous ASTs, a shop, and five pump houses.

- The Barrel House Area was located within Area 6 between at least 1937 and 1984, and included the Barrel House, Filled Grease Storage, Empty Barrel Storage, the Laboratory and Process Office, two pump houses, one separator box, the No. 12 Clay Wash Pipe Still and the No. 11 Sludge Pipe Still. These buildings were constructed prior to 1937. Barrels, cans, and 5-gallon buckets were filled in this area.

- The Southwest Storage Area was located within Area 6 between at least 1937 and 1957. The western portion of the Storage Area included numerous railroad tracks and undeveloped land. The eastern portion of this area included Pipe Stills Nos. 10, 13, and 14; a Chlorextraction Plant; the No. 1 Clay Filter Plant; the No. 2 Boiler House; the No. 2 Filter Plant; the Press House; three Receiving Houses; separator boxes; a Settling Plant; 11 pump houses; and steam stills.

- The Continuous Pressure Stills were present in the eastern portion of Area 6 between at least 1937 to 1960. The Continuous Pressure Stills used thermal cracking to increase gasoline yield from crude oil by distilling gas oil and fuel oil using high pressure and high temperature. The equipment associated with the Continuous Pressure Stills included pressure vessels, furnaces, pumps, high-pressure piping, and heat exchangers. The Continuous Pressure Stills utilized newer techniques of distilling petroleum, as compared to pipe stills.

The following RECs were identified during the second mode of operation including: ASTs, pump houses, slop pits, additive production/processing units, a pump and compressor pad, Ultraformer unit, and underground product pipelines.

Descriptions of each process area in Area 6 during the second mode of operations, including the RECs identified within each, are as follows:

- Compound House Area: No significant changes from first mode of operation. The Compound House blended additives from the General Additives Plant, Detergent Additives Plant (DAP), and Multipurpose Additives Plant to produce finished products.
- Barrel House Area: No significant changes from first mode of operation. Barrels, cans, and 5-gallon buckets were drummed and filled in the Barrel House, then stored in the Lewis & Clark Warehouse (located adjacent to the Empty Barrel Storage building). Finished product was tested in the Laboratory and Process Office (also known as the Knock Lab) to determine if the product contained the correct percentages of the appropriate additives. Operations ceased in 1984.
- The Continuous Pressure Stills were present until sometime between 1960 and 1971 when the Stills were reportedly dismantled.
    - SWMU 22, the New APAC Waste Transfer Area, began operations on April 1, 1992. Three, 15 cubic yard roll-off boxes, two for collecting filter cake material from a rotary vacuum drum, and one for collecting oily debris, and a refuse compactor that received the waste material, were located on top of a concrete pad in this area. The non-hazardous waste was disposed of off-site.
- The Southwest Storage Area was further developed to include:
    - The DAP, the largest production unit at Wood River, had six process sections that produced eleven different base additives. The DAP produced detergents and dispersants which help keep engines free of corrosive deposits, and viscosity index improver, which improves the lubrication ability of oils. Viscosity index improvers converted SAE 5W oil into 5W20 and 5W40 oil. Slop oil was the primary by-product from the DAP operations. The products produced at the DAP were pumped to the Compound House for blending. SWMU 17 and SWMU 18 are located within the DAP area. Specifics on each of the SWMUs are provided below.
        - SWMU 17, the Additives Waste Pit, was located within the DAP area, north of the DAP building and measured 45 feet in length by 30 feet in width by 8 feet in depth. The former waste at this unit included spent filter material, oil, and possibly off-specification additive waste consisting primarily of calcium sulfonates and calcium phenates. The unit ceased operation prior to 1981, and all waste were excavated and disposed of off-site.
        - SWMU 18, the DAP Spent Filter Cake Storage Area, was located north of the DAP building. The unit consisted of a concrete container storage pad covering approximately 100 square feet and roll-off boxes that accepted spent filter cake material composed of approximately 50% diatomaceous earth and approximately 50% lubrication oil additives. The lubrication oil additives consisted primarily of calcium sulfonate and Mannich dispersants. The spent filter cake waste was generated from a rotary drum which was used to filter products. Up to 5,000 cubic yards of material were generated annually. This unit ceased operation after June 1993.

    - The Multipurpose Additives Plant (MAP) Area had approximately 70 storage tanks which handled both raw materials and finished product. Raw materials generally arrived in this area by tank car or tank truck. These products were blended at the Compound House to produce the various additive packages. SWMU 23 and SWMU 36 are located within the MAP area. Specifics on each of the SWMUs are provided below.
        - SWMU 23, the MAP Spent Filter Cake Storage Area, was located north of the MAP building. The unit consisted of three asphalt/concrete pads (one measuring 10

feet by 100 feet; two measuring 10 feet by 50 feet) and 5 to 10 logger boxes, each with a capacity of 3 to 5 cubic yards. The waste was spent filter cake material from a rotary vacuum used to filter products. The composition of the spent filter cake was approximately 50% diatomaceous earth and 50% zinc dithiophosphate and phenates.

- SWMU 36, the MAP Liquid Waste Collection Bin, was used to contain waste oil that was collected as a part of the quality assurance/quality control of incoming pipelines. The unit is located approximately 100 feet west of SMWU.

- General Additives Plant Area consisted of the 100, 200, and 800 sections. The 100 section produced three polybutyl and polypropyl phenol products. The 200 section produced three different alkylates and benzene. These products were feed stocks for the MAP and DAP process areas, and they were used in the production of dispersants and detergents (surfactants). The 800 section, which began operations in 1990, removed the benzene from water allowing Amoco to comply with USEPA requirements.
  - SWMU 31: Waste Phenol Accumulation Area, was located southwest of a hazardous waste drum staging area and within the General Additives Plant Area.

- B-Section/Ultraformer Area contained a Shop Area, Office building, Compressor Building, B-Section Building, a furnace, a Scaffold Building, Catalyst Storage Building, a Control Building, a Pump and Compressor Pad, and the Ultraformer. The B-Section/Ultraformer accepted heavy virgin naphtha from the No. 5 Pipe Still located in Area 5 and reformed it into an Ultraformer unit built in 1955. Ultraforming is a catalytic reforming process that prevents interruption of process flow while regenerating reactors. The streams resulting from ultraforming were fractionated to produce highly refined, low sulfur naphthas which were eventually sold to industries for use as solvents. This area operated until at least 1979.

Investigation/Remediation Efforts

A Phase I RFI was performed at SWMUs 17, 18, 22 and 31 in 1994 and 1995. A Phase I RFI was conducted in 1997 at SWMU 23. The 1995 Phase I RFI included advancing nine soil borings at SWMUs 17, 22 and 31. Four soil borings were advanced at SWMU 23. Samples were not collected at SWMU 36 because the surficially stained soils were removed and corrective measures were taken to prevent future spills.

The soil borings were advanced to a maximum depth of 35 feet bgs. A total of 15 samples were collected during the Phase I RFIs at these SWMUs and were submitted for modified Skinner List analyses for semi-volatile organic compounds (SVOCs), VOCs, inorganic chloride and sulfate, and metals. Three soil samples were collected at SWMU 17, four samples were collected at SWMU 22, three samples were collected at SWMU 31 and five samples were collected at SWMU 23.

The Illinois EPA approval letter for the Main Plant Phase I RFI required a Phase II RFI for shallow soils investigation for SWMU 22 and SWMU 31.

A field screening investigation was performed by bp at the Main Plant from November 2002 to July 2003 to obtain qualitative results of soil samples to facilitate redevelopment decisions. Soil samples were field screened for lead, cPAHs, and VOCs. Lead screening analyses were performed using an XRF meter; cPAHs were analyzed using immunoassay kits, VOCs were analyzed using a PID, and benzene was screened using Draeger tubes. A total of 76 field screening borings were advanced in Area 6. Field screening soil samples

were generally collected from depths of 3 and 8 feet bgs at each of the boring locations. Analytical soil samples were only collected from 11 of the soil borings. Laboratory confirmation samples were collected at a frequency of approximately one per ten field screening samples.

In August through October 2006, 101 soil borings were advanced in Area 6. These borings included both biased borings and systematic grid borings for delineation and deeper geology. The total depths of the 2006 soil borings ranged from 6.5 to 30 feet bgs. One hundred and thirty-four soil samples (including field duplicates) were collected from the 2006 soil borings.

Wet soil layers, indicative of water-in-fill material were encountered within 40 out of 121 soil borings in Area 6. Indications of potential LNAPL was encountered at 15 soil boring locations in Area 6 during the 2006 sampling events. Three perched monitoring wells were installed in October 2006 to evaluate for the presence of LNAPL and/or to characterize potential perched water. These wells were sampled for BTEX, PAHs, and metals in October-November 2006. Twenty supplemental borings were advanced for delineation purposes in October-November 2006. These borings were advanced from 3 to 10 feet bgs. Fifteen soil samples were collected and analyzed from these 20 soil borings.

Due to the presence of the wet zones identified in soil borings advanced in 2006, a total of fourteen (14) perched wells were installed in September 2007. Eleven perched wells were installed adjacent to soil borings. Due to indications of potential LNAPL identified in a perched well, three additional wells were installed in order to delineate potential LNAPL. Field activities, including fluid level measurements and sampling were conducted from September 2007 through December 2007 for the perched groundwater wells. Indications of potential LNAPL were observed in perched wells during fluid measurements. As such, additional soil borings were advanced to delineate potential LNAPL, in October 2007. Analytical samples were not collected and analyzed from these 18 borings because they were advanced only to visually identify potential LNAPL.

bp advanced 14 additional soil borings in December 2008. Twelve of the borings were advanced to meet designated depths and to confirm elevated LEL readings encountered during initial soil sampling and two borings were advanced to further investigate indications of potential LNAPL or potential residual LNAPL. Twenty-eight soil samples (including field duplicates) were collected and sampled from these soil borings.

bp advanced 76 additional soil borings in June and July 2009. One-hundred ninety soil samples (including duplicates) were collected and analyzed. bp advanced additional soil borings for the purpose of soil delineation and installed perched groundwater wells to further evaluate perched groundwater observed during the soil boring advancement.

Three perched groundwater monitoring wells were installed in December 2009 to characterize perched groundwater. Field activities, including fluid level measurements, well development, and groundwater sampling were conducted in May 2010. Samples were analyzed for BTEX, PAHs, and metals.

In order to address possible tetraethyl lead (TEL) impacts in the vicinity of the former TEL building and initial soil boring A6BH23, bp advanced nine additional soil borings. These borings are located within the CHA. Sixteen soil samples were collected and analyzed to investigate the potential of surface contamination from TEL tank operations.

Two additional borings were advanced adjacent to previously advanced borings in Area 6 to collect either physical and/or environmental samples. Three environmental soil samples were collected from this boring and analyzed for BTEX and PAHs.

bp conducted a trenching investigation of the underground product pipelines in Area 6 in July-November 2010. Field activities included an electromagnetic (EM) survey and comparison of identified anomalies to historical facility maps, a trenching investigation at 125 test pit locations of suspected or found underground product pipelines to minimize a future risk of contamination from potential product or residues in pipes and to investigate for potential past releases, and a soil boring investigation, including drilling eight soil borings at locations of former underground product pipelines, to investigate for potential past releases. Soil borings were advanced to identify and evaluate potential releases or previous impacted locations due to underground product pipelines.

A total of 133 analytical soil samples, including ten field duplicate samples, were collected from the pipe excavation trenches. At least one soil sample was collected from each of the excavations where a product pipeline(s) was found.

Additional underground product pipeline boring locations were selected based on review of the previous investigations. Eight additional soil borings were advanced in Area 6 from October-November 2010 to fill data gaps along historical underground product pipeline alignments. A total of 29 soil samples were collected and analyzed during the 2010 soil borings underground piping investigation. The samples were analyzed for BTEX, PAHs, metals, and pH.

bp advanced 28 additional soil borings from August -November 2010. A total of 84 soil samples were collected to characterize potentially impacted soils at these locations. Six perched groundwater monitoring wells were installed in Area 6 in November 2010 to evaluate possible impacts to perched groundwater. These six wells were dry upon completion and were not sampled.

Current Corrective Action Activities

In 2018, LRI activities commenced to further delineate the Area 6 RAs (RA01 through RA05) identified based on the results of previous investigations. No samples were collected from the previously identified RA06 as the historical samples were collected from the smear zone, and therefore do not represent soil conditions. Additional groundwater gauging of perched groundwater monitoring wells was conducted to evaluate historically identified RA07 (presence of LNAPL).

Soil samples were collected from 14 locations in RA01. Thirteen locations were analyzed for benzo(a)pyrene and dibenzo(a,h)anthracene. Twelve locations were analyzed for total arsenic. Soil samples were collected from seven locations in RA02 and analyzed for benzo(a)pyrene. Soil samples were collected from 12 locations in RA03. All locations were analyzed for benzene, toluene, ethylbenzene, and total xylenes. Soil samples were collected from five locations in RA04 for benzene, toluene, ethylbenzene, and total xylenes. Soil samples were collected from six locations in RA05 for total xylenes.

The field activities and results for all LRIs will be summarized in the forthcoming Area 6 Comprehensive LRI Report.

In 2019-2020, bp expanded the Pilot-Scale Biosparge/Biovent System in Area 5 into Area 6; additional information is contained in **Exhibit F-1**.

F.4.2.6.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.7 Area 7 - Former Alkyl Plant/Area 8 - North Tank Farm

F.4.2.7.1 Chronological List of Documents Submitted to the Illinois EPA

- 04/12/2002: bp submitted to Illinois EPA the Response and Compliance Commitment Agreement (CCA) for Violation Notice M-2002-01001;
- 09/13/2002: bp submitted to Illinois EPA the Remedial Action Completion Report (RACR);
- 05/29/2003: bp submitted to Illinois EPA the Area 7/8 Current Conditions Report/Characterization Work Plan";
    - 08/07/03: Illinois EPA approved the Area 7/8 CCR/WP;
- 06/02/2008: bp submitted to the Illinois EPA the Area 7/8 Land Reuse Investigation Report and Closure Plan;
- 06/15/2007: bp submitted to Illinois EPA the Response to Illinois EPA Incident Inquiry Letter, dated May 16, 2007, for incidents 20070605 and 20070606;
    - 08/13/2007: Illinois EPA sent a letter stating that releases should be identified as RECs;
- 06/02/2008: bp submitted to Illinois EPA the Response to Illinois EPA comments dated August 13, 2007 for incidents 20070605 and 20070606;
- 12/13/2012: bp submitted to the Illinois EPA the Area 7-8 Land Reuse Investigation Report and Remediation Plan; and,
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 7/8 LRI environmental sampling performed in 2017-2018.

F.4.2.7.2 Detailed Description of Unit

Area 7 and Area 8 (Area 7/8) is located in the north-central area of the Main Plant Property.

Area 8 is located in the northern portion of the Main Plant Property and is approximately 62 acres. Area 8 is bounded on the south by Areas 2, 3 and 15, on the west by Area 1, Area 16, and Alton-St. Louis Road, on the north by Area 1 and Madison Avenue, and on the east by Area 2. Area 8 was operated as a refining, blending, distillation, and storage site from at least 1937 to 1981. SWMUs 8 and 25, and PRSs 2 and 5 are located within Area 8.

Area 7 is approximately 3 acres in size and is located within the eastern section of Area 8. Area 7 was operated as the Alkylation Plant from at least 1937 to 1981. Area 7 is located within PRS 5.

The RECs in Area 7/8 include ASTs, pump houses, receiving houses, balloon houses, underground product piping, crude oil batteries, pipe stills, continuous pressure stills, transformers, filling stations, a pit associated with the East Non-Process area, SWMUs, PRSs, and documented release locations.

The process areas, non-process areas, and associated RECs listed above were evaluated during investigations conducted through 2011. Investigation and remediation activities have involved underground product pipeline removal as well as field screening and sampling of soils and perched

groundwater.

Historical Investigation/Remediation Efforts

In March 1995, bp conducted a Phase I RFI to sample the soil adjacent to SWMU8 and SWMU25. 7 soil samples were collected from 7 soil borings.

A leak was discovered on the High Sulfur (HS) #2 fuel oil transfer pipe at bp Marketing Terminal former Tank 184, which is located within Area 8, on December 15, 2001 (Incident H-2001-2051). In response, approximately 15 cubic yards of impacted soil were removed on February 12, 2002 from the spill area.

In March through May 2002, bp collected soil sampling for hydrocarbon fingerprinting analysis before and after excavation of surface soil in the vicinity of Tank 184 as part of the Tank 184 Release Investigation. 17 soil samples were collected from 8 soil borings for fingerprint analysis.

Upon completion of the Tank 184 Release Investigation, bp submitted to the Illinois EPA, the "Response and Compliance Commitment Agreement (CCA) for Violation Notice M-2002-01001 on April 12, 2002.

bp submitted the Remedial Action Completion Report on September 13, 2002, stating the soil below the base of the excavation (i.e., one to two feet deep) did not contain hydrocarbon from a recent release and that the impacted soil from the December 2001 incident had successfully been removed.

The Illinois EPA response letter to the RACR on January 16, 2003, stated that contamination still remains in the area where the release occurred and that further evaluation of Release Incident No. H-2001-2051 could be suspended until the North Tank Farm (Area 8) is evaluated under the corrective action requirements of the subject facility's RCRA permit.

In March through July 2003, bp conducted a soil field screening investigation of 78 borings as part of the 2003 Field Screening Investigation to obtain qualitative information to further delineate Area 7/8 soils. 18 soil samples were collected, and 78 soil borings were screened.

From November 2001 through September 2006, 3 soil borings soil borings were sampled, and 5 soil samples were collected within Area 8 as part of the Area 3 and Area 15 LRI.

In May 2007, soil sampling was conducted within Area 8 to investigate the releases associated with Illinois Environmental Management Agency (IEMA) incidents 20070605 and 20070606 in the vicinity of V-100 and RC-29 as part of the Tank V-100 Oil Water Separator (OWS) and HRS well RC-29 Subsurface Investigations. A total of 12 soil samples were collected as part of this investigation.

In March through May 2007, 10 soil samples from 5 soil borings, and 264 soil samples from 117 soil borings were collected in Area 7 and 8, respectively, as part of the 2007 LRI sampling investigation. The samples were collected for initial systematic and biased boring advancements to evaluate potential impacts in Area 7/8 in accordance with approved CCR/WP dated May 29, 2003.

In July through December 2007, 64 soil samples were collected from 48 soil borings as part of the continued 2007 Supplemental Sampling Investigation for confirmation or to further delineate the initial sampling locations.

In August of 2007, 3 perched groundwater wells were installed, and one perched groundwater well was sampled for characterization of potential perched groundwater conditions as part of the Perched Groundwater Investigation. The remaining newly installed perched wells were dry and not sampled.

In June through September 2011, 222 soil samples were collected from 200 locations to investigate the existing underground product pipeline and conduct remedial activities as part of the 2001 Underground Pipeline Soil Borings Investigation.

Trenching excavation activities were conducted at 177 trench locations from June 22, 2011 through September 29, 2011 to remove unused and abandoned product piping within Area 7/8.

Thirteen Current Estimated Remediation Areas (CERAs), CERA-01 through CERA-13 have been identified based on the results of previous investigations.

Current Corrective Action Activities

In 2018, LRI activities commenced to further delineate CERA-01 through CERA-13. Within CERA-01, 18 soil samples were collected from 4 soil borings for toluene and/or xylenes. Within CERA-02, 13 soil samples were collected from 2 soil borings for toluene and/or xylenes. Within CERA-03, 38 soil samples were collected from 17 soil borings for lead. Within CERA-04, 148 soil samples were collected from 52 soil borings for lead. Within CERA-05, 31 soil samples were collected from 7 soil borings for xylenes. Within CERA-06, 33 soil samples were collected from 7 soil borings for xylenes. Within CERA-07, 21 soil samples were collected from 6 soil borings for xylenes. Within CERA-08, 32 soil samples were collected from 7 soil borings for xylenes. Within CERA-09, 30 soil samples were collected from 8 soil borings for xylenes. Within CERA-10, 24 soil samples were collected from 5 soil borings for toluene, xylenes, and ethylbenzene. Within CERA-11, 20 soil samples were collected from 5 soil borings for xylenes. Within CERA-12, 14 soil samples were collected from 4 soil borings for xylenes. Within CERA-13, 40 soil samples were collected from 8 soil borings for xylenes. In total, 462 soil samples were collected from 132 location to further delineate for xylenes, ethylbenzene, toluene, and lead.

The field activities and results for the Area 7/8 LRI will be summarized in the forthcoming Area 7/8 Comprehensive LRI Report.

bp operated a belt skimmer to remove LNAPL from G-12 in Area 8 from March 2021 through November 2023. Since January 2024, bp has operated a belt skimmer to remove LNAPL from LS-1 in Area 8.

bp currently operates a Pilot-Scale Air Sparge/Soil Vapor Extraction system in Area 8. In 2019-2020, bp modified the pilot-scale AS/SVE system in Area 7/8 to treat a larger area to the south, east, and west of the original AS/SVE pilot test area; additional information is contained in **Exhibit F-1**.

F.4.2.7.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.8 Area 9 - Korea Tank Farm, SWMU 30, PRS 8

F.4.2.8.1 Chronological List of Documents Submitted to the Illinois EPA

- 04/30/2002: bp submitted to Illinois EPA the Area 9 Current Conditions Report/Characterization Work Plan (CCR/WP);
    - 09/05/2002: Illinois EPA approved the Area 9 CCR/WP;
- 05/09/2008: bp submitted to Illinois EPA the Area 9 Land Reuse Investigation Report and Closure Plan (superseded by the 12/06/2011 submittal);
    - 06/01/2009: Illinois EPA issued draft comments via email to to address the Area 9 LRI Report;
    - 10/22/2009: Illinois EPA issued draft comments via email regarding groundwater;

- 12/06/2011: bp submitted to Illinois EPA the Area 9 Comprehensive Land Reuse Investigation Report and Remediation Plan; and,
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.

F.4.2.8.2 Detailed Description of Unit

Area 9, the Korea Tank Farm, is located at the northwest portion of the bp Main Plant Property. Area 9 is approximately 8.5 acres and is located in a western out-lot of the bp Main Plant Property in the area also formerly referred to as the Main Office of the Wastewater Treatment Plant (WWTP). Area 9 is bounded on the north by the William M. Bedell Achievement and Resource Center, on the east by Illinois Terminal Railroad, on the south by the Wood River Water Treatment Facility and on the west by South Main Street and Illinois Route 3.

Area 9 was used for storage of petroleum products and raw materials beginning in approximately 1951, when the construction of five ASTs was completed. The ASTs were progressively taken out of commission from 1996 to 2006. Prior to 1951, the area was vacant undeveloped land. The RECs in Area 9 include these five ASTs also referred to as PRS 8, associated underground product pipelines, SWMU 30 (leaded tank bottoms disposal areas), and historical petroleum releases.

Perched groundwater in Area 9 is locally encountered within the near-surface fill materials and also located within a mid-level depth within interbedded silts and clays between approximately 10 to 20 feet bgs. Remedial activities have been conducted to remove LNAPL including sampling and characterization, manual recovery, Enhanced Fluid Recovery (EFR), and automated belt skimming.

Historical Investigation/Remediation Efforts

In 1986, bp sampled soil in Area 9 as part of a Remedial Planning Field Investigation, lead was found in the soil in SWMU 30.

During the 1995 Main Plant Phase I RFI, SWMU 30 and PRS 8 at Area 9 were not investigated.

The Illinois EPA approval letter to the Phase I RFI Report required that bp determine the location of the leaded tank bottom disposal areas at SWMU 30. The Illinois EPA letter also stated that soil and groundwater remediation should be coordinated with the PRS 8 remediation of LNAPL beneath Area 9.

In October 2002, 36 soil borings were advanced, and 45 soil samples were collected for: BTEX, PAHs, metals, and pH. Additionally, 4 perched groundwater wells were installed, and two perched groundwater grab samples were collected for BTEX, PAHs, metals, and pH.

In 2007, an additional 9 perched groundwater wells were installed and 3 were sampled to further investigate wet zones found in soil. The investigation results were submitted in the Area 9 Land Reuse Investigation Report and Closure Plan to Illinois EPA in May 2008.

Due to the possibility that the underground product pipelines located within Area 9 may become active in the future, bp did not complete a trenching investigation at Area 9. However, bp advanced 10 soil borings in the vicinity of the pipelines as part of the underground product pipeline investigation.

bp advanced 13 soil borings in 2009, and collected 46 samples for BTEX, PAH, metals, and pH to further delineate the soil in Area 9.

In June through July 2010, bp conducted additional perched groundwater investigation in Area 9. Twelve perched groundwater wells were installed, and groundwater samples were collected for BTEX, PAHs, metals, and pH to characterize perched groundwater observed in soil borings. LNAPL was identified in several of the perched groundwater wells.

During 2010, 4 borings were advanced, and 5 soil samples were collected as part of a physical soil investigation. In 2011, 5 soil borings were advanced, and 15 soil samples were collected for BTEX, PAHs, metals, and pH for further soil delineation.

Current Corrective Action Activities

In July 2018, Land Reuse Investigation activities commenced to further delineate and investigate Area 9.

One RA (RA01) was identified based on the results of previous investigations. Eleven soil borings were advanced and a total of 40 soil samples were collected and analyzed for benzene and FOC.

An LNAPL Characterization and Delineation investigation was conducted initially investigated via Cone-Penetrometer Testing and Ultra-Violet Optical Screening Tool (CPT-UVOST) methods consistent with previous CPT-ROST screening conducted at the Main Plant. Twenty-six 26 soil boring locations were advanced to delineate LNAPL within Area 9, and one boring location was advanced to delineate east of Area 9 in order to demonstrate separation of Area 9 LNAPL from the Main Plant LNAPL to the east. Based on the findings of the CPT-UVOST investigation, an additional 5 locations were advanced to further investigate/delineate LNAPL in the perched groundwater utilizing a Membrane Interface Probe (MIP).

In April 2019, bp began the installation of 15 monitoring wells (7 nested well pairs and 1 continuous multi-channel tubing well) to further investigate and delineate LNAPL in groundwater. During well installation, 4 soil samples were collected for petro-physical testing (LNAPL fingerprinting; UV photography, soil pore fluid analysis, product mobility analysis, and total petroleum hydrocarbons [TPH] profiling). Additionally, 26 groundwater samples were collected from the newly installed wells and some nearby groundwater monitoring wells for VOCs.

The Area 9 LNAPL Investigation is ongoing and additional soil and groundwater samples may be collected.

bp operated a belt skimmer to remove LNAPL from G-47 in Area 9 from October 2019 through February 2021.

F.4.2.8.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.9 Area 10 - East Tank Farm

F.4.2.9.1 Chronological List of Documents Submitted to the Illinois EPA

- 03/28/2003: bp submitted to Illinois EPA the Area 10 Current Conditions Report/Characterization Work Plan;
- 03/21/2008: bp submitted to Illinois EPA the Area 10 Land Reuse Investigation Report and Closure Plan;

- 05/03/2011: bp submitted to Illinois EPA the Area 10 Comprehensive LRI Report and Remediation Plan;
- 12/20/2019: bp submitted to Illinois EPA the Main Plant Area 10 Comprehensive Land Reuse Investigation Report and Remediation Plan; and,
    - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.

F.4.2.9.2 Detailed Description of Unit

Area 10 is located in the eastern section of the Site, is also known as the East Tank Farm area of the Main Plant Property and encompasses approximately 24.96 acres. The most pronounced features of Area 10 during the course of active operations between at least 1937 and 1981 were 31 ASTs of various sizes. The ASTs, four associated pump houses, and associated product pipelines were used to manage petroleum products including gasoline, crude oil, kerosene, heating oil, and additional petroleum products.

Area 10 is part of the former East Tank Farm, which was constructed prior to 1937. Between 1960 and 1971, six ASTs were removed, and between 1981 and 1991, most of the remaining structures were removed. The area was then cleared of debris. Between 1991 and 1994, the last remaining ASTs were removed. The former pump houses have also been removed. Associated product pipelines in Area 10 were removed during two UPIs, the first of which was completed between 2000 through 2003, and second of which was completed between 2008 and 2010.

The 31 former ASTs, associated product piping, four former pump houses, and the former Experimental Land Treatment Cell (ELTC) were all identified as RECs.

Historical Investigation/Remediation Efforts

In March 1995, bp conducted a Phase I RFI no SWMUs were identified in Area 10, however, the East Tank Farm area was identified as PRS 6.

Amoco submitted a permit application in 1993 for an ELTC to be operated in Area 10 to remediate LUST impacted soil generated from Amoco-owned marketing facilities or service stations. The permit was granted by Illinois EPA in April 1994. The ELTC consisted of approximately two acres of vacant tank dikes (formerly occupied by asphalt storage tanks). Prior to placement of impacted soil, baseline soil sampling was performed at ten locations within the ELTC at depths of 5.5 to 6 feet. The samples were tested for BTEX and PAHs. The baseline samples contained concentrations of benzene and PAHs at levels greater than permit soil cleanup objectives. Approximately 1,150 cubic yards of contaminated soils were transported from an Amoco service station in Springfield, Illinois from July 11 to 14, 1994 to the 1.84-acre ELTC for land treatment. After placement and treatment of the soils, monthly soil sampling was conducted for four months at approximately the same ten locations as the baseline samples. The monthly soil samples were collected from depths of 5.5 feet and were tested for BTEX and PAHs. The results of the land treatment and sampling were reported to the Illinois EPA in May 1995 in the *Soil Recycling Center Experimental Land Treatment Final Report* (Environmental Liability Management, Inc., 1995).

Amoco submitted a Soil Recycling Center Permit Application to the Illinois EPA in July 1995 to change the status of the ELTC from an experimental permit to a permit for development and operation. In November 1995, the Illinois EPA modified the operating permit to approve the removal of the experimental status. However, after use of the ELTC in 1994, the area was never developed or used for soil recycling or land

treatment. The Illinois EPA requested that sampling be conducted in the area of the ELTC in their June 4, 2003 letter approving the Area 10 CCR/WP.

Native prairie plants were planted in Area 10 in 2000 as part of a phytoremediation project. bp conducted a soil investigation in May 2000 as part of a Phytoremediation Baseline Sampling Plan. The baseline sampling included collection of 14 surface soil samples from 0 to 6 inches bgs within Area 10 and were analyzed for TPH by USEPA Method 8015. TPH analytical results ranged from below detection levels to 5,270 milligrams per kilogram (mg/kg). A follow-up investigation was not conducted after the baseline sampling activities.

A field screening investigation was performed by bp at the Main Plant from November 2002 to July 2003 to obtain qualitative results of soil samples to facilitate redevelopment decisions. Soil samples were field screened for lead, cPAHs, and VOCs. Lead screening analyses were performed using an XRF meter, cPAHs were analyzed using immunoassay kits, VOCs were analyzed using a PID, and benzene was screened using Draeger tubes.

Field screening soil samples were generally collected from depths of 3 and 8 feet bgs at each of the boring locations. Laboratory confirmation samples were collected at a frequency of approximately one per ten field screening samples.

54 field screening borings in Area 10 and laboratory analytical confirmation soil samples were collected from 11 of the 54 borings. Three of these 11 sampling locations were located within 20 feet of former underground product pipelines.

bp personnel observed the appearance of asphalt-like material along an aboveground product pipeline corridor near the western boundary of Area 10 during high temperatures in June 2007. bp notified the Illinois EPA in a letter dated June 25, 2007 that they would be conducting removal of asphalt-like materials beneath former aboveground product pipelines in Area 10. The remedial activities extended into Area 5.

Excavation activities were conducted to remove asphalt and impacted soils in Area 10 in July 2007. Two areas were excavated near the western side of Area 10 measuring approximately 475 feet long by 40 feet wide (southern excavation) and 200 feet long by 40 feet wide (northern excavation). Each area was excavated to depths of 1 to 2 feet bgs and backfilled with clean soil.

Twenty-nine soil borings were advanced in Area 10 in April and August 2007. Fifty-four soil samples (including five field duplicates) were collected from the 2007 soil borings. Two perched wells were installed to characterize potential perched groundwater during the 2007 investigation.

Eight biased soil borings were advanced during October and November 2008 within Area 10 in order to horizontally and vertically delineate soil and perched groundwater impacts east of SWMU 27 which is located at the northeast portion of Area 5.

bp advanced 15 soil borings in November 2009 and installed four perched groundwater monitoring wells in 2010 to address the Illinois EPA's comments for the 2008 Area 10 Report. Based on observations of wet soil zones in soil borings completed in November 2009 in response to Illinois EPA June 2009 comments, three, 2-inch diameter perched groundwater monitoring wells were installed in Area 10 in June 2010 to characterize perched groundwater and were found dry upon completion. As such, groundwater samples were not collected or analyzed.

bp conducted an investigation of the underground product pipelines in Area 10 from 2008 through 2010, which included trenching investigation at 50 locations of suspected or found underground product pipelines and 47 soil borings at locations of former underground product pipelines to investigate for potential past releases.

Current Corrective Action Activities

In 2018, LRI activities commenced to further delineate the Area 10 RAs (RA01 through RA07) identified based on the results of previous investigations.

Ten borings were installed in RA01 and were analyzed for benzo(a)pyrene. Seven borings were installed in RA02 and analyzed for benzene and PAHs. Nine borings were installed in RA03 and analyzed for benzene and PAHs. Nine borings were installed within RA04 and were analyzed for benzo(a)pyrene. Eleven borings were installed in RA05 and were analyzed for benzo(a)pyrene. Nine borings were installed within RA06 for benzo(a)pyrene. Nine soil borings were installed within RA07 for total xylenes.

bp submitted the *Main Plant Area 10 2019 Comprehensive Land Re-Use Investigation Report* on December 19, 2019 and is awaiting the results of the Illinois EPA's review.

F.4.2.9.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.10 Area 11 - Spray Pond Area (Ponds 1 & 2/Intake Channel Areas), SWMU 15

F.4.2.10.1 Chronological List of Documents Submitted to the Illinois EPA

- 04/29/2011: bp submitted to Illinois EPA Area 11 Current Conditions Report/Characterization Workplan;
    - 01/24/2012: Illinois EPA response to Area 11 Current Conditions Report/Characterization Workplan

F.4.2.10.2 Detailed Description of Unit

Area 11 is a 22-acre parcel, comprised of Spray Pond 1, Spray Pond 2, the Intake Channel, and the Separator Box (formerly the Separator Ponds) and located in the southwest portion of the Main Plant Property. Area 11 is part of the former Amoco refinery cooling pond complex which also included Spray Pond 3 (Area 19). The refinery did not have a cooling tower; therefore, the purpose of the cooling pond complex was to provide heat transfer for recycling non-contact process cooling water from the Main Plant Property prior to reuse as non-contact process cooling water supply. Area 11 is bordered by Area 18 to the north, Area 12 to the east, and Area 19 to the south and west.

The Spray Ponds, other than the NC-SP1, in Areas 11 and 19 comprise SWMU 15. There are no PRS in Area 11.

The cooling pond complex was built in 1942. Soil borings were performed at the cooling pond complex prior to its construction and generally identified one foot of topsoil over 10 feet of clay. In the center of the cooling pond complex, 13 feet of clay was encountered. The ponds were created by excavating to an average depth of 1.9 feet and constructing the pond dikes using the excavated soil. A 30-foot by 40-foot

concrete overflow structure was constructed along the top of the dike at the southern end of the cooling pond complex in Area 19. The water elevation of the ponds was approximately four feet below the top of the dikes.

During the first mode of operation, which occurred from 1942 until between 1945 and 1960, the cooling pond complex consisted of the following: the Separator Ponds and the Pump House located at the northeast corner of the cooling pond complex, Spray Pond 1, Spray Pond 2, and the Intake Channel. Non-contact process cooling water return from plant process units entered the cooling pond complex at the Separator Ponds. The water from the Separator Ponds was pumped from the Pump House using dedicated pumps through the spray racks in Spray Ponds 1 and 2, which sprayed the water in the air to dissipate the heat. The water in Spray Pond 1 flowed through a 48-inch culvert into the northwest comer of Spray Pond 2. Water flowed from Spray Pond 2 through a 48-inch culvert into the Intake Channel and then to the Pump House. The water was then pumped as cooling water supply back to the plant process units. During refinery operation, approximately 10 to 15 percent of the cooling water supply leaving the ponds was not recovered. Water was lost to the refinery sewer system, to the fire water system, and due to evaporation from the ponds. Make up water, which was a combination of groundwater and water from the Mississippi River, was added to the non-contact process cooling water return.

The second mode of operation for the cooling pond complex occurred from approximately 1960 until the refinery process units were shut down in approximately 1981. The cooling pond complex was modified for the second mode of operation. Spray Pond 1 was divided into the NC-SP1 and Spray Pond 1. Spray Pond 2 was divided into Spray Ponds 2 and 3, and sprayer racks were installed in Spray Pond 3. The Separator Ponds were replaced by the Separator Box which was comprised of four concrete-lined cells. Each cell was separated by a brick wall with openings at the bottom to allow water to flow through the system. The Separator Box functioned to recover floating hydrocarbon that may have entered the non-contact process cooling water return due to unforeseen (non-routine, non-systematic, and non-deliberate) heat exchanger leaks.

During the second mode of operation, non-contact process cooling water return from Main Plant process units (except non-contact process cooling water return from the No. 2 Fluid Catalytic Unit [FCU]) entered the cooling pond complex at the Separator Box. The non-contact process cooling water return (except from the FCU) flowed into the Separator Box to the Pump House and was pumped to the sprayers in Spray Pond 1. Water flowed from Spray Pond 1 through a 72-in. culvert into Spray Pond 2. Water in Spray Pond 2 flowed to the south end of Spray Pond 2 and then through a culvert to the inlet of the Spray Pond 3 pumps, which pumped the water to the Spray Pond 3 sprayers in Area 19. Part of the water in Spray Pond 3 flowed to the Intake Channel and then to the Pump House and part of the water flowed to the northwest comer of Spray Pond 3, where it was pumped to the process units as non-contact process cooling water supply.

The non-contact process cooling water return from the No. 2 FCU entered the cooling pond complex at the northwest comer of the NC-SP1. The non-contact process cooling water return from the No. 2 FCU was mixed with the FCU sour water waste stream. Based on process knowledge, sour water is estimated to have contained approximately 1,000 to 2,000 mg/L of hydrogen sulfide and 1,000 to 4,000 mg/L of ammonia with a pH ranging from 8.5 to 9.5. Dedicated pumps in the Pump House pumped the water from the NC-SP1 to the sprayers in Spray Pond 2. The water in Spray Pond 2 flowed through a culvert at the south end of Spray Pond 2 to the inlet of the Spray Pond 3 pumps.

There were five water supply pumps at the Pump House and five supply pumps at the northwest comer

of Spray Pond 3. All ten pumps normally discharged to a common header. The pressure in the header was held at approximately 50 pounds per square inch (psi) during the summer months and 44 psi during the winter months. The total flow rate from the ten supply pumps was approximately 100,000 gallons per minute (gpm).

Historical Investigation/Remediation Efforts

During the Phase I RFI for SWMU 15, two surface sediment samples and four soil samples were analyzed from Area 11. One surface sediment sample was collected within Spray Pond 2 and one surface sediment sample was collected within the Intake Channel. Four soil samples were collected from soil borings that were advanced near the eastern perimeter of the Intake Channel. The sediment samples were analyzed for a modified Skinner List of VOCs, SVOCs, and metals. The comparisons of soil and sediment analytical results to Tier 1 Soil ROs indicated that concentrations were below Tier 1 Soil ROs. The results and findings of the Phase I RFI performed in SWMU 15 were submitted to the Illinois EPA in the Main Plant Phase I RFI Report. The Illinois EPA approved the Phase I RFI at SWMU 15 in a letter dated June 5, 2001. No further action is required for Spray Ponds 1, 2, and the Intake Channel based upon the Phase I RFI.

Current Corrective Action Activities

bp is preparing to conduct characterization of environmental conditions at Spray Ponds 1 and 2, and the Intake Channel to support preparation of a Current Conditions Report/Land Reuse Investigation Report.

F.4.2.10.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.11 Area 12 - South Tank Farm

F.4.2.11.1 Chronological List of Documents Submitted to the Illinois EPA

- 06/16/2015: bp submitted to IEPA proposed TACO-based Corrective Action – Tank 293 (Area 12);
    - 08/02/2019: Illinois EPA rejected the proposed TACO-based Corrective Action for Tank 293;
- 11/02/2015: bp notified IEPA of the ownership transfer of the bp Wood River Terminal Facility to Kinder Morgan Phoenix Holdings LLC (KMPH);
- 11/06/2015: bp submitted a Class 1* Permit Modification in order to modify the Corrective Action schedule for Area 12 and also to modify the boundaries of Area 12 to reflect the Terminal Facility property boundaries that were to be transferred to KMPH;
    - 05/20/2016: Illinois EPA sent a letter to KMPH and bp outlining the necessary requirements that needed to be completed in order to transfer Area 12 and the associated corrective action responsibilities to KMPH.
- 09/15/2016: bp submitted a Class 1* Permit Modification in order to modify the boundaries of Area 12 to reflect the Terminal Facility property that was transferred to KMPH and to modify the Corrective Action requirements applicable to the property transferred to KMPH.

- 08/02/2019: Illinois EPA submitted a letter response to bp regarding the 2015-2018 Tank 293 Annual Current Conditions Reports and responsibility for the corrective action program for the property transferred to KMPH;
- 10/02/2019: bp submitted a letter acknowledging the 08/02/2019 Illinois EPA letter regarding bp's responsibilities for corrective action and reporting associated with Tank 293;
- 12/20/2019: bp resubmitted the 2016, 2017, and 2018 Tank 293 Current Conditions Reports under bp letterhead, as requested by the Illinois EPA;
    - 08/02/2019: Illinois EPA acknowledged submittal of the reports under general correspondence;
- 02/27/2020: bp submitted to Illinois EPA the 2019 Tank 293 Current Conditions Report under bp letterhead;
- 03/01/2021: bp submitted to Illinois EPA the 2020 Tank 293 Current Conditions Report under bp letterhead;
- 12/23/2021: bp submitted a Class 1* Permit Modification in order to modify the December 20, 2017, Corrective Action cost estimate to include the portion of Area 12 that was transferred to KMPH;
- 03/01/2022: bp submitted to Illinois EPA the 2021 Tank 293 Current Conditions Report under bp letterhead;
- 02/28/2023: bp submitted to Illinois EPA the 2022 Tank 293 Current Conditions Report under bp letterhead;
- 03/01/2024: bp submitted to Illinois EPA the 2023 Tank 293 Current Conditions Report under bp letterhead; and,
- 03/04/2024: Illinois EPA issued a RCRA Corrective Action Permit to Kinder Morgan Liquids Terminals, LLC, effective April 8, 2024.

F.4.2.11.2 Detailed Description of Unit

The majority of Area 12 (118 acres) was transferred to KMPH in February 2016. The parcel of land that was acquired by KMPH only extends downward below the ground surface to an elevation of 408 feet above mean sea level (MSL; approximately 25 ft bgs). bp retains the portion of Area 12 that lies beneath the KMPH vertical parcel, which includes the zone which contains the UMA beneath the entire bp Main Plant Property. KMPH is responsible for RCRA corrective action activities above elevation 408 feet MSL in Area 12 (South Tank Farm) and those portions of the following Areas that were included in the transfer of ownership: 4, 5, 10, 11, 13, 17 and 19 in accordance with the RCRA Corrective Action Permit issued March 4, 2024, with an effective date of April 8, 2024. bp retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 feet MSL.

Area 12 historically contained SWMU 12 and PRS 7. As described in the 1995 RFI for bp's Main Plant property, SWMU-12 contains the following four areas:

- Old Fire Training Area (OFTA);
- Tank Car Dumping Area (TCDA);
- Southeast Corner Disposal Area (SCDA); and
- Cooling Pond Sludge Disposal Area (CPSDA).

However, the SCDA lies outside the boundaries of the KMPH property and is in Land Reuse Area 13. Approximately 21 acres of SWMU-12 lie within the KMPH property boundaries.

PRS 7 consisted mostly of the terminal and active tank farm. Various petroleum products have been stored at the tank farm including, gasoline, crude oil, kerosene, and heating oil. Each of the tanks in the tank farm is surrounded by dikes. The tank farm supported the refinery when it was in operation.

Historical Investigation/Remediation Efforts

The RCRA Facility Assessment (RFA), dated June 1993, recommended that SWMU-12 should be investigated further, including the collection of soil samples, waste samples, possible water samples, and an in-depth characterization of the types, volumes, locations of wastes present in this unit, and a groundwater evaluation. In accordance with the RFA recommendations, a site-wide Main Plant RFI Phase 1 investigation was performed in 1994 and 1995, which included SWMU-12.

The SWMU-12 investigation included 10 soil borings and six monitoring wells.

According to information contained in the 1995 Phase 1 RFI, the OFTA is on the west side of SWMU-12 and may have contained crude oil residues. The TCDA is south of the OFTA and may have contained spent soap, caustic, sour water, and possibly oily sludges. The CPSDA is in the northwest corner of the SWMU-12 where non-hazardous sludge from Spray Ponds Nos. 2 and 3 were placed. South of the CPSDA, asphalt, tank bottoms, oily dirt, spent FCU catalyst, and sour water may have been placed.

According to the 1995 RFI, the period of operation of this SWMU is from the early 1900s to the late 1970s. The 1995 RFI reports that a Marathon Pipeline spill in the area of SWMU-12 was remediated by Marathon immediately following the leak, however, no details as to the location or any other information is given.

The 1995 RFI also reports that sludge, soil and water samples were collected from the SWMU-12 area in 1983, but no references are given to indicate the location of the samples.

Current Corrective Action Activities

In April 2017, KMPH submitted a letter to the IEPA indicating that the transfer of ownership was complete and that KMPH would be submitting a RCRA permit application for Area 12, and asked for the Agency's concurrence on the permit application procedure outlined in the letter.

KMPH submitted a draft RCRA Corrective Action Permit Application in April 2017, and a revised application in October 2017.

Currently, monitoring of the phytoremediation at Tank 293 is conducted semi-annually and the results are reported in an Annual Current Conditions Report submitted to the Illinois EPA by March of the following year.

On December 23, 2022, bp was notified by KMPH via e-mail correspondence that, on December 23, 2022, KMPH personnel became aware of a gasoline release from Tank 268 (located to the northwest of Tank 293) at the KMPH Wood River Terminal due to a line leak during sub-zero temperatures. The location of the gasoline release, estimated to be 11,600 barrels, was reportedly within the Tank 107 dike (located to the southwest of Tank 293). Small volumes of product also reportedly traveled from the Tank 107 diked

area via the stormwater sewer system lines into the adjacent Tank 242, Tank 201, and Tank 205 dike areas (all located west-southwest of Tank 293). KMPH personnel reported the release to the National Response Center, and the release was assigned Incident Report #1355708, which was then updated to Incident Report #1355714. KMPH does not believe the Tank 293 dike area has been impacted by the release. KMPH is responsible for this release.

Illinois EPA issued a RCRA Corrective Action Permit dated March 4, 2024, to Kinder Morgan Liquids Terminals, LLC, effective April 8, 2024. KMPH is responsible for RCRA corrective action activities above elevation 408 feet MSL in Area 12 (South Tank Farm) and those portions of the following Areas that were included in the transfer of ownership: 4, 5, 10, 11, 13, 17 and 19 in accordance with the RCRA Corrective Action Permit issued March 4, 2024, with an effective date of April 8, 2024. bp retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 feet MSL.

bp and KMPH recognize that the post-closing conditions, operations, or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by bp or its successors. The parties also acknowledge that post-closing conditions, operations, and activities at the property retained by bp or its successors could impact property owned and/or operated by KMPH or its successors. In the event that post-closing activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by bp, KMPH will be responsible for the environmental impacts and corrective action activities that result. In the event that post-closing activities at the property retained by bp impact the overlying and/or adjacent property owned by KMPH, bp will be responsible (if determined to be the result of bp's activities) for the environmental impacts and corrective action activities that result.

F.4.2.11.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.12 Area 13 - Wildlife Enhancement Area, SWMU 12

F.4.2.12.1 Chronological List of Documents Submitted to the Illinois EPA

- 08/10/2011: bp submitted to Illinois EPA the Area 13 Current Conditions Report/Characterization Work Plan;
  - 10/26/2011: Illinois EPA response to Area 13 Current Conditions Report/Characterization Work Plan; and,
  - 02/10/2020: Illinois EPA response to the Area 13 Comprehensive Land Reuse Investigation Report and Remediation Plan.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 13 LRI environmental sampling performed in 2017-2019.

F.4.2.12.2 Detailed Description of Unit

Area 13 is an undeveloped, approximately 45-acre parcel of land located in the southeastern part of the Main Plant. Area 13 is bounded by Area 12 to the west and north, South Old Edwardsville Road to the east, Area 14 to the southeast, and East Rand Avenue to the south. The entire 45-acres of Area 13 falls

within the boundary of 80-acre SMWU 12, which is identified as the SCDA. The westernmost 35 acres of SWMU 12 is located in Area 12.

bp implemented soil improvements in the fields at the north and south ends of Area 13 from approximately 1996 through approximately 2005. The soil improvements included bringing in clean fill, fertilizer, and working commercial compost into the soil using disc and furrow techniques to encourage reestablishment of diverse, native vegetation in order to improve wildlife habitat. bp currently conducts landscaping in Area 13 to control invasive species.

During the operation of the Former bp Wood River Refinery, oily wastes and sludge were disposed in the SCDA located in Area 13. Cooling Pond sludge from the Spray Ponds (Areas 11 and 19) was placed in the CPSDA located immediately west of the northwest portion of Area 13. The Illinois EPA RFA indicated that asphalt, crude oil tank bottoms, and various other wastes were disposed in trenches, low areas, and piles in the areas bounded by the SCDA and the CPSDA. Refinery wastes were likely placed at the SCDA from the 1940s until the 1970s. The RFA stated that numerous small asphalt and crude oil tank bottom disposal areas were observed in SWMU 12 during the VSI and concluded that these areas are old as indicated by lack of odor when the surface was scratched.

The former SCDA and surrounding area within SWMU 12 was used for management of oily wastes and sludge. The SCDA was a bermed, triangular-shaped surface impoundment measuring 300 feet by 300 feet by 400 feet and covered an area of approximately 1.5 acres. The depth of the impoundment during use is not known.

The former CPSDA was located in Area 12 immediately adjacent to the northwest portion of Area 13. Non-hazardous sludge from Spray Ponds 2 and 3 was deposited in the northern part of the CPSDA. Asphalt tank bottoms, oily dirt, spent FCU catalyst, and sour water may have been placed in the south portion of the CPSDA.

No documented spills or releases have been reported by bp for Area 13. A Marathon pipeline spill in the area was remediated by Marathon immediately following the spill. The location and date of the spill are unknown.

RECs in Area 13 include:

- The SCDA located at the southeast corner of Area 13, including sampling location SWMU12-BH16, which requires further investigation due to exceedances of Tier 1 Soil ROs;
- Underground product pipelines located along the west, east, and south boundaries of Area 13; and,
- Asphalt-like or other petroleum products observed at ground surface during site reconnaissance.

Historical Investigation/Remediation Efforts

Pursuant to the Illinois EPA approval letter dated September 7, 1994, for the Phase I RFI Work Plan and for the PRS Work Plan, bp initially focused remediation efforts on removal of surficial product from the SCDA in accordance with Section 4.2 "Surficial Product Removal" of the PRS Work Plan. The corrective action work was performed at the SCDA from October 4, 1994 to November 12, 1994. The pond area of the SCDA was the focus of much of the surficial remediation. During the initial stages, the area around the pond was mowed and trees were cut down to allow access to the pond. The pond was then dewatered, excavated, and leveled to prepare for vegetative cover.

During the Phase I RFI for SWMU 12, eleven soil samples were collected from eleven soil borings near the SCDA and at locations where disturbed soil or staining was observed that were in, or immediately adjacent to Area 13 in April 1995. The soil borings were advanced to depths ranging from 15 to 30 feet bgs.

During the Phase I RFI in the Area 13 portion of SWMU 12, a groundwater investigation was performed in June and July 1995 at six previously installed monitoring wells and one monitoring well installed during the RFI. The monitoring wells sampled were screened in the American Bottoms Aquifer and the results were reported in the Phase I RFI Report. Monitoring well SWMU12-GH1 was not sampled because it contained approximately 2.4 feet of LNAPL in July 1995. Well SWMU12-GH1 was renamed as G112 in the modified Permit dated February 8, 2010.

bp excavated surface impacts of asphalt-like material at four locations in the southwest portion of Area 13 on September 7, 2006. The four locations were excavated to depths ranging from one to three feet. Excavations ranged in size from 8 feet by 10 feet to 15 feet by 45 feet.

Excavation and backfill of the work area were conducted on September 7, 2006. The four excavations were located within an area of approximately one acre. A track-mounted hoe and a front-end loader were used to excavate and load materials into four, 20-cubic yard roll off boxes provided by Midwest Sanitary Services. The roll off boxes were taken to the South Roxanna landfill in Roxana, Illinois for disposal. Manifests for the materials removed from the site are kept at the Wood River facility. The excavated areas were backfilled by placing clean clay in six-inch lifts. Grass was planted and fertilizer was placed at the excavated areas following backfilling activities.

The 0.5-acre former Deer Park Viewing Area (DPVA) is located in the northeast corner of Area 13. bp collected soil samples in August 2007 and January 2008 to evaluate potential constituent concentrations in surface soils at the DPVA. The borings were advanced to depths ranging from 2.3 to 3 feet bgs using a decontaminated steel hand auger.

In January 2008, bp advanced six additional hand auger soil borings at the DPVA to depths of 0.5 feet bgs adjacent to initial boring locations, which were advanced in August 2007. The objective of the sampling effort was to collect surface soil samples which had not been collected in the previous investigation and to compare the analytical results to Tier 1 Soil ROs. The soil borings were advanced using a decontaminated steel hand auger. One sample was collected from each boring from a depth of 0 to 0.5 feet bgs. The soil samples were submitted for analysis of the constituents of potential concern (COPCs).

Perched groundwater wells G91S, G93, and G06S are located along the east boundary of Area 13. The bottom depths of the well screens for these wells range from 11.6 feet bgs to 14 feet bgs.

The 2011 Area 13 CCR/WP recommended additional soil investigation in order to better define the limits of soil remediation areas prior to selecting the remedial approach.

Current Corrective Action Activities

The initial phase of the Land Reuse Investigation for Area 13 began in August 2017. Soil samples were collected from 58 soil boring locations and analyzed for COPCs, which include BTEX, PAHs, pH, and metals to delineate the extent of the COPCs in the identified RECs.

Four perched groundwater monitoring wells were installed in November 2017. Groundwater samples were collected and analyzed for BTEX, PAHs, and total and dissolved metals.

Eight CERAs or Remediation Areas (RAs), were identified for additional investigation based on a risk evaluation. Between November and December 2018, LRI activities were conducted to delineate the Area 13 RAs (A13RA01 through A13RA08).

Soil samples were collected from eight (8) locations in A13RA01 for naphthalene, ethylbenzene, total xylene. Soil samples were collected from two locations in RA02 and analyzed for mercury. Soil samples were collected from 18 locations in RA03 for naphthalene. Soil samples from four locations were analyzed for total lead and pH. Soil samples were collected from 18 locations in A13RA04. All soil samples were analyzed for arsenic and pH. Soil samples from four locations were analyzed for mercury and pH. Soil samples were collected from one location in A13RA05 and analyzed for dibenzo(a,h)anthracene, lead, mercury, and pH. Soil samples were collected from four locations in A13RA06 and analyzed for barium. Soil samples were collected from four locations in A13RA07 and analyzed for lead. Four locations in A13RA08 were sampled and analyzed for lead. Soil samples from three locations were analyzed for naphthalene. Soil samples from eight locations were analyzed for arsenic and pH.

bp retained portions of Area 12 after the property transfer to KMPH. These retained perimeter portions were investigated as part of the Area 13 LRI. Between January and February 2019 soil samples were collected from three areas, A12-1 to A12-3, and analyzed for BTEX, PAHs, total metals, and pH.

In January 2019 soil samples were collected from five surface tar locations and analyzed for synthetic precipitation leaching procedure (SPLP) VOC and PAHs, and for TPH by USEPA Method 8015M. In March 2019, groundwater samples were collected and analyzed for BTEX, PAHs, and total and dissolved metals.

All LRI activities will be summarized in the forthcoming Area 13 Comprehensive LRI Report.

F.4.2.12.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.13 Area 14 - Southeast Corner

F.4.2.13.1 Chronological List of Documents Submitted to the Illinois EPA

- 10/10/2011: bp submitted to Illinois EPA the Area 14 Current Conditions Report/Characterization Work Plan;
  - 07/12/2012: Illinois EPA conditional approval of the Area 14 CCR/WP; and,
- 10/15/2012: bp response to Illinois EPA July 12, 2012 comments regarding installation of GMZ Well G128.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 14 LRI environmental sampling performed in 2017-2019.

F.4.2.13.2 Detailed Description of Unit

Area 14 is approximately four acres and in the southeast corner of the Main Plant Property. Area 14 is bounded on the northwest by Area 13, on the east by City of Wood River property (including a drainage ditch) and Illinois Route 111, and on the south by railroad tracks, Rand Avenue and Conoco Philips Wood

River Refinery. Based on review of previous investigations and review of aerial photographs from 1937 to 2009, Area 14 was a non-process area and has not been developed except for installation of bp and third party underground and above ground product pipelines in the center and south portions of Area 14. Railroad tracks oriented in an east-west direction were previously present at the south portion of Area 14. Two areas containing concrete rubble and metal debris are currently present in the southeast and southwest portions of the area.

An off-site benzene release occurred in January 1986 from an underground pipeline owned by Shell Oil Company immediately east of the southeast corner of Area 14. A second release in the same area occurred in February of 1986. Reportedly, the pipeline was abandoned in place shortly after the release and was relocated aboveground.

A corridor of three, active underground product pipelines is present running north-south through the central portion of Area 14. The pipeline corridor is approximately 20 feet wide and contains the following three underground product pipelines: 12-inch Shell Oil, 20-inch Koch Pipeline, and 24-inch Marathon Oil.

The underground pipelines extend to the north into Area 13. At the south end of Area 14, the Koch pipeline emerges from the ground and runs above ground over the railroad tracks to the south towards the Conoco Philips refinery. The extent of the Shell and Marathon lines south of Area 14 is unknown.

An inactive 6-inch underground pipeline owned by Buckeye Oil is present in Area 14 and is oriented east-west. There is an active 12-inch aboveground pipeline, owned by Explorer, which is oriented east-west inside the south boundary of Area 14. The Explorer line runs beneath the road at the southwest corner of Area 14 and emerges from the ground in Area 13.

There are no SWMUs or PRSs in Area 14.

The following RECs were identified in Area 14 based on review of aerial photographs and drawings, results of previous investigations, and site reconnaissance:

- A small area (i.e., less than 10 feet in diameter) of hardened, asphalt-like material in the central portion of Area 14 immediately west of boring A14BH03. Exceedances of Tier 1 Soil ROs for PAHs and exceedances of the TCLP limit for lead were encountered in borings in the area surrounding this location;
- Surface fill material at boring A14BH02 and surrounding area containing exceedances of Tier 1 Soil ROs for PAHs;
- A 10 x 100-foot area of concrete rubble, wood, and corroded fragments of small empty metal drums in the southwest corner of Area 14 (previously investigated by boring A14BH05). REC does not warrant additional investigation based on sampling results;
- An approximately 140 x 80-foot highly vegetated area in the southeast portion of Area 14 containing concrete and metal debris (previously investigated by boring A14BH04); and
- Underground product pipelines; and
- Historic off-site benzene release associated with an underground pipeline outside the southeast corner boundary

Historical Investigation/Remediation Efforts

bp conducted an internal LRI at Area 14 from December 2002 through May 2003 to characterize the parcel to determine its suitability for redevelopment. Two systematic soil borings were advanced at grid node locations with 200-foot spacing and three biased soil borings were advanced at locations of RECs in December 2002. Twenty-five additional soil borings were advanced from February 2003 through May 2003 to further characterize the soils or to delineate the extent of impacts observed in in soil samples. The depths of the soil borings ranged from 3 to 11 feet bgs.

Five initial soil borings were advanced to depths of 11 feet bgs in December 2002. The soil samples collected from the initial five borings were analyzed for BTEX, PAHs, pH, and metals. One sample, collected from 2-3 feet, was analyzed for a modified Skinner List of VOCs and SVOCs, COPC metals, and pH due to the unknown contents of the concrete and metal debris area.

Perched water samples were collected from 3 boreholes and analyzed for COPCs, plus phenol and 2-methylphenol. One sample collected was analyzed for a modified Skinner List of VOCs, SVOCs, metals, and pH. The samples were not considered of being representative of aqueous concentrations in perched water because the piezometers did not contain filter packs. This allowed particulates to enter the well screens during sampling.

Five soil borings were advanced in February through March 2003 adjacent to the initial five soil boring locations for analysis of total organic carbon, leachable lead using TCLP based on total lead concentration observed in an initial soil sample, and to collect samples from intervals not previously tested.

Soil borings were advanced in April 2003 to either collect additional samples for soil characterization and/or to delineate the vertical and horizontal extent of COCs with concentrations detected above the Tier 1 Soil ROs to total depths of 8 feet bgs. The samples collected in April 2003 were tested for metals and PAHs.

Additional borings were advanced in May 2003 to analyze samples using field screening methods. Lead was tested using on-site XRF equipment and PAHs were tested using on-site immunoassay analysis.

The 2011 Area 14 CCR/WP recommended an additional soil investigation to delineate the exceedances of Tier 1 Soil ROs for PAHs, arsenic, and total and TCLP lead in order to better define the limits of soil remediation areas prior to selecting the remedial approach.

Current Corrective Action Activities

The initial phase of the LRI for Area 14 began in September 2017. Soil Borings were advanced to further delineate the extent of the COPCs in the identified RECs. Soil samples were collected from eleven (11) soil boring locations and analyzed for COPCs, which include BTEX, PAHs, pH, and metals. In November 2017, four additional borings were advanced to further delineate impacted soils, and five perched monitoring wells were installed.

In 2019 additional investigation activities were conducted based on the results of the LRI sampling activities conducted in 2017, to define the limits of impact and to evaluate remedial options.

Three CERAs, were identified for additional investigation based on a risk evaluation. Eleven soil borings were proposed at locations in CERA01, CERA02 and CERA03.

In 2019, LRI activities commenced to further delineate the Area 14 RAs RA01, RA02, and RA03. RA03 was later named RA01_RA02 since there was no set boundary for each RA.

In March 2019, a soil sample was collected from a surface tar location and analyzed for SPLP VOC and PAHs, and for TPH by USEPA Method 8015M, and groundwater samples were collected from perched wells and analyzed for BTEX, PAHs, and total and dissolved metals.

All LRI activities will be summarized in the forthcoming Area 14 Comprehensive LRI Report.

F.4.2.13.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.14 Area 15 - Administration Building

F.4.2.14.1 Chronological List of Documents Submitted to the Illinois EPA

- 01/23/2002: bp submitted to Illinois EPA the Area 15 Current Conditions Rreport/Characterization Work Plan;
- 07/23/2002: bp submitted to Illinois EPA the Area 15 Revised Current Conditions Report/Characterization Work Plan;
- 10/18/2002: bp submitted to Illinois EPA the Area 15 Land Reuse Investigation Report and Closure Plan;
    - 06/26/2003: meeting with Illinois EPA to discuss perched groundwater conditions and potential groundwater ingestion route;
- 07/23/2003: bp submitted to Illinois EPA the Area 15 Land Reuse Investigation Report and Closure Plan – Addendum 1;
- 07/23/2003: bp submitted to Illinois EPA the Area 15 Land Reuse Investigation Report and Closure Plan – Addendum 2;
    - 11/19/2003: Illinois EPA issued a No Further Action letter for Area 15;
- 04/27/2004: bp submitted to Illinois EPA the Area 15 Removal of TCLP Lead Impacted Soils;
    - 06/16/2004: Illinois EPA approved the Area 15 Removal of TCLP Lead Impacted Soils;
- 07/07/2004: bp submitted to Illinois EPA the Draft ELUC for Area 15;
    - 08/23/2004: Illinois EPA approved the Draft ELUC for Area 15;
- 10/06/2004: bp submitted to Illinois EPA the Recorded ELUC for Area 15; and,
    - 09/29/2005: Illinois EPA approved the Recorded ELUC for Area 15.

F.4.2.14.2 Detailed Description of Unit

Area 15 is located in the northwestern part of the Main Plant Property and consists of approximately 11.7 acres.

A review of aerial photographs from 1937 to 2000 indicates that Area 15 had two principal periods of operation. The first mode of operation was from at least 1937 until at least 1960. Area 15 contained the following structures during the first mode of operation: ASTs, crude oil distillation structures, a Crane Shed, a Boiler House, a Power House, a Store House, an Experimental Laboratory, and an Engine Laboratory.

The second operational period began in approximately 1961 and has continued until the present. Most of the structures listed above were removed between 1960 and 1971 when Area 15 was redeveloped with construction of the Administration Building and the Wash and Locker Building. Some ASTs remained west of the Administration Building within Area 15 until sometime between 1971 and 1979. There no SWMUs or PRS in Area 14.

The former Administration Building had three sections with different uses. The north section was used for office activities. The central section was historically used by Amoco for mechanical shops, and was leased for commercial storage and distribution. The south section of the building was used historically for maintenance of petroleum transport trucks.

The Wash and Locker Building was formerly used as a locker room facility. The building was converted for office use in 1998 and was leased to the site contractor. A vehicle maintenance and workshop building was constructed adjacent and north of this office building in 1998 and an extension to the office was constructed adjacent to the west side in 2002. A satellite office building and garage was also constructed east of the site contractor office building in 2002.

Investigation/Remediation Efforts

Area 15 investigation activities were conducted in 2001 and 2002 in accordance with the approved *Area 15 Current Conditions Report/Characterization Work Plan* (Work Plan, URS, January 2002). Activities were also completed in 2002 in accordance with the *Revised Current Conditions Report/Characterization Work Plan, Area 15* (Revised Work Plan, URS, July 2002), and with TACO regulations. The Work Plan was approved by Illinois EPA in letters dated March 20, 2002 and April 9, 2002 for soil and groundwater related aspects of the investigation, respectively. The Revised Work Plan was approved by Illinois EPA on September 27, 2002.

Current Corrective Action Activities

Illinois EPA issued a NFA letter for Area 15 on November 19, 2003.

F.4.2.14.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.15 Area 16 - Marketing Operations Area, SWMU 16/SWMU 34

F.4.2.15.1 Chronological List of Documents Submitted to the Illinois EPA

- 02/04/1991: Illinois EPA Incident Verification Letter for incident 902311;
- 03/25/1991: Chemical Waste Management Inc. Response to Illinois EPA Incident Inquiry Letter, dated February 4, 1991, for incident 902311;
    - 06/01/1993: Illinois EPA produced Amoco Main Plant RCRA Facility Assessment, IEPA ID 1191150001, USEPA ID ILD980700967;
- 04/28/1994: Illinois EPA Incident Inquiry Letter for incident 940833;
- 06/10/1994: bp submitted a response to Illinois EPA Incident Verification Letter, dated April 28, 1994, for incident 940833;
- 08/04/1997: bp submitted to Illinois EPA the RFI Phase I Report for SWMU's 16 and 23;

- 06/16/2008: bp submitted to Illinois EPA the Area 16 Current Conditions Report/Characterization Work Plan (CCR/WP);
    - 05/05/2009: Illinois EPA approved the Area 16 CCR/WP;
- 12/24/2014: bp submitted to Illinois EPA the Area 16 Comprehensive Land Reuse Investigation Report and Remediation Plan; and,
    - 06/14/2016: Illinois EPA response and approval with modifications to the Area 16 Comprehensive Land Reuse Investigation Report and Remediation Plan.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 16 LRI environmental sampling performed in 2018-2019.

F.4.2.15.2 Detailed Description of Unit

Area 16 is comprised of Areas 16A and 16B. Area 16A, the northern portion, is approximately three acres, and has concrete pavement over most of the surface. Area 16A is bounded on the north by Area 8, on the east by Area 8 and Area 15, on the South by Area 15, and on the west by Old St. Louis Road

Area 16B, the southern portion, is approximately five acres, is partly paved with concrete and has gravel over part of the surface. Area 16B is bounded on the north by Old St. Louis Road and Area 15, on the east by Area 15 and Area 3, on the south by Area 6, and on the west by the Illinois Terminal Railroad.

A review of aerial photographs from 1937 to 2006, and a review of historical Amoco maps from 1946 and 1981, indicates that Area 16 had two modes of operation.

The first mode of operation in Area 16 occurred from at least 1937 to at least 1979, based on review of aerial photographs. The process areas located in Area 16 during the first mode of operation have been identified as follows:

- The AST Area (Area 16A), and
- The Separator Box Area (Area 16B).

Area 16A contained railroad tracks and ASTs during the first mode of operation. Five ASTs containing diesel and No. 2 fuel oil were present during this time period. A structure identified as the Ethyl Bloc Building was located directly west of Tank 182. Railroad cars were used for coke storage along the tracks in Area 16A.

Area 16B contained two API oil water separators, identified as SWMU 16 (Old API Separator) and SWMU 34 (Amoco's Sewer System, an existing API Separator) in Section IV of the Main Plant Part B Permit dated 1993. Area 16 also contained an Office Building, a Garage, and railroad tracks. The API Separators were used for treatment of refinery process wastewater and stormwater. The material generated at these SWMUs was API Separator Sludge, also designated as K051 waste. There are no PRS in Area 16.

Based on review of aerial photographs, the second mode of operation occurred from at least 1979 through 2004. The process areas located in Area 16 during the second mode of operation have been identified as follows:

- The Marketing Distribution Terminal (Area 16A), and
- The Separator Box Area in (Area 16B).

Area 16A was reconfigured between 1971 and 1979, apparently for the construction of the Marketing Distribution Terminal, based on historical aerial photographs. The ASTs in Area 16A were removed prior to the second mode of operation. During this time, Tanks 183 and 184 were moved to the east within Area 8, and Tanks 185, 182, and 450 were removed.

The Separator Box Area consisted of two Separator Boxes (SWMU Nos. 16 and 34), two Pump Houses, an Office Building, an unidentified possibly bermed area east of the Southern Separator Box, and a Garage. Railroad tracks are also shown along the northwest border of this area.

SWMU 16, also known as the Old API Separator, was classified as a tank (rectangular underground concrete box) and was approximately 50 feet by 120 feet by 21 feet deep. The depth of this Separator is based on the measured depth of the South Separator (SWMU 34); these separators were likely constructed at the same time. This unit was operated from the early 1900's to the late 1970's, when it was backfilled. The material generated at this SWMU was API Separator Sludge, K051, a listed hazardous waste.

SWMU 34 (Amoco's Sewer System) is currently active and consists of an active API Separator and immediate connections to the sewer system. The API Separator is located south of the Old API Separator (SWMU 16). The SWMU is an in-ground concrete box, approximately 50 feet by 150 feet by 21 feet deep, with individual concrete cells that separate oil and water. The SWMU 34 separator box has been in use since approximately 1937 and was likely constructed at the same time as the SWMU 16 separator to the north.

Investigation/Remediation Efforts

A Phase I RFI was performed at the Main Plant (including SWMUs 16 and 34 in Area 16B) in 1994 through 1996. bp submitted the results of the Phase I RFI to Illinois EPA in reports dated December 1995 and July 1997. The reports were conditionally approved on June 5, 2001.

The Phase I RFI at SWMU 16 included advancing three soil borings (SWMU16-BH01, SWMU16-BH03, and SWMU16-BH04) in 1995. Boring SWMU16-BH02 could not be advanced in 1995 due to limited access from underground and overhead utilities. Boring SWMU16-BH02 was advanced in 1996, and the results of that boring were submitted to the Illinois EPA in the RFI Report dated July 1997. The SWMU 16 soil borings were advanced to depths of 25 or 30 feet bgs. Soil samples were screened using a PID, and one soil sample was analyzed from each location based on the highest headspace reading and visual observations. The samples were submitted to a laboratory for analysis of the modified Skinner List of VOCs, SVOCs, metals, and other inorganic analytes.

Only shallow samples between 3 and 5 ft bgs were analyzed at Phase I RFI borings SWMU16-BH01 and SWMU16-BH04 (which are south and west of the Separator).

The 1995 Phase I RFI at SWMU 34 included advancing four soil borings (SWMU34-BH01, SWMU34-BH02, SWMU34-BH03, and SWMU34-BH04). The soil borings were advanced to depths of 25 feet bgs. Samples were screened using a PID, and one soil sample was analyzed from each location based on the highest headspace reading and visual observations. The samples were submitted to a laboratory for analyses of the modified Skinner List of VOCs, SVOCs, metals, and other inorganic analytes.

A sample was analyzed from a depth of 12 to 14 feet from Phase I RFI boring SWMU34-BH03 in 1995. A comparison of the 1995 Phase I RFI soil analytical results for SWMU 34 samples is compared to TACO Tier 1 ingestion and inhalation ROs. Xylenes exceeded the TACO Tier 1 RO for the construction worker inhalation route at boring SWMU34-BH03.

On August 13, 1990, approximately 800 gallons of water, containing one percent by volume of API Separator Sludge (K051, a listed hazardous waste), overflowed a tank associated with a sludge dewatering Filter Press onto the ground east of the Southern Separator Box (SWMU 34). The spill occurred within a 15-minute period and was reported to IEMA, which assigned Incident No. 902311 to the spill. The tank and Filter Press were being used to dewater sludge that had been removed during maintenance of the API Separator. The spill occurred when a valve was accidentally left open on a tank containing water used to pre-coat the Filter Press. Water overflowed one compartment of the tank and entered the second compartment, which contained sludge, causing water and sludge to spill onto the ground surface. The area affected by the spill was a 15 foot by 35 foot area east of the API Separator. bp's contractor quickly diked the area of the spill. The spilled water and sludge were recovered using a pump, and the material was transferred to a storage tank for subsequent processing through the Filter Press. The area was then hosed down with clean water. bp subsequently scraped the surface of the area to remove a one-half inch layer of soil and gravel, which was placed into two 55 gallon drums and disposed at Chemical Waste Management's CID Landfill in Calumet City, Illinois.

bp previously advanced four Phase I RFI borings in 1995 near the South Separator (SWMU 34) including one to the east and one to the south.

On April 18, 1994, a release of approximately 30,000-35,000 gallons of diesel occurred from a 6-inch underground pipe in the area of the Marketing Truck Rack in Area 16A. The release was reported to IEMA, which assigned Incident No. 940833 to the release. Amoco recovered approximately 30,000 gallons of diesel from excavation areas adjacent to the Truck Rack. During excavation in July 1994, it was identified that a 6-inch line had leaked in the area immediately south of the Rack between bays No. 7 and No. 8. Amoco installed four, 8-inch diameter slotted PVC observation sumps, two north of the Rack and two south of the Rack, in July 1994 to monitor any future spills. Amoco also installed one monitoring point at the location of the leak. The material (soil/sand) excavated as part of the release investigation (approximately five cubic yards) was disposed at an off-site landfill.

Current Corrective Action Activities

In 2019, LRI activities commenced to further delineate the Area 16 RAs for RA01 and RA02. RA01 is in Tract 16B and RA02 is in Tract 16A.

Soil samples were collected from twenty-one locations in RA01. All twenty-one locations in RA01 were analyzed for total, TCLP, and SPCP lead and pH. Seven locations in RA01 were analyzed for benzene.

Soil samples were collected from nine locations in RA02 for total xylenes.

LRI activities will be summarized in the forthcoming Area 16 Comprehensive Land Reuse Investigation Report.

F.4.2.15.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.16 Area 17 - Liquid Propane Gas (LPG) Caverns

F.4.2.16.1 Chronological List of Documents Submitted to the Illinois EPA

- 07/03/2008: bp submitted to Illinois EPA the Area 17 Current Conditions Report/Characterization Work Plan (CCR/WP);
  - 05/05/2009: Illinois EPA approved the Area 17 CCR/WP;
- 10/09/2012: bp submitted to Illinois EPA the Comprehensive Area 17 Land Reuse Investigation Report and Remediation Plan; and,
  - 02/10/2020: Illinois EPA letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17.
- 03/08/2024: bp submitted to Illinois EPA a Land Reuse Investigation Data Submittal, which included general background, sampling methodology, analytical procedures, and analytical results of the Area 17 LRI environmental sampling performed in 2019.

F.4.2.16.2 Detailed Description of Unit

Area 17, LPG Caverns, is approximately 6.9 acres and is located in the south-central portion of the Main Plant Property. Area 17 is bounded on the north by the South Tank Farm (Area 12), on the east by a portion of Area 12 and beyond by Area 13, on the south by railroad tracks and beyond by East Rand Avenue, and on the west by Area 4.

Area 17 included a propane and propylene storage, processing, and distribution operation that were used from the time of construction in 1961 until 2000. Prior to operation, caverns were created in the limestone bedrock at a depth of approximately 320 feet bgs in order to store liquid propane and propylene. The height of these caverns was approximately 25 feet. Limestone was mined from the subsurface to create the caverns and was brought to the surface. Limestone associated with the mining of the caverns remains on the surface of portions of Area 17, and ranges in size from crushed gravel to cobble and boulder sized fragments.

The caverns, associated storage tanks, piping, Truck Loading Rack, Rail Loading Rack, and supporting buildings and tanks were operated by Amoco until the Amoco Refinery ceased operations in 1981. The LPG area was leased and operated in the same manner by Shell Oil Company until 2000. The LPG caverns were decommissioned by pumping nitrogen into the caverns to displace the propane and propylene for removal from below ground. Propane and propylene were also removed from the aboveground piping during decommissioning and were flushed with water. Most of the infrastructure associated with the former operations in Area 17 has been removed, and there are no current operations occurring within Area 17. There are no SWMUs or PRSs located within Area 17.The following historical RECs were identified in Area 17:

- AST Area - consisted of six ASTs, two Calcium Chloride Dryers, a Motor Control Center, and a covered sampling station for the storage of propane and propylene;
- Truck Loading Rack - was used to transfer propane to trucks for distribution;
- Truck Scale - was used to weigh trucks after propane was transferred to them at the Truck Loading Rack. Areas of "tar-like" material (referred to as liquid asphalt in the CCR/WP) were observed on the surface near the northwest corner, southwest corner, and western edge of the truck scale;
- Underground Product Pipelines - Underground product pipelines at Area 17 exist at locations that originate aboveground and travel underneath raised roads. These pipelines then exit the opposite

side of the raised roads aboveground once again. A fence surrounds the entire LPG Caverns facility. In two locations on the north side of the site, pipelines exit the fence aboveground then travel underneath the east-west road directly adjacent to it. The raised, north-south road to the east of the facility lies approximately 30 feet beyond the fence, and aboveground pipelines also travel under this road and exit the opposite side of the road to the east; and

- Rail Loading Rack - was used to transfer propylene to rail cars for distribution.

Investigation/Remediation Effort

Thirteen (13) soil borings were advanced in Area 17 between December 14, 2011 and March 14, 2012 in accordance with the Area 17 CCR/WP and the Illinois EPA approval letter dated May 5, 2009. These borings included ten biased borings and three systematic grid borings. The total depths of the soil borings ranged from 15 to 40 feet bgs. Thirty-five soil samples (including field duplicates) were collected.

bp investigated the underground product pipelines in Area 17 from December 2011 through March 2012. The investigation consisted of advancing three soil borings near locations of former underground product pipelines, to investigate for potential past releases. A total of eight soil samples were collected and analyzed for BTEX, PAHs, metals, and pH.

Wet zones were not encountered during this investigation of Area 17. As a result, no perched groundwater samples were collected.

Current Corrective Action Activities

In 2019, LRI activities commenced to further delineate the Area 17 RA (CERA-01). Remediation areas CERA-02 and CERA-03 were not completed. CERA 02 was located within proximity of an exclusion zone for an unsafe condition and CERA-03 was located on KMPH property.

Soil samples were collected from fourteen locations in CERA01 for benzo(a) anthracene, benzo (a) pyrene, dibenzo(a,h) anthracene, and total arsenic.

Area 17 LRI activities will be summarized in the forthcoming Area 17 Comprehensive Land Reuse Investigation Report.

F.4.2.16.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.17 Area 18 - North Cell Spray Pond 1 and South Flare Pit, SWMU 14 and SWMU 33

F.4.2.17.1 Chronological List of Documents Submitted to the Illinois EPA

- 02/01/1991: bp submitted to Illinois EPA the Draft Initial Closure Re-Certification Sampling of the SFP and NC-SP1;
- 04/01/1992: Part B Post-Closure Permit Application for the North Cell of Spray Pond #1 and the South Flare Pit;
- 10/2001 bp submitted to Illinois EPA the North Cell of Spray Pond 1 Closure Work Plan (draft);
- 01/2002: bp submitted to Illinois EPA the South Flare Pit Area (Area 18) Current Conditions Report/Characterization Work Plan;

  - 03/20/2002: Illinois EPA approved the Area 18 CCR/WP;
- 04/29/2005: bp submitted to Illinois EPA the Closure Documentation Report for the South Flare Pit;
- 02/01/2008: bp submitted to Illinois EPA the South Flare Pit Shallow Groundwater Investigation Workplan;
  - 09/09/2008: Illinois EPA approved the South Flare Pit Shallow Groundwater Investigation Workplan;
- 07/16/2015: bp submitted to Illinois EPA a draft ELUC for the South Flare Pit;
  - 10/27/2015: Illinois EPA approval letter of the draft ELUC for the South Flare Pit;
- 12/31/2015: bp submitted to the Illinois EPA the Certified Recording of the South Flare Pit ELUC; and,
  - 07/18/2016: Illinois EPA approval of the Certified Recording of the South Flare Pit ELUC.

F.4.2.17.2 Detailed Description of Unit

Area 18 contains the NC-SP1 (SWMU 14) and the SFP (SWMU 33).

SWMU 14: The former location of the NC-SP1 was north of Spray Pond 1 in the central part of the Main Plant Property. The NC-SP1 was a former regulated surface impoundment which was approximately 3.5 acres in size; approximately 1,200 feet in length from east to west, approximately 50 feet wide in the center and approximately 200 feet wide on the east and west ends. The start-up date of the NC-SP1 is unknown.

The NC-SP1 was part of the Main Plant cooling water complex, built in 1942. The complex consisted of Spray Pond 1, Spray Pond 2, Spray Pond 3, and the NC-SP1. It was originally part of Spray Pond 1 but was separated from Spray Pond 1 to receive waters reactive sulfide material from an influent stream of a mixture of cooling water return and sour water from the FCU.

In the 1960s, it also began receiving water pumped from the COD wells, which were production wells that provide hydraulic control for the facility. The COD wells have been operated since production at the facility ceased to provide hydraulic control of the groundwater and prevent off-site migration of possible subsurface contamination. In addition to the reactive sulfide material, the water from the COD wells may have introduced hydrocarbons, such as BTEX, into NC-SP1.

NC-SP1 was identified as a hazardous waste management unit because it received sour water from the FCU. The influent stream to the NC-SP1 was a mixture of cooling water return and sour water from the FCU. Reactive sulfide had been introduced into the north cell with FCU sour water.

The NC-SP1 also received water from the COD wells which presently maintain hydraulic gradient control of the UMA at the Main Plant and provided firewater supply. As petroleum hydrocarbon contamination has been found in the uppermost aquifer, these contaminants have also potentially been introduced into NC-SP1.

SWMU-33: The SFP was located in the southwest portion of the Main Plant, west of the Spray Ponds, and was used for storage of hazardous and non-hazardous APAC wastes prior to their disposal off-site. The SFP originally measured approximately 75 feet long by 25 feet wide and was approximately 4 feet deep. Wastes managed in the SFP included calcium sulfonate, magnesium sulfonate, zinc phosphate phenates, high sulfur acids, high phosphate acids, SAE 5W oil, and filter cake. It was identified as a hazardous waste management unit because phosphorous pentasulfide was placed in the unit.

The SFP was an open additives pit used for storage of hazardous and non-hazardous wastes prior to their disposal offsite. bp closed the SFP by removal in 1986 when the materials in the SFP were solidified with fly ash, excavated, and transported offsite to a landfill.

Investigation/Remediation Efforts

NC-SP1 was previously "closed in place" under 35 IAC 725 or 40 CFR 265 (interim status rules), in August 1986. As part of the closure activity in 1986, a comprehensive program of sediments sampling and testing was conducted to determine the reactive sulfide concentration and hazardous characteristics of the sediments. A total of 86 sediment samples were collected over the entire NC-SP1 in three phases at depths ranging from approximately 2 to 50 feet.

The sampling results indicated that there were no sediments in NC-SP1 that were in excess of the 100 parts per million (ppm) clean-up standard for reactive sulfide. The sediments also did not exhibit any hazardous characteristics. SWMU-14 was, therefore, closed by allowing the sediments to remain in place, in compliance with the specifications of the closure plan.

bp was required to submit a re-certification or equivalency petition pursuant to 35 IAC 703.159(b) and 40 CFR 270.l(c)(5) due to changes in state and federal regulations. This demonstration was conducted to show that NC-SP1 was adequately closed in 1986, and that both wastes and waste residues remaining in place were no threat to the environment. If the requirements for removal of both waste and waste residues were not met at that time, bp would be obligated to submit a RCRA Part B Permit application for post-closure care of this unit.

Closure by removal standards pursuant to 35 IAC 703.159(b) and 40 CPR 270.l(c)(5) were not met, therefore, bp was required to file a Part B Post-Closure permit application in April 1992. bp submitted a RCRA Part B Post-Closure Permit Application for NC-SP1 and the SFP. The Part B permit was issued in September 1993, which commenced the 30-year post-closure period.

In 2002, NC-SP1 was closed by removal of all waste and waste residue in accordance with 35 IAC 742, and no longer requires post-closure care.

The SFP was initially closed by removal in 1985, but a retroactive regulatory change in the late 1980's caused the SFP to be subject to a RCRA Part B Permit for post-closure care.

In 1986, the sludge material in the SFP was solidified with fly-ash, excavated, and transported offsite to a landfill. Oil in the SFP was removed and burned at the plant and (rain) water in the SFP was treated at the facility wastewater treatment plant. A buried flatbed rail car was discovered during excavation activities and was cut up and disposed of as scrap metal with the solidified sludge material.

The cleanup criteria for removal of the hazardous waste was 100 ppm reactive sulfide. Fourteen soil confirmation samples were collected from the excavated pit and analyzed for reactive sulfide. Results of confirmation samples indicated reactive sulfide levels were below the cleanup objective of 100 ppm. The area was backfilled and re-vegetated.

Due to changes in federal regulations, in 1990, bp completed closure re-certification sampling at the SFP (i.e., to re-certify that the closure met a standard of removal of all "waste residue" versus the prior standard of removal of all "hazardous waste"). The results showed low but detectable concentrations of

benzene, arsenic, beryllium, and other constituents in soils. In August 1991, Illinois EPA requested that bp either apply for a RCRA Part B Permit for post-closure care or re- certify clean closure of the SFP, according to the new regulations. bp opted to apply for a RCRA post-closure permit, which was submitted in 1992.

bp conducted additional investigation and removal activities at SFP in 2001 and 2002 and was certified closed by removal and no longer requires RCRA Post-Closure care.

Current Corrective Action Activities

No further corrective action is necessary at Land Reuse Area 18, as both SWMUs were certified closed by removal.

F.4.2.17.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.4.2.18 Area 19 - Spray Pond 3, SWMU 15

F.4.2.18.1 Chronological List of Documents Submitted to the Illinois EPA

- 01/23/2002: bp submitted to Illinois EPA the Spray Pond 3 Area (Area 19) Current Conditions Report/ Characterization Work Plan;
  - 03/20/2002: Illinois EPA Response Letter to the Spray Pond 3 Area (Area 19) Current Conditions Report/ Characterization Work Plan – Soil Related Aspect;
  - 04/09/2002: Illinois EPA Response Letter to the Spray Pond 3 Area (Area 19) Current Conditions Report/ Characterization Work Plan – Groundwater Related Issues;
- 06/12/2007: bp submitted to Illinois EPA the Area 19 Land Reuse Investigation Report and Closure Plan;
  - 12/06/2007: Illinois EPA No Further Action for Area 19;
- 05/02/2008: bp submitted to Illinois EPA responses for the Area 19 No Further Action letter; and,
  - 04/13/2009: Illinois EPA approval letter for Area 19 No Further Action for soil and perched groundwater.

F.4.2.18.2 Detailed Description of Unit

Area 19, located in the southwest portion of the Main Plant Property, includes former Spray Pond 3 and a small area east of Spray Pond 3. The northern part of Area 19 is within the City of Wood River, and the southern part is located within the Village of Hartford. Area 19 is bounded by Areas 18 and 11 to the north, Area 12 to the east, and Area 4 to the south and west.

Area 19 contains part of SWMU 15, which consists of Spray Ponds 1, 2, and 3, and an Intake Channel (Area 11).

Spray Pond 3 is the largest pond of the cooling pond complex, located south and west of the other ponds, that was used to cool process water from the Main Plant prior to reuse as process water supply. The complex is still present but is not currently used for cooling of process water. The cooling ponds were used during operation of the Main Plant Refinery from approximately 1942 until 1981 and during APAC

operations until 1996.

The cooling ponds complex had the following three modes of operation.

During the first mode of operation from 1942 until between 1949 and 1960, the cooling pond complex consisted of the Separator Box and the Pump House located at the northeast comer of the complex, Spray Pond 1, Spray Pond 2, and the Intake Channel. Non-contact cooling water return from the plant entered the pond complex at the Separator Box. The Separator Box removed any floating process hydrocarbon that may have entered the cooling water return due to unforeseen (non-routine, non-systematic, and non-deliberate) heat exchanger leaks. The water from the Separator Box was pumped to the Pump House, and then pumped through the spray racks in Spray Ponds 1 and 2, which sprayed the water in the air to dissipate the heat. The water in Spray Pond 1 flowed through a 48-inch culvert into the northwest comer of Spray Pond 2 (the current Spray Pond 3 area). Water flowed north through the Intake Channel to the Pump House, which after the water flowed through the pond, it was pumped as cooling water supply back to the plant process units. During refinery operation, approximately 10 to 15 percent of the cooling water supply leaving the ponds was not recovered. Water was lost to the refinery units sewer system, to the fire water system, and to evaporation from the ponds. Make up water, which was a combination of groundwater from the COD wells and river water, was added to the cooling water return.

The second mode of operation occurred from 1960 until the refinery process units were shut down in 1981. During the second mode of operation, the cooling pond complex was reconfigured. Spray Pond 1 was divided into NC-SP1 and Spray Pond 1. Spray Pond 2 was divided into Spray Ponds 2 and 3, and sprayer racks were installed in Spray Pond 3. During the second mode of operation, non-contact cooling water return from plant process units (except return from the No. 2 FCU) entered the cooling pond complex at the Separator Box. The cooling water return from the No. 2 FCU was discharged into NC-SP1. The cooling water return from the other process units was pumped from the Separator Box to the Pump House, and then to the sprayers in the south cell of Spray Pond 1. Water flowed from the south cell of Spray Pond 1 through a 72-in. culvert into Spray Pond 2. Water flowed to the south end of Spray Pond 2, where it was pumped to the sprayers in Spray Pond 3. Some of the water in Spray Pond 3 flowed to the Intake Channel and then to the Pump House, where it was pumped to the process units as cooling water supply. Additionally, some of the water in Spray Pond 3 flowed to a pump station at the northwest corner of Spray Pond 3, which also pumped the water to the process units as cooling water supply.

The third mode of operation of the cooling pond complex occurred from 1981 until 1996 during APAC operation. Spray Pond 3 was not used during Mode 3, however, the other ponds were used during APAC operation

During the use of Spray Pond 3, if the water level became high, it flowed over a 30- by 40-foot concrete weir located on the southern dike of Spray Pond 3 to the Overflow Basin located in Area 4. The Overflow Basin in Area 4 was connected for a limited period of time by an open channel to the drainage ditch east of Spray Pond 3. The drainage ditch is approximately 700 feet long. Off-specification liquid asphalt was stored in the Area 4 Overflow Basin for a limited time during its operation, and it flowed into the drainage ditch.

Investigation/Remediation Efforts

A Phase I RFI was performed at 21 Main Plant SWMUs, including SWMU 15 (located in Areas 11 and 19) in 1994 through 1996. bp submitted the results of the RFI to Illinois EPA in reports dated December 1995 and July 1997. The reports were conditionally approved on June 5, 2001.

The results of the Main Plant Phase I RFI for SWMU 15 were approved by the Illinois EPA on June 5, 2001 and no further action was required.

A LRI was conducted at Area 19 in order to characterize for potential reuse. The LRI was conducted in 2001 through 2002 in accordance with the Spray Pond 3 Area (Area 19) CCR/WP, which was approved by the Illinois EPA in March 2002. Asphalt-impacted soil was removed from the southernmost 500 feet of the drainage ditch east of Spray Pond 3 in 2000. Surface sediment samples were collected from the drainage ditch during the 2002 LRI to confirm the removal of asphalt.

The results of the LRI were submitted to Illinois EPA on June 12, 2007, in the Area 19 Land Reuse Investigation Report and Closure Plan.

Current Corrective Action Activities

Illinois EPA issued an NFA for soil and perched groundwater, with conditions, based on the submittal of Area 19 Land Reuse Investigation Report and Closure Plan on April 13, 2009. bp is preparing a Work Plan to be submitted for Illinois EPA approval for implementation of the required corrective actions at Spray Pond 3 (Area 19) in accordance with the April 13, 2009, Illinois EPA conditional approval letter.

F.4.2.18.3 Current Groundwater Corrective Action Monitoring Program

See Section C of this permit renewal application for details regarding the current Groundwater Corrective Action Monitoring Program.

F.5 Proposed Interim Measures to be Conducted

bp operated a Hydrocarbon Recovery System (HRS) at the Main Plant Property as an interim remedial measure (IRM), beginning in 1993 to hydraulically recover subsurface mobile LNAPL from above the water table. The original system included 21 HRS extraction wells.

Following 17 years of operation, 16 HRS wells were deactivated in 2010 based on declining LNAPL recovery. After 7 additional years of operation, the remaining five HRS extraction wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness.

During 2016 and 2017, bp replaced the HRS with alternative pilot remedial system(s) to provide an interim measure, and to conduct an evaluation of bioremediation technologies. bp installed and commenced operation of the following three different hydrocarbon bioremediation systems in the northern, central, and southern parts of the Main Plant Property on a pilot scale:

a. Central Biovent System (in the central portion of Area 3); the Biovent System is designed to inject air to the vadose zone to provide oxygen and enhance in- situ aerobic bioremediation of hydrocarbons and refinery product at and above the water table as detailed in **Exhibit F-1**;

b. Southern Biosparge/Biovent System (mainly in the eastern portion of Area 5 extending to portions of Area 10 and Area 6); the Biosparge/Biovent System is designed to inject air above or below the water table to provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in groundwater and the smear zone, as well as allow for biodegradation of volatilized hydrocarbons and residual product as it contributes to dissolved phase impacts in the vadose zone as detailed in **Exhibit F-1**;

c. Northern Air Sparge/Soil Vapor Extraction (AS/SVE) (in Area 7/8); AS is designed to inject air below the water table to volatilize hydrocarbons from groundwater and the smear zone and provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in the saturated zone; SVE is designed to recover volatilized hydrocarbons above the biodegradation capacity of the vadose zone for ex-situ treatment. SVE also promotes the flow of atmospheric air into the vadose zone to enhance aerobic bioremediation above the water table; this system is detailed in **Exhibit F-1**;

bp was granted a Temporary Authorization (TA) by Illinois EPA to cease operation of the HRS system on December 5, 2017 (Log No. B-147R-TA-2) for 180 days while Illinois EPA reviewed the Class 2 Permit Modification and associated additional information, with the commitment that bp's pilot-scale systems being operated on-site would eventually be expanded to a site-wide hydrocarbon recovery/remediation system.

In the Main Plant Permit modification dated May 29, 2018, the Illinois EPA approved the bp document entitled, "Class 2 Permit Modification Request, Contaminant Control Demonstration and Hydrocarbon Recovery System", dated October 27, 2017. The Class 2 Permit Modification Request included changes to Sections IV and V of the RCRA Permit to incorporate:

1) a revised methodology for demonstration of groundwater contaminants control;

2) operation of the three pilot-scale bioremediation systems, which will be expanded, to progress the remedy beyond the capability of the HRS; and,

3) interim recovery actions for recovery of mobile LNAPL under specific site conditions as described in **Exhibit F-1**.

Additional information regarding the hydrocarbon recovery and remedial systems is included in **Exhibit F-1**.

F.6 Cost Estimate for Required Corrective Action

The proposed cost estimate for completion of corrective action at the bp Main Plant Property including groundwater remediation is $87,922,423. The cost estimate backup is included in **Exhibit F-2** along with a summary table of bp labor categories and role definitions.

F.7 Financial Assurance for Corrective Action

The financial assurance mechanism documentation required by 35 Admin 724.243 for the amount noted in Section F.6 is included in **Exhibit F-3**.

TABLES

Table F-1

Land Reuse Area	SWMUs/PRSs contained in Land Reuse Areas
Area 1 - Northwest Corner	PRS 5 – North Tank Farm
Area 2 - Northeast Corner	PRS 1 – Former Tank 228 Dike Area
	PRS 5 – North Tank Farm
	PRS 6 – East Tank Farm
	SWMU 9 – Northeast Sand Pit
Area 3 - North Central Area	SWMU 24 – APAC Slop Oil Tank 70
	SWMU 26 – APAC Slop Oil Tanks 189, 190, 845, 846
Area 4 - Former Rail Yard	SWMU 13 – Separator Sludge Landfarm
	SWMU 21 – Former APAC Waste Transfer Area
Area 5 - South Central Area	SWMU 27 – APAC Slop Oil Tank 177 Area
	PRS 3 – Waste Oil Leak Area
Area 6 - Former APAC Area	SWMU 17 - Additives Waste Pit
	SWMU 18 - DAP Spent Filter Cake Storage Area
	SWMU 22 – New APAC Waste Transfer Area
	SWMU 23 – MAP Spent Filter Cake Storage Area
	SWMU 31 – Waste Phenol Accumulation Area
	SWMU 36 – Liquid Waste Collection Bin
Area 7 - Former Alkyl Plant	PRS 5 – North Tank Farm
Area 8 - North Tank Farm	PRS 2 – Former Tank 246 Dike Area
	PRS 5 – North Tank Farm
	SWMU 8 – Bottom Disposal Areas
	SWMU 25 – APAC Slop Oil Tank 189
Area 9 - Korea Tank Farm	SWMU 30 – Korea Tank Farm Disposal Area
	PRS 8 – Korea Tank Farm
Area 10 - East Tank Farm	PRS 6 – East Tank Farm
Area 11 - Spray Pond Area (Ponds 1 & 2 and Intake Channel Areas)	SWMU 15 – Spray Ponds Other than North Cell / Spray Pond 1
Area 12 - South Tank Farm	PRS 7 – South Tank Farm
	SWMU 12 – Southeast Disposal Area
Area 13 - Wildlife Enhancement Area	SWMU 12 – Southeast Disposal Area
Area 14 - Southeast Corner	None
Area 15 - Administration Building	None
Area 16 - Marketing Operations Area	SWMU 16 – Old API Separator
	SWMU 34 – Amoco's Sewer System
Area 17 - Liquid Propane Gas (LPG) Caverns	None
Area 18 - North Cell Spray Pond 1 and South Flare Pit	SWMU 14 – North Cell of Spray Pond 1 (NCSP1)
	SWMU 33 – South Flare Pit
Area 19 - Spray Pond 3	SWMU 15 – Spray Ponds Other than North Cell / Spray Pond 1

Notes:

PRS 4 is Hydrocarbons (Light Non-Aqueous Phase Liquids) on Water Table at the Main Plant

PRS 9 location is not known

Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
MAIN PLANT PROPERTY (FACILITY-WIDE)			
--	--	June 1993	Amoco Main Plant RCRA Facility Assessment
03/31/94	Product Release Site Corrective Action Work Plan	09/07/94	approved
03/31/94	RCRA Facility Investigation RFI Phase I Work Plan		
12/15/95	RCRA Facility Investigation Phase I Report, Main Plant	06/05/01	approved
03/19/01	RCRA Facility Investigation Phase II/III Project Plan	06/21/02	approved
06/03/01	Revised Engineered Barrier Specification Report	07/03/01	approved
02/06/02	Memorandum of Understanding Between The City of Wood River, Illinois and the Illinois Environmental Protection Agency Regarding the Use of a Local Groundwater or Water Well Ordinance as an Environmental Institutional Control	03/28/02	approved
08/27/02	Wood River Soil Sampling Strategy	--	--
12/14/06	Underground Piping Investigation Work Plan	--	--
03/07/07	Comprehensive Quality Assurance Project Plan (QAPP) Main Plant and Riverfront Site Investigations	--	--
11/30/07	Summary Letter for Asphalt and Impacted Soil Remediation	--	--
05/09/08	Site-Wide Class II Groundwater Demonstration	--	--
11/14/08	Underground Piping Investigation Work Plan (UPI/WP), Revision 1	--	--
03/24/09	Revised Figure 4 (UPI/WP, Revision 1) submitted via email	04/13/09	response letter to the November 14, 2008 and March 24, 2009 UPI/WP, Revision 1 submittals
05/27/09	Section 3.3 Revisions (UPI/WP, Revision 1)	07/06/09	approved
April 2010	Site-Wide Geology Report	--	--
--	--	03/04/11	renewal of Hazardous Waste Management RCRA Part B Permit (Permit), Main Plant, Wood River, Illinois, ILD980700967; issued September 30, 1993
04/06/12	Additional Information for Sitewide Class II Groundwater Demonstration	12/17/12	letter disapproving the Site-Wide Class II Groundwater Demonstration

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 1			
06/06/00	Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan	08/15/00	partial approval
10/30/00	Land Reuse Investigation (PRS 5 NW Corner) Report and Partial Closure Plan	--	--
06/19/01	Revised Land Reuse Investigation (PRS 5 NW Corner) Report and Closure Plan	12/05/01	No Further Action letter
11/07/02	Environmental Land Use Control for Area 1	01/10/03	approved
01/27/03	Recorded Environmental Land Use Control for Area 1	03/25/05	approved
AREA 2			
06/06/00	Land Reuse Investigation PRS 1, PRS 5, PRS 6, and SWMU 9 (Northeast and Northwest Corners) Work Plan	08/15/00	partial approval
09/21/01	Northeast Corner Land Reuse Investigation Status Report	--	--
10/12/01	Northeast Corner Land Reuse Investigation and Status Report- Letter for Replacement Tables	--	--
12/20/01	Northeast Corner Land Reuse Investigation and Status Report-Addendum 1	--	--
01/22/02	Northeast Corner Land Reuse Investigation and Status Report-Addendum 2	--	--
04/05/02	Northeast Corner Land Reuse Investigation and Status Report-Addendum 3	06/04/02	comments
05/16/02	Northeast Corner Land Reuse Investigation and Status Report-Addendum 4	--	--
07/26/02	Final Response to Illinois EPA Comments on Addendum 3	08/13/02	No Further Action letter
01/20/03	EPA the ELUC for Area 2	01/29/03	approved
02/06/03	Recorded ELUC for Area 2	--	--
07/15/03	Resolution of Soil Saturation Limit Exceedances in Area 2	08/11/03	approved
06/10/11	Draft Revised ELUC for Area 2	--	--
05/18/11	RG36 Arsenic Investigation Report	--	--
06/10/11	RG36 Arsenic Investigation Report-Addendum	--	--
06/10/11	Draft ELUC for Donation I Parcel within Area 2	--	--
08/11/11	Revised Draft ELUC for Donation Parcel I within Area 2	11/03/11	approved
01/06/12	Certified ELUC for bp-Retained Parcel within Area 2	02/27/12	approved
01/06/12	Certified ELUC for for Donation Parcel I within Area 2	03/13/12	approved
02/25/16	Area 2 Donation Parcel II – Vapor Intrusion Report and Boundary Approval Request	--	--
11/22/16	Area 2 Class 2 Permit Modification Request	02/28/17	conditional approval
12/20/16	Summary of 12/8/2016 Public Meeting for Area 2 Class 2 Permit Modification	--	--

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 3			
--	--	09/03/98	Illinois EPA Violation Notice M-1998-00104
06/03/02	Area 3 Current Conditions Report/Characterization Work Plan	09/27/02	approved with conditions and modifications
12/22/06	Area 3 Land Reuse Investigation Report and Closure Plan	03/29/07	email request for Tier 2 evaluation clarification
07/12/07	Response letter addressing Illinois EPA concerns from 3/29/2007 and 6/22/2007 comments	--	--
05/08/12	Area 3 Comprehensive Land Reuse Investigation Report and Remediation Plan	--	--
02/12/13	Response to Illinois EPA email concerns regarding Area 3 Comprehensive Land Reuse Investigation and Remediation Plan	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10 and 17
--	--	03/27/13	Leaking UST Incident Number 940183
07/15/13	Site Investigation Completion Report in response to Leaking UST Incident No. 940183	--	--
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 3 LRI environmental sampling performed in 2018)	--	--
AREA 4			
11/30/01	Area 4 Current Conditions Report/Characterization Work Plan	02/10/02	conditional approval
03/25/02	Responses to Illinois EPA comments on Area 4 Current Conditions Report/Characterization Work Plan	--	--
10/04/02	Area 4 Land Reuse Investigation Report and Closure Plan	01/08/03	comments
05/30/03	Responses to the Illinois EPA comments on Area 4 Land Reuse Investigation Report and Closure Plan	08/22/03	No Further Action letter, subject to conditions
07/16/04	Area 4 Removal of TCLP and Total Lead Impacted Soils	--	--
01/24/05	Draft ELUC for Area 4	06/01/05	approved
07/29/05	Recorded ELUC for Area 4	09/29/05	approved

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 5			
07/03/02	Area 5 Current Conditions Report/Characterization Work Plan	--	--
12/22/06	Area 5 Land Reuse investigation Report and Closure Plan	03/29/07	email request for Tier 2 evaluation clarification
		06/22/07	response letter providing comments regarding Tier 2 evaluation, perched groundwater, and Class II groundwater demonstration
07/12/07	Response to Illinois EPA 3/29/2007 email comments	--	--
11/30/07	Response letter to Illinois EPA 6/22/2007 comments	--	--
03/05/08	Revised Area 5 Land Reuse Investigation Report and Closure Plan	07/11/08	email comments regarding soil and perched groundwater
10/24/08	Response to Illinois EPA 7/11/2008 email comments	01/30/09	response letter with several conditions/comments to be addressed before a NFA Determination can be made for soil and perched groundwater
12/28/11	Area 5 Comprehensive Land Reuse Investigation Report and Remediation Plan and Response to Illinois EPA Comments	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 5 LRI environmental sampling performed in 2018-2019)	--	--
AREA 6			
06/28/02	Area 6 Current Conditions Report/Characterization Work Plan	09/05/02	approval
12/22/06	Area 6 Land Reuse Investigation Report and Closure Plan	03/29/07	clarification request regarding the Tier 2 risk evaluation
07/12/07	Requested Tier 2 evaluation revisions to the Area 6 Land Reuse Investigation and Closure Report	07/11/08	draft comments via email concerning additional soil and perched groundwater investigation
01/08/09	Response to 7/11/2008 comments which included a Supplemental Investigation Work Plan (SIWP)	September 2009	draft comments
--	--	02/24/10	final comments to the Area 6 Land Reuse Investigation Report and Closure Plan and the SIWP
03/08/12	Area 6 Comprehensive Land Reuse Investigation Report and response to 2/24/2010 Illinois EPA comments	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 6 LRI environmental sampling performed in 2018-2019)	--	--

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 7/8			
04/12/02	Response and Compliance Commitment Agreement for Violation Notice M-2002-01001	--	--
09/13/02	Remedial Action Completion Report (RACR)	--	--
05/29/03	Area 7/8 Current Conditions Report/Characterization Work Plan	08/07/03	approved
06/02/08	Area 7/8 Land Reuse Investigation Report and Closure Plan	--	--
06/15/07	Response to Illinois EPA Incident Inquiry Letter, dated 5/16/2007, for incidents 20070605 and 20070606	08/13/07	letter stating that releases should be identified as RECs
06/02/08	Response to Illinois EPA comments dated 8/13/2007 for incidents 20070605 and 20070606	--	--
12/13/12	Area 7-8 Land Reuse Investigation Report and Remediation Plan	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 7/8 LRI environmental sampling performed in 2017-2018)	--	--
AREA 9			
04/30/02	Area 9 Current Conditions Report/Characterization Work Plan	09/05/02	approved
05/09/08	Area 9 Land Reuse Investigation Report and Closure Plan (superseded by 12/6/11 submittal)	06/01/09	draft comments via email
		10/22/09	draft comments regarding groundwater via email
12/06/11	Area 9 Comprehensive Land Reuse Investigation Report and Remediation Plan	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
AREA 10			
03/28/03	Area 10 Current Conditions Report/Characterization Work Plan	--	--
03/21/08	Area 10 Land Reuse Investigation Report and Closure Plan	--	--
05/03/11	Area 10 Comprehensive LRI Report and Remediation Plan	--	--
12/20/19	Area 10 Comprehensive Land Reuse Investigation Report	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
AREA 11			
04/29/11	Area 11 Current Conditions Report/Characterization Workplan	01/24/12	comments

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 12			
06/16/15	Proposed TACO-based Corrective Action - Tank 293 (Area 12)	08/02/19	not approved
11/02/15	Notification to the Illinois EPA of the ownership transfer of the BP Wood River Terminal Facility to KM Phoenix Holdings, LLC. (KMPH)	--	--
11/06/15	Class 1* Permit Modification in order to modify the Corrective Action schedule for Area 12 and also to modify the boundaries of Area 12 to reflect the Terminal Facility property boundaries that were to be transferred to KMPH (resubmitted on 9/15/2016)	05/20/16	letter to KMPH and BP outlining requirements to be completed in order to transfer Area 12 and the associated corrective action responsibilities to KMPH
--	--	08/02/19	response to Tank 293 Annual Current Conditions Reports for 2015-2018
10/02/19	Letter acknowledging the 8/2/2019 Illinois EPA letter regarding bp's responsibilities for corrective action and reporting associated with Tank 293	--	--
12/20/19	Resubmission of the 2016, 2017, and 2018 Tank 293 Current Conditions Reports under BP letterhead, as requested by the Illinois EPA	08/02/19	Acknowledgement of reports as general correspondence
02/27/20	2019 Tank 293 Current Conditions Report	--	--
03/01/21	2020 Tank 293 Current Conditions Report	--	--
12/23/21	Class 1* Permit Modification in order to modify the 12/20/2017, Corrective Action cost estimate to include the portion of Area 12 that was transferred to KMPH.	--	--
03/01/22	2021 Tank 293 Current Conditions Report	--	--
02/28/23	2022 Tank 293 Current Conditions Report	--	--
03/01/24	2023 Tank 293 Current Conditions Report	--	--
--	--	03/04/24	RCRA Corrective Action Permit issued to Kinder Morgan Liquids Terminals, LLC, effective April 8, 2024.
AREA 13			
08/10/11	Area 13 Current Conditions Report/Characterization Work Plan	10/26/11	conditional approval
--	--	02/10/20	response to the Area 13 Comprehensive Land Reuse Investigation Report and Rememdation Plan
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 13 LRI environmental sampling performed in 2017-2019)	--	--

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Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 14			
10/10/11	Area 14 Current Conditions Report/Characterization Work Plan	07/12/12	conditional approval
10/15/12	Response to Illinois EPA 7/12/2012 comments regarding installation of GMZ Well G128	--	--
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 14 LRI environmental sampling performed in 2017-2019)	--	--
AREA 15			
01/23/02	Area 15 Current Conditions Report/Characterization Work Plan	--	--
07/23/02	Area 15 Revised Current Conditions Report/Characterization Work Plan	--	--
10/18/02	Area 15 Land Reuse Investigation Report and Closure Plan	02/26/03	meeting discussing perched groundwater conditions and potential groundwater ingestion route
07/23/03	Area 15 Land Reuse Investigation Report and Closure Plan - Addendum 1	11/19/03	No Further Action letter
07/23/03	Area 15 Land Reuse Investigation Report and Closure Plan - Addendum 2		
04/27/04	Area 15 Removal of TCLP Lead Impacted Soils	06/16/04	approved
07/07/04	Draft ELUC for Area 15	08/23/04	approved
10/06/04	Recorded ELUC for Area 15	09/29/05	approved
AREA 16			
--	--	02/04/91	Illinois EPA Incident Verification Letter for incident 902311
03/25/91	Chemical Waste Management Inc response to Illinois EPA Incident Inquiry Letter, dated 2/4/1991, for incident 902311	06/01/93	Amoco Main Plant RCRA Facility Assessment, IEPA ID 1191150001, USEPA ID ILD980700967
--	--	04/28/94	Incident Inquiry Letter for incident 940833
06/10/94	Response to the Illinois EPA Incident Verification Letter, dated 4/28/1994, for incident 940833	--	--
08/04/97	RFI Phase I Report for SWMUs 16 and 23	--	--
06/16/08	Area 16 Current Conditions Report/Characterization Work Plan	05/05/09	approved
12/23/14	Area 16 Comprehensive Land Reuse Investigation Report and Remediation Plan	06/14/16	comments
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 16 LRI environmental sampling performed in 2018-2019)	--	--

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Table F-2

Submittal Date	Document Title	Illinois EPA Response Date	Illinois EPA Response
AREA 17			
07/03/08	Area 17 Current Conditions Report/Characterization Work Plan	05/05/09	approved
10/22/12	Comprehensive Area 17 Land Reuse Investigation Report and Remediation Plan	02/10/20	letter regarding Comprehensive Land Reuse Investigation Reports for Land Reuse Areas 3, 5, 6, 7/8, 9, 10, and 17
03/08/24	Land Reuse Investigation Data Submittal (included general background, sampling methodology, analytical procedures, and analytical results of the Area 17 LRI environmental sampling performed in 2019)	--	--
AREA 18			
02/01/91	Draft Initial Closure Re-Certification Sampling of the SFP and NC-SP1	--	--
04/01/92	Part B Post-Closure Permit Application for the North Cell of Spray Pond #1 and the South Flare Pit	--	--
October 2001	North Cell of Spray Pond 1 Closure Work Plan (draft)	--	--
January 2002	South Flare Pit Area (Area 18) Current Conditions Report/Characterization Work Plan	03/20/02	approved
04/29/05	Closure Documentation Report for the South Flare Pit	--	--
02/01/08	South Flare Pit Shallow Groundwater Investigation Workplan	09/09/08	approved
07/16/15	Draft ELUC for the South Flare Pit	10/27/15	approved
12/31/15	Certified Recording of the South Flare Pit ELUC	07/18/16	approved
AREA 19			
01/23/02	Spray Pond 3 Area (Area 19) Current Conditions Report/ Characterization Work Plan	03/20/02	responses for soil related aspect
		04/09/02	responses for groundwater related issues
06/12/07	Area 19 Land Reuse Investigation Report and Closure Plan	12/06/07	No Further Action letter
05/02/08	Reponse to IEPA Area 19 No Further Action letter	04/13/09	No Further Action letter for soil and perched groundwater

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Table F-3

Area	Accomplishments as of June 2024	Current Status
Area 1 - Northwest Corner	NFA for soils approved December 5, 2001. Recorded ELUC approved March 25, 2005.	Comply with conditions of NFA and ELUC.
Area 2 - Northeast Corner	NFA for soils approved August 13, 2002. Recorded ELUC approved March 29, 2005. Revised recorded ELUC approved February 27, 2012.	Comply with conditions of NFA and ELUC.
Area 3 - North Central Area	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised Inv. Report submitted May 8, 2012. IEPA requested that bp withdraw the 2012 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 4 - Former Rail Yard	NFA for soils approved August 22, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC.
Area 5 - South Central Area	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised Inv. Report submitted December 28, 2011 and received by IEPA February 12, 2012. IEPA requested that bp withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 6 - Former APAC Area	CCR/IW approved September 5, 2002. Inv. Report submitted December 22, 2006; revised report submitted March 8, 2012 received by IEPA March 16, 2012. IEPA requested that bp withdraw the 2012 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.

R000895

Area	Accomplishments as of June 2024	Current Status
Area 7 - Former Alkyl Plant	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008 to IEPA; revised report for Area 7/8 submitted December 12, 2012. IEPA requested that bp withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 8 - North Tank Farm	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008; revised report for Area 7/8 submitted December 12, 2012. IEPA requested that bp withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 9 - Korea Tank Farm	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that bp withdraw the 2011 Inv. Report in a letter dated May 30, 2019.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 10 - East Tank Farm	CCR approved June 4, 2003. Inv. Report submitted March 21, 2008; revised Inv. Report received by IEPA on May 5, 2011. IEPA requested that bp withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Revised Inv. Report submitted December 20, 2019, superseding 2011 Inv. Report.	Revised Inv. Report pending IEPA review.
Area 11 - Spray Pond Area (Ponds 1 & 2 / Intake Channel Areas)	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA January 24, 2012.	bp implementing approved CCR/IW.

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Area	Accomplishments as of June 2024	Current Status
Area 12 - South Tank Farm	RFI Phase I report for SWMUs in area approved June 5, 2001. IEPA notified of the Ownership Transfer of the BP Wood River Terminal Facility to Kinder Morgan Phoenix Holdings LLC (KMPH) on November 2, 2015.	KMPH is responsible for RCRA corrective action activities above elevation 408 feet AMSL in Area 12 and those portions of the following Areas that were included in the transfer of ownership: 4, 5, 10, 11, 13, 17 and 19 in accordance with the KMPH RCRA Permit issued March 4, 2024. bp retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 feet MSL.
Area 13 - Wildlife Enhancement Area	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26, 2011. Environmental data collected in 2017-2019 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 14 -Southeast Corner	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW received by IEPA on October 11, 2011. Environmental data collected in 2017-2019 submitted March 8, 2024.	IEPA reviewing CCR/IW. 2011.
Area 15 - Administration Building	NFA for soils approved November 19, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC.
Area 16 - Marketing Operations Area	CCR/IW approved May 5, 2009. Inv. Report submitted December 23, 2014 and received by IEPA on December 24, 2014. IEPA requested a revised Inv. Report in a letter dated June 14, 2016. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.

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Area	Accomplishments as of June 2024	Current Status
Area 17 - LPG Caverns	CCR/IW approved May 5, 2009. Inv. Report submitted October 22, 2012. IEPA requested that bp withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2019 submitted March 8, 2024.	bp to submit revised Inv. Report pending further discussion with IEPA.
Area 18 - North Cell Spray Pond 1 (NCSP1) and South Flare Pit (SFP)	On January 7, 2008, Illinois EPA approved closure by removal demonstration for the NC-SP1. IEPA has determined that the facility has satisfied the groundwater requirements of IEPA's May 29, 2007 and September 9, 2008 letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. A closure by removal demonstration for the soils at the SFP was approved by IEPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Code 742 which places certain restriction on future activities at the unit. Recorded ELUC approved July 18, 2016.	No RCRA closure, RCRA post-closure, or RCRA corrective action is necessary at NCSP1. Regarding the SFP, bp must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. bp must also comply with conditions of the ELUC.
Area 19 - Spray Pond 3	IEPA approved Inv. Report on December 6, 2007; IEPA revised this letter on April 13, 2009. This letter determined that no further action required in area provided certain requirements are met and certain restrictions are placed on future activities in the area.	bp must carry out requirements set forth in IEPA's April 13, 2009 letter.

Notes:

1) CCR/IW = Current Conditions Report/Investigation Work Plan
2) Inv Report = Investigation Report
3) NFA = No Further Action

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FIGURES

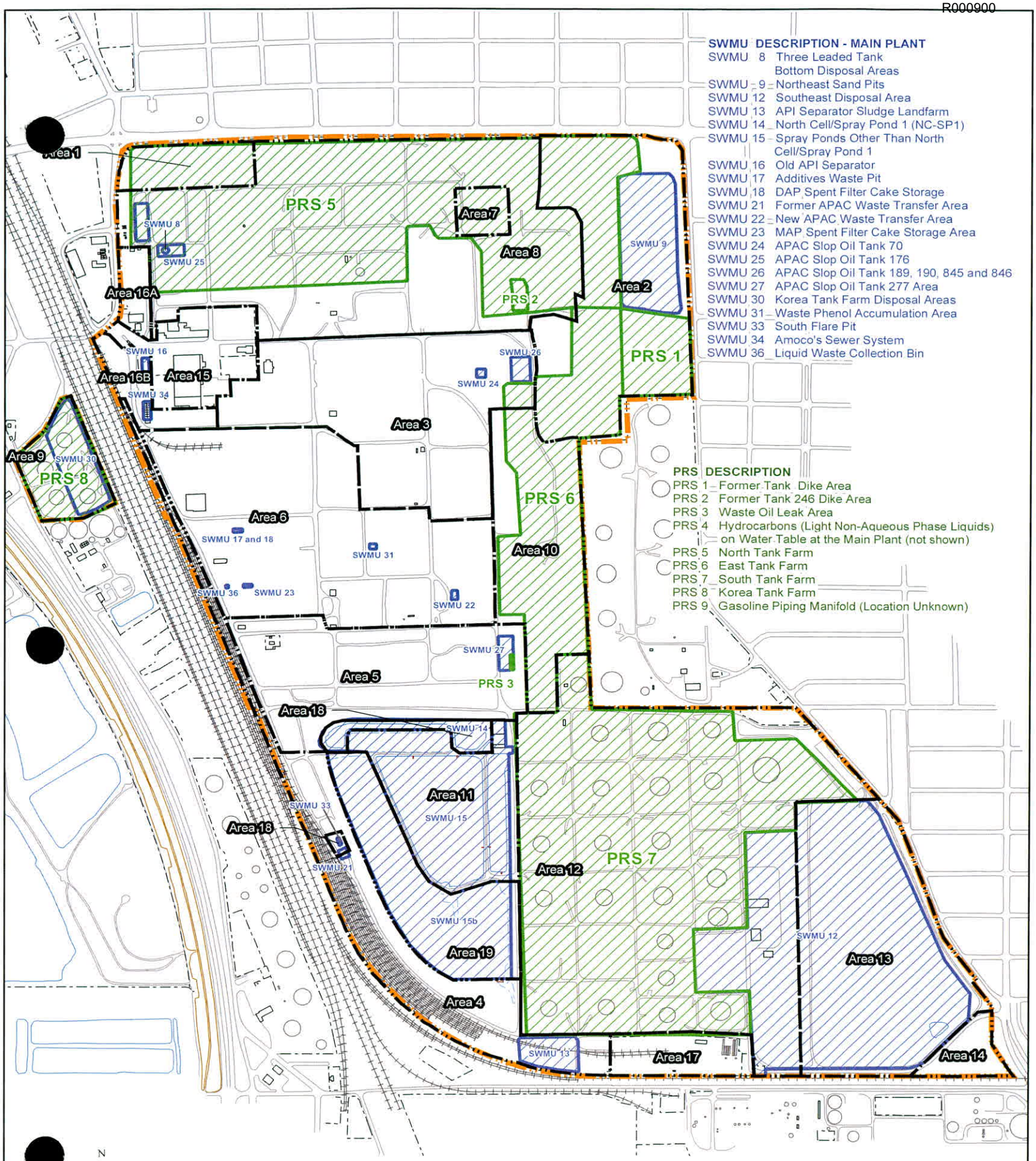
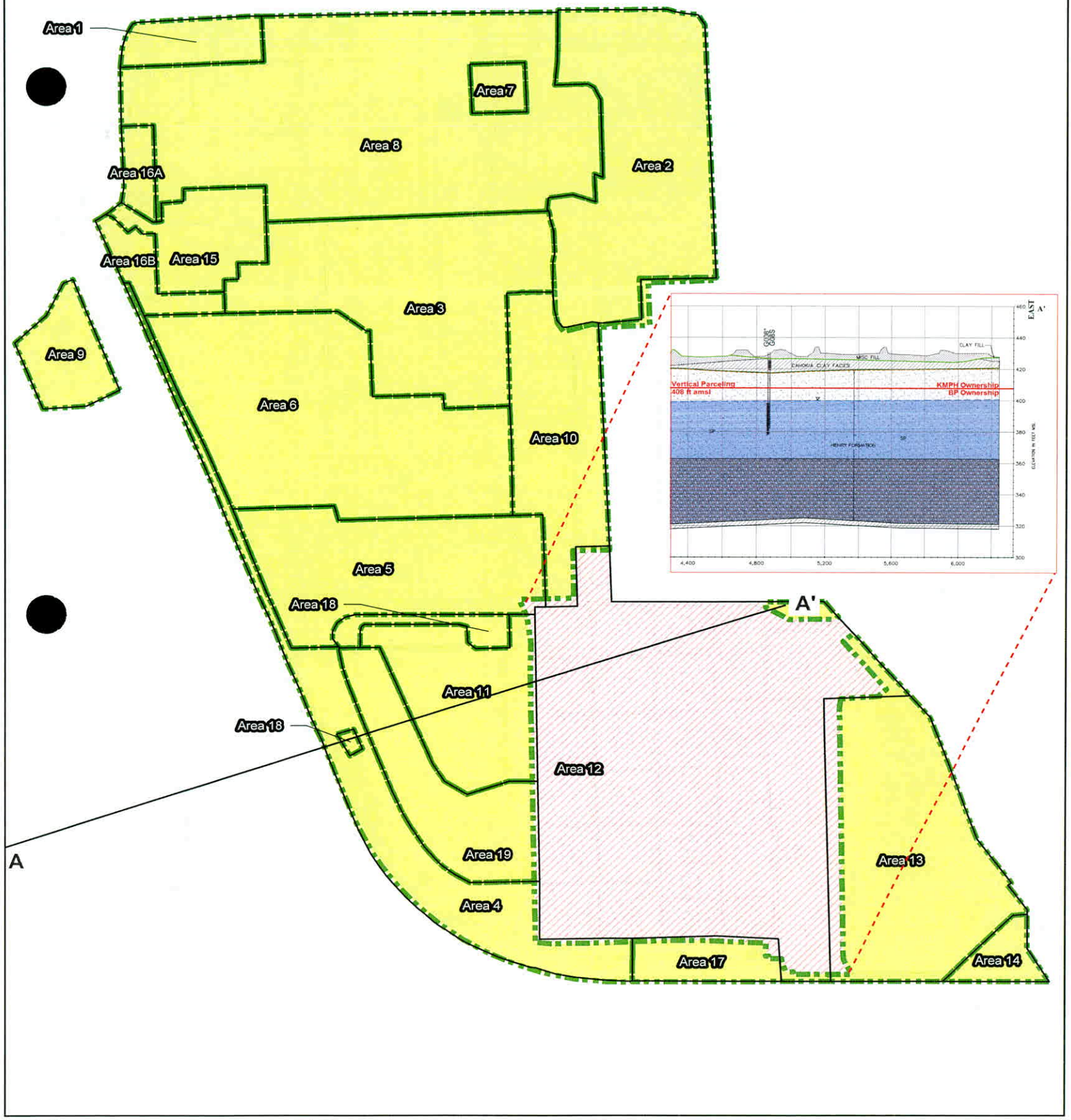


FIGURE F-1
SWMU, PRS, and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS



N

500 250 0 500

Feet

Legend

- Existing Land Reuse Area Boundary
- Proposed Land Reuse Area Boundary
- BP Property
- KMPH Property

FIGURE F-2
Proposed Land Reuse Area Boundaries

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

EXHIBITS

EXHIBIT F-1

Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

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Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

A. Summary

The following subsections detail the historical and current remediation systems operated at the bp Main Plant Property to mitigate hydrocarbons and refinery product in accordance with Section IV.C of the current Part B Permit (Log. B-147R-M-17 and M-18 dated May 29, 2018) (Permit).

Historical remedial operations included a Hydrocarbon Recovery System (HRS) as an interim remedial measure (IRM) as discussed below in Section C.

As discussed below in Section D, current hydrocarbon remedial operations include light non-aqueous phase liquid (LNAPL) interim removal actions and the operation of three pilot-scale bioremediation systems as successors to the HRS, which reached its limit of effectiveness. LNAPL interim removal actions are dominated by enhanced biodegradation accomplished through the pilot-scale systems. In addition, some manual recovery activities and mobile recovery systems are employed where seasonal data indicate liquid recovery is beneficial. The three bioremediation systems are being operated to mitigate hydrocarbons and refinery product, and to provide information on long-term performance and other essential data to evaluate the full-scale implementation of hydrocarbon and other refinery related product remediation at the BP Main Plant Property. The three pilot-scale bioremediation systems include:

- Central Biovent System (Section E)
- Southern Biosparge/Biovent System (Section F)
- Northern Air Sparge/Soil Vapor Extraction System (AS/SVE) (Section G)

B. Definitions

"Bioremediation systems" means systems or technologies that enhance the biodegradation of hydrocarbons, and preferentially remove compounds that are typically more toxic which results in compositional change. The biodegradation processes affect refinery product from the smear zone and vadose zone as it contributes to soil vapor and dissolved phase impacts. Systems to accomplish this include bioventing, biosparging, and AS/SVE systems or some combination of systems designed to remediate hydrocarbons. It may also include other technologies that could enhance bioremediation such as infiltration galleries or ambient air introduction that can increase oxygen to the subsurface to enhance aerobic biodegradation.

"Hydrocarbon Remediation Well" means any type of well, including Bioremediation System wells, installed to remediate hydrocarbons, from the smear zone and vadose zone.

"Remediating refinery product" means the use of physical, chemical, or biological means to remove or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts to reduce the mass present at the BP Main Plant Property.

"Smear Zone" means the vertical profile of hydrocarbon impacted soil located across the area of groundwater fluctuations, between the high and low groundwater elevations.

"Vadose Zone" means the vertical profile of unsaturated soils located above the water table.

C. Historical Hydrocarbon Recovery System Operation

The HRS at the BP Main Plant Property was commissioned as an IRM in 1993 to hydraulically recover subsurface mobile LNAPL from above the water table. The original system included 21 HRS extraction wells as listed below. Following 17 years of operation, 16 HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven additional years of operation, the remaining five HRS wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness. As described in the technical memorandum titled, *Hydrocarbon Recovery System (HRS) Evaluation*, dated May 24, 2017, the HRS removed 6.5 million gallons of LNAPL over 22 years of operation. However, despite this volume of mobile LNAPL having been removed, the HRS did not have a significant impact on dissolved phase concentrations in groundwater. Accordingly, installation and operation of three pilot-scale bioremediation systems (as discussed below) was implemented as a replacement for the HRS, to provide information needed to design full-scale remedies to target the remaining LNAPL with the goal to reduce dissolved phase concentrations of benzene.

Historical/Inactive HRS Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
G601	RC-1	56.0	373.40	393.40 - 373.40
G602	RC-2	55.0	374.96	394.96 - 374.96
G603	RC-3	51.0	379.39	399.39 - 379.39
G604	RC-4	49.5	382.18	402.18 - 382.18
G606	RC-6	55.0	373.27	408.27 - 378.27
G607	RC-7	58.5	368.97	403.97 - 373.97
G608	RC-8	61.0	364.90	399.90 - 369.90
G609	RC-9	64.0	367.40	402.40 - 372.40
G610	RC-10	69.0	366.61	401.61 - 371.61
G611	RC-11	70.0	369.96	404.96 - 374.96
G612	RC-12	73.0	368.21	395.21 - 373.21
G615	RC-15	58.4	371.77	407.15 - 377.15
G617	RC-17	58.0	370.41	392.41 - 375.41
G618	RC-18	57.5	371.76	411.76 - 376.76
G619	RC-19	58.0	368.92	408.92 - 373.92
G629	RC-H-29	57.6	379.88	401.48 - 379.88
G605	RC-5	49.8	380.56	401.27 - 381.27
G613	RC-13	60.0	371.25	406.25 - 376.25
G614	RC-14	59.5	371.60	406.60 - 376.60
G616	RC-16	65.0	367.61	402.61 - 372.61
G620	RC-20	85.4	344.72	406.49 - 349.72

ft. MSL = feet above mean sea level

D. Current Hydrocarbon Remediation Systems Operations

bp is currently operating three pilot-scale bioremediation systems, performing passive bioventing in two areas, and performing LNAPL physical removal as part of LNAPL IRM. The IRM to address recoverable product are the following interim removal actions in accordance with the Permit:

- Interim removal actions occur when the 30-Day Average Mississippi River Stage as calculated

based on the Alton Dam Tailwater River stage is below 410 ft. MSL.

- Recoverable refinery product requiring interim removal is the product from wells where the most recent recoverability testing results indicate a product transmissivity of 2.0 feet squared per day (ft^2/day) or greater;
    - The refinery product recoverability is determined through product bail down testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method ASTM E2856-13;
    - Re-evaluation of wells exhibiting the most recent transmissivity testing results above 2.0 ft^2/day and thicknesses equal to or greater than 0.5 feet is conducted a minimum of once per year during seasonal low water table conditions;
    - Refinery product exhibiting transmissivity values below 2.0 ft^2/day will be addressed as part of the final remedy.

bp is currently operating three pilot-scale bioremediation systems and has implemented pilot-scale passive bioventing in two additional areas for remediation of groundwater and destruction of LNAPL impacts. These remedial approaches focus on in-situ remediation of hydrocarbons by delivering increased oxygen to the subsurface via different mechanisms as opposed to hydraulic recovery. Biodegradation also has the added benefit of not only removing LNAPL mass but changing the chemical composition of LNAPL in the subsurface, through sparging and venting, to mitigate impact to dissolved phase groundwater conditions. The locations of the bioremediation systems are depicted on Figure 1.

The primary objectives of the bioremediation systems include:

- Progressing LNAPL remediation beyond what the HRS could achieve including dissolved phase risk reduction;
- Identification of technology combinations that are flexible across water table conditions and optimize vapor treatment;
- Evaluation of alternative remedial approaches for hydrocarbon and LNAPL mitigation; and
- Support for selection and design of appropriate final remedies.

Performance of the initial pilot-scale systems was presented in the October 2018 *Performance Report – Pilot-Scale Bioremediation Systems* (bp, 2018) and found enhanced biodegradation via all three technologies (i.e., bioventing, biosparging, and AS/SVE) to be viable for remediation of groundwater and more effective at destruction of remaining LNAPL impacts than physical hydrocarbon recovery. The passive bioventing technologies implemented promote the same remedial mechanisms as active bioventing but utilize natural pressure changes between the vadose zone and surface to deliver oxygen into the vadose zone in the form of ambient air. The technologies all specifically enhance the removal rate of hydrocarbon compared to historical systems and promote compositional change to decrease concentrations of aromatic BTEX compounds at the site.

bp completed modifications to the pilot-scale bioremediation systems and technologies in 2019-2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the Main Plant Property. Installation of air injection wells, piezometers, and soil vapor monitoring points (VMPs) was initiated in 2019 and completed during First Quarter 2020. Surveying of the newly installed wells was also completed in First Quarter 2020. Installation of requisite equipment and start-up activities were completed in 2020 and 2021. Passive bioventing was implemented in two of the initial pilot areas

in 2021 and 2022, as previous remedial efforts progressed remediation in those area to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation.

The three expansion pilot bioremediation systems continue to operate as of 2024. Any changes to the operations or configuration of the systems is documented through an annual update to Attachment C of the Permit as required by Section IV.C.8 of the Permit. Information presented in the following previously submitted Class 1* Permit modification requests has been incorporated into this exhibit: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024).

The configuration and operation of the three pilot-scale bioremediation systems are detailed in Sections E (Central Bivent System), F (Southern Biosparge/Biovent System) and G (Northern AS/SVE System). Each section includes a timeline of operations, enhancements, and modifications for each system.

E. Pilot-Scale Central Biovent System

A bioventing pilot test was performed to evaluate performance of this remedial approach and to quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/contaminants of concern (COC) removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. Performance of the pilot-scale system was presented in the October 2018 *Performance Report – Pilot-Scale Bioremediation Systems* (bp, 2018). The pilot test finding is that bioventing is more effective at treating hydrocarbons through mass removal (biodegradation) and compositional change than physical removal of hydrocarbon.

The biovent system underwent an expansion in 2019-2020, including installation of additional biovent wells to treat a larger area to the west of the original biovent implementation area (Figure 3). Performance data from the initial pilot test was utilized in design of the expansion pilot system to more efficiently deliver oxygen into the subsurface. The monitoring network was also modified with the installation of additional piezometers and VMPs in 2019-2020. Active bioventing in six biovent wells in the initial Central Biovent pilot system area was shut down in July 2020 and transitioned to passive bioventing in 2021 as part of the modifications to the current operating system. Full-time operation of the expanded Central Biovent System was initiated in April 2021.

The six biovent wells from the initial biovent system area were converted to passive biovent wells by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface. In April 2023, Main Plant Observation Well G050 was also fitted for passive bioventing as an IRM to address LNAPL.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-June 2020	Initial pilot wells operate with active bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
July 2020-March 2021	System shut down for completion of system expansions and electrical system upgrades.	

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

Time Period	Description	Wells
April 2021-2024 (ongoing)	Expansion system wells operate with active bioventing	A3BV-1A, A3BV-1B, A3BV-2A, A3BV-2B, A3BV-3A, A3BV-3B, A3BV-4A, A3BV-4B, A3BV-5A, A3BV-5B, A3BV-6A, A3BV-6B
December 2021-2024 (ongoing)	Initial pilot wells used for passive bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
April 2023-2024 (ongoing)	Main Plant Observation Well used for passive bioventing.	G050

System Description

The pilot-scale biovent system equipment is designed to deliver sufficient air into the subsurface at low pressures to allow for aerobic respiration to dominate the treatment zone. Flow from a rotary vane compressor delivers air at total flow rates up to 60 standard cubic feet per minute (scfm) @ 10 pounds per square inch (psi), split into up to 12 of the 18 total biovent wells. Air from the compressor has a throttling valve, temperature indicator, check valve, and pressure indicator. The biovent process and instrumentation diagram is presented as Figure 2, and the biovent system schematic is presented as Figure 2A.

Flow from the equipment is routed through a 6-leg manifold. Each manifold leg has a flow control valve, rotameter-style flowmeter, and pressure gauge. Each manifold leg feeds up to two (2) biovent wells via aboveground piping. Each of the biovent well lateral legs has its own flow control valve and pressure indicator. Operation of each of the six (6) manifold legs is controlled with a normally-closed solenoid controlled via a human machine interface (HMI) screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting, heating, and ventilation).

Biovent configurations and flow rates are controlled by system valves, the Programmable Logic Controller (PLC) and HMI. The system is designed to operate up to 12 of the 18 total individual biovent points at a time in any combination. Individual point flow rates are between 1-20 scfm, with a combined rate of up to 60 scfm. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Biovent System Layout and Well Network

The pilot-scale biovent system layout and well network are depicted on Figure 3. The Central Biovent System remediation wells include 18 biovent wells, and performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biovent Wells:

Eighteen (18) total biovent wells are present; six (6) were components of the initial system installation, and 12 were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the groundwater table under typical conditions.

Piezometers:

Six total piezometers were installed to monitor the shallow water table and identify LNAPL presence in the remediation areas. Piezometers supplement existing monitoring wells in the north (G99L) and south

(G13L) of the expansion treatment area. One additional deep monitoring well is present in the initial treatment area – A3AS-C.

Vapor Monitoring Points:

A total of 20 nested VMP locations are used to monitor the vadose zone to measure degradation. VMP depths are staggered to ensure granularity in measuring impacts and changing gradients. The 20 nested VMPs are located at differing distances from the pilot test wells and throughout the treatment zones to allow for monitoring the influence of the system. Each location contains three (3) to four (4) nested VMPs for a total of 67 individual VMPs.

The wells comprising the Central Biovent System are listed below:

Biovent Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3BVS-S	A3BVS-S	25	406.27	416.27 - 406.27
A3BVS-D	A3BVS-D	35	396.20	406.20- 396.20
A3BVNW-S	A3BVNW-S	25	406.05	416.05 - 406.05
A3BVNW-D	A3BVNW-D	35	396.11	406.11 - 396.11
A3BVNE-S	A3BVNE-S	25	406.27	416.27 -406.27
A3BVNE-D	A3BVNE-D	35	396.28	406.28 -396.28
A3BV-1A	A3BV-1A	32	397.77	407.77-397.77
A3BV-1B	A3BV-1B	32	397.24	407.24-397.24
A3BV-2A	A3BV-2A	32	397.72	407.72-397.72
A3BV-2B	A3BV-2B	32	397.02	407.02-397.02
A3BV-3A	A3BV-3A	32	398.35	408.35-398.35
A3BV-3B	A3BV-3B	32	399.09	409.09-399.09
A3BV-4A	A3BV-4A	32	396.96	406.96-396.96
A3BV-4B	A3BV-4B	32	397.71	407.71-397.71
A3BV-5A	A3BV-5A	32	398.58	408.58-398.58
A3BV-5B	A3BV-5B	32	398.77	408.77-398.77
A3BV-6A	A3BV-6A	32	399.35	409.35-399.35
A3BV-6B	A3BV-6B	32	399.16	409.16-399.16

ft. MSL = feet above mean sea level

Biovent System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3PZ-N	A3PZ-N	35	396.11	396.11 - 411.11
A3PZ-C	A3PZ-C	35	396.22	396.22 - 411.22
A3PZ-S	A3PZ-S	35	396.14	396.14 - 411.14
A3PZ-N2	A3PZ-N2	34	394.64	404.64-394.64
A3PZ-C2	A3PZ-C2	35	394.61	404.61-394.61
A3PZ-S2	A3PZ-S2	36	394.66	404.66-394.66

ft. MSL = feet above mean sea level

Exhibit F-1

Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

Biovent System Area VMPs

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A3VMPNA-10	A3VMPNA-10	10	9.5-10	0.75
A3VMPNA-20	A3VMPNA-20	20	19.5-20	0.75
A3VMPNA-24	A3VMPNA-24	24	23.5-24	0.75
A3VMPNA-28	A3VMPNA-28	28	27.5-28	0.75
A3VMPNB-15	A3VMPNB-15	15	14.5-15	0.75
A3VMPNB-22	A3VMPNB-22	22	21.5-22	0.75
A3VMPNB-26	A3VMPNB-26	26	25.5-26	0.75
A3VMPNB-30	A3VMPNB-30	30	29.5-30	0.75
A3VMPC-10	A3VMPC-10	10	9.5-10	0.75
A3VMPC-20	A3VMPC-20	20	19.5-20	0.75
A3VMPC-24	A3VMPC-24	24	23.5-24	0.75
A3VMPC-28	A3VMPC-28	28	27.5-28	0.75
A3VMPSW-10	A3VMPSW-10	10	9.5-10	0.75
A3VMPSW-20	A3VMPSW-20	20	19.5-20	0.75
A3VMPSW-24	A3VMPSW-24	24	23.5-24	0.75
A3VMPSW-28	A3VMPSW-28	28	27.5-28	0.75
A3VMPSW-15	A3VMPSW-15	15	14.5-15	0.75
A3VMPSW-22	A3VMPSW-22	22	21.5-22	0.75
A3VMPSW-26	A3VMPSW-26	26	25.5-26	0.75
A3VMPSW-30	A3VMPSW-30	30	29.5-30	0.75
A3VMPSE-10	A3VMPSE-10	10	9.5-10	0.75
A3VMPSE-20	A3VMPSE-20	20	19.5-20	0.75
A3VMPSE-24	A3VMPSE-24	24	23.5-24	0.75
A3VMPSE-28	A3VMPSE-28	28	27.5-28	0.75
A3VMPSE-15	A3VMPSE-15	15	14.5-15	0.75
A3VMPSE-22	A3VMPSE-22	22	21.5-22	0.75
A3VMPSE-26	A3VMPSE-26	26	25.5-26	0.75
A3VMPSE-30	A3VMPSE-30	30	29.5-30	0.75
A3VMP1-S	A3VMP1-S	17	16-17	0.75
A3VMP1-M	A3VMP1-M	22	21-22	0.75
A3VMP1-D	A3VMP1-D	27	26-27	0.75
A3VMP2-S	A3VMP2-S	17	16-17	0.75
A3VMP2-M	A3VMP2-M	22	21-22	0.75
A3VMP2-D	A3VMP2-D	27	26-27	0.75
A3VMP3-S	A3VMP3-S	17	16-17	0.75
A3VMP3-M	A3VMP3-M	22	21-22	0.75
A3VMP3-D	A3VMP3-D	27	26-27	0.75
A3VMP4-S	A3VMP4-S	17	16-17	0.75
A3VMP4-M	A3VMP4-M	22	21-22	0.75
A3VMP4-D	A3VMP4-D	27	26-27	0.75
A3VMP5-S	A3VMP5-S	17	16-17	0.75
A3VMP5-M	A3VMP5-M	22	21-22	0.75
A3VMP5-D	A3VMP5-D	27	26-27	0.75
A3VMP6-S	A3VMP6-S	17	16-17	0.75

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A3VMP6-M	A3VMP6-M	22	21-22	0.75
A3VMP6-D	A3VMP6-D	27	26-27	0.75
A3VMP7-S	A3VMP7-S	17	16-17	0.75
A3VMP7-M	A3VMP7-M	22	21-22	0.75
A3VMP7-D	A3VMP7-D	27	26-27	0.75
A3VMP8-S	A3VMP8-S	17	16-17	0.75
A3VMP8-M	A3VMP8-M	22	21-22	0.75
A3VMP8-D	A3VMP8-D	27	26-27	0.75
A3VMP9-S	A3VMP9-S	17	16-17	0.75
A3VMP9-M	A3VMP9-M	22	21-22	0.75
A3VMP9-D	A3VMP9-D	27	26-27	0.75
A3VMP10-S	A3VMP10-S	17	16-17	0.75
A3VMP10-M	A3VMP10-M	22	21-22	0.75
A3VMP10-D	A3VMP10-D	27	26-27	0.75
A3VMP11-S	A3VMP11-S	17	16-17	0.75
A3VMP11-M	A3VMP11-M	22	21-22	0.75
A3VMP11-D	A3VMP11-D	27	26-27	0.75
A3VMP12-S	A3VMP12-S	17	16-17	0.75
A3VMP12-M	A3VMP12-M	22	21-22	0.75
A3VMP12-D	A3VMP12-D	27	26-27	0.75
A3VMP13-S	A3VMP13-S	17	16-17	0.75
A3VMP13-M	A3VMP13-M	22	21-22	0.75
A3VMP13-D	A3VMP13-D	27	26-27	0.75

ft. BGS = feet below ground surface
in. = inches

Biovent System Area Deep Monitoring Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	361.19-366.19

ft. MSL = feet above mean sea level

F. Pilot-Scale Southern Biosparge/Biovent System

A biosparging/bioventing pilot test was performed to evaluate the performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The test was also intended to determine the efficiency of using a horizontal well for sparging, and whether this approach could potentially be used to serve as a barrier for contaminant migration in the dissolved phase. Performance of the pilot-scale system was presented in the October 2018 *Performance Report – Pilot-Scale Bioremediation Systems* (bp, 2018); the pilot test finding is that biosparging/bioventing is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The biosparge system was modified to treat a larger area to the north and west of the original implementation area and to include use of bioventing. When operating under the expanded bioventing

scenario, flow from the existing compressor is routed through a flow amplifying air eductor and manifold to deliver air to 36 vertical biovent wells (as opposed to the original single horizontal biosparge well). The monitoring network was also expanded with the addition of piezometers and VMPs. The wells associated with the bioparge/biovent system expansion were installed in 2019-2020. Active biosparging in the horizontal well was shut down in September 2020 as part of the modifications to the current operating system. Full-time operation of the modified and expanded Southern Biosparge/Biovent System was initiated in July 2021.

In April 2023, Main Plant Observation Well G16L was converted to a passive biovent well by fitting a one-way valve to allow ambient air into the vadose zone when negative pressure is present in the subsurface. In December 2023, G16L was then converted to an active biovent well as part of the Pilot-Scale Southern Biosparge/Biovent System.

Time Period	Description	Wells
April 2017-September 2020	Initial horizontal well operates with active biosparging.	A5HBS
October 2020-June 2021	System shut down for completion of system expansions and electrical system upgrades.	
July 2021-2024 (ongoing)	Expansion system wells operate with active bioventing	A5BV-1, A5BV-2, A5BV-3, A5BV-4, A5BV-5, A5BV-6, A5BV-7, A5BV-8, A5BV-9, A5BV-10, A5BV-11, A5BV-12, A5BV-13, A5BV-14, A5BV-15, A5BV-16, A5BV-17, A5BV-18, A5BV-19, A5BV-20, A5BV-21, A5BV-22, A5BV-23, A5BV-24, A5BV-25, A5BV-26, A5BV-27, A5BV-28, A5BV-29, A5BV-30, A5BV-31, A5BV-32, A5BV-33, A5BV-34, A5BV-35
April 2023-November 2023	Main Plant Observation Well used for passive bioventing.	G16L
December 2023-2024 (ongoing)	Main Plant Observation Well used for active bioventing.	G16L

System Description

The biosparge/biovent pilot test system is designed to deliver air into the subsurface at moderate flow rates and pressure. The biosparge scenario volatizes VOCs in the saturated zone and enhances biodegradation of those impacts via inducing aerobic conditions. The biovent scenario delivers air to the vadose zone to ensure aerobic conditions are present which enhances hydrocarbon biodegradation. Flow from a compressor delivers air at flow rates up to 150 scfm @ 40 psi. Air from the compressor has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. The biosparge/biovent process and instrumentation diagram is presented as Figure 4, and the biosparge/biovent process flow schematic is presented as Figure 4A.

Under the biosparge scenario, flow from the equipment is routed directly to the biosparge horizontal well with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of the well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge configurations and flow rates are controlled by system valves, the pressure regulator, PLC and HMI. The system is designed to operate the biosparge well at flow rates between 30-150 scfm but typically operates in the range of 50-85 scfm total flow. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Under the biovent configuration, rather than running compressed air directly to the biosparge horizontal well, compressed air is run through an air eductor to boost flow rates up to 240 scfm @ 10 psi in a manifold building with 36 manifold points. Each well on the manifold is equipped with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of each well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The manifold components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge/Biovent System Layout and Well Network

The biosparge/biovent system layout and well network are depicted on Figure 5. The Biosparge Remediation Well includes the horizontal biosparge well. There are 35 biovent remediation wells in the Southern Biosparge/Biovent System area, plus the monitoring well (G16L) to which bioventing is being applied. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biosparge Horizontal Well:

One horizontal biosparge well was installed for the pilot test. The biosparge well construction described below was designed to be placed at the bottom of groundwater impacts to create an oxygen curtain through which impacted water should pass. The screened portion of the well is 150 ft. long and placed perpendicular to groundwater flow; the screen length allows for groundwater flow to be influenced within the targeted area even with minor temporal variations in groundwater flow.

Horizontal biosparge well construction specifications are summarized below:

- Horizontal directional drilling methodology;
- Installed at a depth of 45 feet below ground surface (ft. bgs);
- Screen length of 150 ft.;
- Riser length of 240-250 ft. on each end of well (630 ft. total length horizontally);
- 3-inch diameter, HDPE construction; and
- Custom slotting to uniformly sparge approximately 2-10 SCFM per 10 horizontal ft. of screen.

Biovent Wells:

Thirty-five (35) biovent wells were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the groundwater table under typical conditions. In December 2023, G16L was converted to an active biovent well, for a current total of 36 biovent wells.

Piezometers:

A total of 22 piezometers were installed at three different depths - 15 shallow, 6 mid, and one deep to monitor the vertical extent of impacts in the water table. In the biosparge area, seven wells were installed upgradient of the biosparge well and 12 wells downgradient. In the biovent area, three additional piezometers supplement existing monitoring wells in the treatment area (A6MW03, G048, and G049).

Vapor Monitoring Points:

Twenty-eight (28) nested VMPs were installed to monitor the vadose zone impacts. Each set of nested points contains two (2) to three (3) depths of monitoring points to assess the vadose zone vertically for a total of 81 points. VMP placement is meant to measure influence at different depths and measure the extent of influence perpendicular from the well screen orientation.

The wells comprising the Biosparge/Biovent system are listed below:

Biosparge Hydrocarbon Remediation Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft.)
A5HBS*	A5HBS	45	varies*	150 ft long*

*Horizontal Well
ft. MSL = feet above mean sea level

Biovent Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5BV-1	A5BV-1	36	395.27	405.27-395.27
A5BV-2	A5BV-2	36	396.77	406.77-396.77
A5BV-3	A5BV-3	36	396.08	406.08-396.08
A5BV-4	A5BV-4	36	395.99	405.99-395.99
A5BV-5	A5BV-5	36	395.93	405.93-395.93
A5BV-6	A5BV-6	36	394.65	404.65-394.65
A5BV-7	A5BV-7	36	395.51	405.51-395.51
A5BV-8	A5BV-8	36	NS	NS
A5BV-9	A5BV-9	36	396.53	406.53-396.53
A5BV-10	A5BV-10	36	396.45	406.45-396.45
A5BV-11	A5BV-11	36	396.33	406.33-396.33
A5BV-12	A5BV-12	36	396.32	406.32-396.32
A5BV-13	A5BV-13	34	397.05	407.05-397.05
A5BV-14	A5BV-14	36	397.62	407.62-397.62
A5BV-15	A5BV-15	36	NS	NS
A5BV-16	A5BV-16	36	NS	NS
A5BV-17	A5BV-17	36	396.39	406.39-396.39
A5BV-18	A5BV-18	36	396.38	406.38-396.38
A5BV-20	A5BV-20	36	395.21	405.21-395.21
A5BV-21	A5BV-21	36	395.26	405.26-395.23
A5BV-22	A5BV-22	36	397.00	407.00-397.00
A5BV-23	A5BV-23	38	391.95	406.95-391.95
A5BV-24	A5BV-24	41	391.75	406.75-391.75

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5BV-25	A5BV-25	41	391.38	406.38-391.38
A5BV-26	A5BV-26	36	397.40	407.40-397.40
A5BV-27	A5BV-27	38	395.68	405.68-395.68
A5BV-28	A5BV-28	38	393.43	408.43-393.43
A5BV-29	A5BV-29	38	395.04	410.04-395.04
A5BV-31	A5BV-31	38	394.73	409.73-394.73
A5BV-32	A5BV-32	33	398.32	408.32-398.32
A5BV-33	A5BV-33	34	397.61	407.61-397.61
A5BV-34	A5BV-34	38	391.53	406.53-391.53
A5BV-35	A5BV-35	38	391.48	406.48-391.48
A5BV-36	A5BV-36	38	391.65	406.65-391.65

NS = Not surveyed, in a health and safety exclusion zone during surveying.
ft. MSL = feet above mean sea level

Biosparge/Biovent System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5PZN-S	A5PZN-S	40	389.29	389.29 - 399.29
A5PZNW-S	A5PZNW-S	38	391.56	391.56 - 401.56
A5PZNW-M	A5PZNW-M	45	384.51	384.51 - 389.51
A5PZW-S	A5PZW-S	39.5	390.44	390.44 - 400.44
A5PZW-M	A5PZW-M	45	385.07	385.07 - 390.07
A5PZW-D	A5PZW-D	65	365.04	365.04 - 370.04
A5PZW-S1	A5PZW-S1	40	389.51	389.51 - 399.51
A5PZW-S2	A5PZW-S2	40	389.85	389.85 - 399.85
A5PZSW-S	A5PZSW-S	40	389.82	389.82 - 399.82
A5PZSW-M	A5PZSW-M	45	384.86	384.86 - 389.86
A5PZNE-S	A5PZNE-S	40	389.51	389.51 - 399.51
A5PZNE-M	A5PZNE-M	45	384.51	384.51 - 389.51
A5PZE-S1	A5PZE-S1	40	389.93	389.93 - 399.93
A5PZE-S2	A5PZE-S2	40	390.72	390.72 - 400.72
A5PZE-M	A5PZE-M	45	384.62	384.62 - 389.62
A5PZSE-S	A5PZSE-S	40	389.79	389.79 - 399.79
A5PZSE-M	A5PZSE-M	45	384.71	384.71 - 389.71
A5PZS-S1	A5PZS-S1	40	389.51	389.51 - 399.51
A5PZS-S2	A5PZS-S2	40	389.90	389.90 - 399.90
A5PZ-1	A5PZ-1	40	392.47	402.47-392.47
A5PZ-2	A5PZ-2	40	391.59	401.59-391.59
A5PZ-3	A5PZ-3	40	NS	NS

NS = Not surveyed, in a health and safety exclusion zone during surveying.
ft. MSL = feet above mean sea level

Biosparge System Area VMPs

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A5VMPNW-S	A5VMPNW-S	10	9.5-10	0.75

Exhibit F-1

Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A5VMPNW-M	A5VMPNW-M	20	19.5-20	0.75
A5VMPNW-D	A5VMPNW-D	25	24.5-25	0.75
A5VMPSW-S	A5VMPSW-S	10	9.5-10	0.75
A5VMPSW-M	A5VMPSW-M	20	19.5-20	0.75
A5VMPSW-D	A5YMPSW-D	25	24.5-25	0.75
A5VMPW-S	A5YMPW-S	10	9.5-10	0.75
A5VMPW-M	A5VMPW-M	20	19.5-20	0.75
A5VMPW-D	A5VMPW-D	25	24.5-25	0.75
A5VMPE-S	A5VMPE-S	10	9.5-10	0.75
A5VMPE-M	A5VMPE-M	20	19.5-20	0.75
A5VMPE-D	A5VMPE- D	25	24.5-25	0.75
A5VMP1-S	A5VMP1-S	23	22-23	0.75
A5VMP1-M	A5VMP1-M	28	27-28	0.75
A5VMP2-S	A5VMP2-S	23	22-23	0.75
A5VMP2-M	A5VMP2-M	28	27-28	0.75
A5VMP2-D	A5VMP2-D	33	32-33	0.75
A5VMP3-S	A5VMP3-S	22	21-22	0.75
A5VMP3-M	A5VMP3-M	27	26-27	0.75
A5VMP3-D	A5VMP3-D	32	31-32	0.75
A5VMP4-S	A5VMP4-S	22	21-22	0.75
A5VMP4-M	A5VMP4-M	29	28-29	0.75
A5VMP4-D	A5VMP4-D	33	32-33	0.75
A5VMP5-S	A5VMP5-S	23	22-23	0.75
A5VMP5-M	A5VMP5-M	28	27-28	0.75
A5VMP6-S	A5VMP6-S	21	20-21	0.75
A5VMP6-M	A5VMP6-M	26	25-26	0.75
A5VMP6-D	A5VMP6-D	31	30-31	0.75
A5VMP7-S	A5VMP7-S	21	20-21	0.75
A5VMP7-M	A5VMP7-M	26	25-26	0.75
A5VMP7-D	A5VMP7-D	31	30-31	0.75
A5VMP8-S	A5VMP8-S	22	21-22	0.75
A5VMP8-M	A5VMP8-M	27	26-27	0.75
A5VMP8-D	A5VMP8-D	32	31-32	0.75
A5VMP9-S	A5VMP9-S	20	19-20	0.75
A5VMP9-M	A5VMP9-M	25	24-25	0.75
A5VMP10-S	A5VMP10-S	20	19-20	0.75
A5VMP10-M	A5VMP10-M	25	24-25	0.75
A5VMP10-D	A5VMP10-D	30	29-30	0.75
A5VMP11-S	A5VMP11-S	22	21-22	0.75
A5VMP11-M	A5VMP11-M	27	26-27	0.75
A5VMP11-D	A5VMP11-D	32	31-32	0.75
A5VMP12-S	A5VMP12-S	22	21-22	0.75
A5VMP12-M	A5VMP12-M	27	26-27	0.75
A5VMP12-D	A5VMP12-D	32	31-32	0.75
A5VMP13-S	A5VMP13-S	22	21-22	0.75
A5VMP13-M	A5VMP13-M	27	26-27	0.75

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A5VMP13-D	A5VMP13-D	32	31-32	0.75
A5VMP14-S	A5VMP14-S	22	21-22	0.75
A5VMP14-M	A5VMP14-M	27	26-27	0.75
A5VMP14-D	A5VMP14-D	32	31-32	0.75
A5VMP15-S	A5VMP15-S	22	21-22	0.75
A5VMP15-M	A5VMP15-M	27	26-27	0.75
A5VMP15-D	A5VMP15-D	32	31-32	0.75
A5VMP16-S	A5VMP16-S	22	21-22	0.75
A5VMP16-M	A5VMP16-M	27	26-27	0.75
A5VMP16-D	A5VMP16-D	32	31-32	0.75
A5VMP17-S	A5VMP17-S	22	21-22	0.75
A5VMP17-M	A5VMP17-M	27	26-27	0.75
A5VMP17-D	A5VMP17-D	32	31-32	0.75
A5VMP18-S	A5VMP18-S	22	21-22	0.75
A5VMP18-M	A5VMP18-M	27	26-27	0.75
A5VMP18-D	A5VMP18-D	32	31-32	0.75
A5VMP19-S	A5VMP19-S	22	21-22	0.75
A5VMP19-M	A5VMP19-M	27	26-27	0.75
A5VMP19-D	A5VMP19-D	32	31-32	0.75
A5VMP20-S	A5VMP20-S	24	23-24	0.75
A5VMP20-M	A5VMP20-M	28	27-28	0.75
A5VMP20-D	A5VMP20-D	32	31-32	0.75
A5VMP21-S	A5VMP21-S	22	21-22	0.75
A5VMP21-M	A5VMP21-M	27	26-27	0.75
A5VMP21-D	A5VMP21-D	32	31-32	0.75
A5VMP22-S	A5VMP22-S	22	21-22	0.75
A5VMP22-M	A5VMP22-M	27	26-27	0.75
A5VMP22-D	A5VMP22-D	35	34-35	0.75
A5VMP23-S	A5VMP23-S	22	21-22	0.75
A5VMP23-M	A5VMP23-M	27	26-27	0.75
A5VMP23-D	A5VMP23-D	32	31-32	0.75
A5VMP24-S	A5VMP24-S	23	22-23	0.75
A5VMP24-M	A5VMP24-M	28	27-28	0.75
A5VMP24-D	A5VMP24-D	32	31-32	0.75

ft. BGS = feet below ground surface
in. = inches

G. Pilot Scale Northern Air Sparge/Soil Vapor Extraction (AS/SVE) System

An AS/SVE pilot test was performed to evaluate performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The AS/SVE test is evaluating the combined effects air sparging below the water table for stripping of contaminants and enhancing aerobic biodegradation in the vadose zone and below the water table via introduction of ambient air. SVE is specifically utilized when biodegradation is insufficient to control the VOCs in soil gas during sparging or bioventing. Performance of the pilot-scale system was presented in the October 2018 *Performance Report – Pilot-Scale Bioremediation Systems*

(bp, 2018); the pilot test finding is that AS/SVE is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The AS/SVE extraction system was modified to treat a larger area to the south, east, and west of the original AS/SVE pilot test area. This included installation of additional air sparge and soil vapor extraction wells. To treat the additional loading, a catalytic oxidizer is being used for the treatment of off-gases, a change from the previous granular activated carbon off-gas treatment system. The monitoring network was also modified with the addition of piezometers and VMPs. All of the expansion wells were installed in 2019-2020. The initial AS/SVE pilot system was shut down in July 2020 as part of the modifications to the current operating system. Full-time operation of the expanded AS/SVE System was initiated in December 2020.

The four SVE wells and four shallow piezometers from the initial AS/SVE system area were converted to passive biovent wells in December 2021 by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface.

Time Period	Description	Wells
June 2017-July 2020	Initial pilot wells operate AS/SVE with granular activated carbon (GAC) off-gas treatment.	A8AS-N, A8AS-W, A8AS-E, A8AS-S, A8AS-C, A8SVE-NW, A8SVE-NE, A8SVE-SW, A8SVE-SE
August 2020-November 2020	System shut down for completion of system expansions and electrical system upgrades.	
December 2020-2024 (ongoing)	Expansion system wells operate AS/SVE with catalytic oxidizer off-gas treatment.	A8AS-1A, A8AS-1B, A8AS-1C, A8AS-2A, A8AS-2B, A8AS-2C, A8AS-3A, A8AS-3B, A8AS-3C, A8AS-4A, A8AS-4B, A8AS-4C, A8AS-5A, A8AS-5B, A8AS-5C, A8SVE-1A, A8SVE-1B, A8SVE-2A, A8SVE-2B, A8SVE-3A, A8SVE-3B
October 2022-2024 (ongoing)	Initial pilot SVE wells and shallow piezometers used for passive bioventing.	A8SVE-NW, A8SVE-NE, A8SVE-SW, A8SVE-SE, A8PZS-S, A8PZN-S, A8PZNE-S, A8PZSW-S

System Description

The AS/SVE pilot test system is designed to deliver air into the subsurface and capture resultant vapors. Flow from the AS compressor delivers air at total flow rates up to 150 scfm @ 50 psi, split into up to 15 of the 20 AS wells. Air from the blower has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm @ 60 inches of water column (iw), split among up to six (6) of the ten (10) SVE wells. Vapors collected from the blower pass through throttling valves, a moisture knockout tank, dilution valve, vacuum gauges, and particulate filter prior to entering the blower. After exiting the blower discharged vapors pass through a flow meter, pressure gauge, and temperature gauge prior to passing through a heat exchanger and catalytic oxidizer prior to discharging through a stack. The off-gas treatment via a catalytic oxidizer was installed in the third quarter of 2020 and is a change from granular activated carbon treatment utilized during initial pilot test operation.

Condensate collected in the moisture separator is drained via an automated pumping system to a condensate holding tank within the enclosure. This condensate is periodically pumped out manually and discharged to the catch basin in the wash down pad for entry into the site groundwater treatment system. The AS/SVE process and instrumentation plan is presented as Figure 6, and the AS/SVE system schematic is presented as Figure 6A.

AS flow is routed through a five (5)-point manifold and split to reach up to 15 of the 20 AS wells. Each manifold leg has a solenoid valve, flow control valve, rotameter-style flowmeter, and pressure gauge. SVE flow is collected through a four (4)-point manifold to up to six (6) of the ten (10) SVE wells. Each manifold leg has a flow control valve, pilot-tube flowmeter, and vacuum gauge.

The system components are plumbed in a modular/mobile enclosure with interior/exterior lighting and environmental controls (e.g. heating and ventilation). Operational controls for the system include programmed/automated controls in the form of a PLC with HMI, individual equipment components, and automated operation of the process control valves. The gas flow capacities of the AS/SVE system are controlled by the air compressor and the SVE blower. AS compressor flow rates to the individual air sparge wells are between 1-30 scfm, with a combined rate of up to 150 scfm @ 50 psi. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm @ 60 iw, split among the SVE wells. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

AS/SVE System Layout and Well Network

The AS/SVE system layout and well network are depicted on Figure 7. The Remediation Wells include 20 AS wells and 10 SVE wells. At any given time, up to 15 AS wells and 6 SVE wells can be active; the active Remediation Wells can be configured based on the capacity of the equipment and manifold listed above. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

AS Wells:

Twenty (20) AS wells were installed in the treatment areas. The AS wells were installed to the full depth of groundwater impacts.

SVE Wells:

Ten (10) SVE wells were installed to capture vapors created by the AS wells. The wells were placed to cover the AS well layout to ensure capture of any generated vapors.

Piezometers:

A total of 16 piezometers were installed at three different depths - shallow, mid, and deep to monitor the full extent of impacts in groundwater. In the expansion area, the piezometers supplement existing monitoring wells in the treatment area (G85L and G86L). In June 2023, R85L, R85D, and R85A were installed to replace G85L, which was plugged and abandoned in November 2023.

Vapor Monitoring Points:

Seventeen (17) nested VMPs were installed to monitor the vadose zone impacts. Each nested point contains three depths of monitoring points to assess the full vadose zone vertically, for a total of 51 total VMPs.

The wells comprising the AS/SVE system are listed below:

Exhibit F-1
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

AS/SVE Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8AS-N	A8AS-N	50	390.49	395.49 - 390.49
A8AS-W	A8AS-W	50	390.51	395.51 - 390.51
A8AS-C	A8AS-C	50	390.74	395.74 - 390.74
A8AS-E	A8AS-E	45	395.59	400.59 - 395.59
A8AS-S	A8AS-S	45	395.71	400.71 - 395.71
A8AS-1A	A8AS-1A	67	373.53	378.53-373.53
A8AS-1B	A8AS-1B	67	373.57	378.57-373.57
A8AS-1C	A8AS-1C	70	369.62	374.62-369.62
A8AS-2A	A8AS-2A	67	373.28	378.28-373.28
A8AS-2B	A8AS-2B	67	372.67	377.67-372.67
A8AS-2C	A8AS-2C	70	369.06	374.06-369.06
A8AS-3A	A8AS-3A	65	375.59	380.59-375.59
A8AS-3B	A8AS-3B	67	372.66	377.66-372.66
A8AS-3C	A8AS-3C	70	368.98	373.98-368.98
A8AS-4A	A8AS-4A	65	376.67	381.67-376.67
A8AS-4B	A8AS-4B	65	375.83	380.83-375.83
A8AS-4C	A8AS-4C	65	375.25	380.25-375.25
A8AS-5A	A8AS-5A	65	376.87	381.87-376.87
A8AS-5B	A8AS-5B	65	376.71	381.71-376.71
A8AS-5C	A8AS-5C	65	376.10	381.10-376.10
A8SVE-NW	A8SVE-NW	35	405.55	415.55 - 405.55
A8SVE-NE	A8SVE-NE	35	405.49	415.49 - 405.49
A8SVE-SW	A8SVE-SW	35	405.71	415.71 - 405.71
A8SVE-SE	A8SVE-SE	35	405.64	415.64 - 405.64
A8SVE-1A	A8SVE-1A	25	415.27	425.27-415.27
A8SVE-1B	A8SVE-1B	25	411.49	421.49-411.49
A8SVE-2A	A8SVE-2A	25	415.73	425.73-415.73
A8SVE-2B	A8SVE-2B	25	413.82	423.82-413.82
A8SVE-3A	A8SVE-3A	25	416.91	426.91-416.91
A8SVE-3B	A8SVE-3B	25	416.31	426.31-416.31

ft. MSL = feet above mean sea level

AS/SVE System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8PZN-S	A8PZN-S	30	410.88	410.88 - 420.88
A8PZN-M	A8PZN-M	40	400.78	400.78-405.78
A8PZN-D	A8PZN- D	45	395.70	395.70-400.70
A8PZNW-S	A8PZNW-S	30	410.56	410.56 - 420.56
A8PZNW-M	A8PZNWM	40	400.57	400.57 - 405.57
A8PZNW·D	A8PZNWD	45	395.63	395.63 - 400.63
A8PZSE-S	A8PZSE-S	30	410.77	410.77-420.77
A8PZSE-M	A8PZSE-M	40	400.76	400.76-405.76
A8PZSE-D	A8PZSE-D	45	395.71	395.71 -400.71
A8PZS-S	A8PZS-S	30	410.66	410.66 - 420.66

Exhibit F-1

Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8PZS-M	A8PZSM	40	400.62	400.62 - 405.62
A8PZS-D	A8PZS-D	45	395.61	395.61 - 400.61
A8PZ-C	A8PZ-C	52	387.85	397.85-387.85
A8PZ-SE	A8PZ-SE	45	396.18	406.18-396.18
A8PZ-NE	A8PZ-NE	50	391.82	401.82-391.82
A8PZ-SW	A8PZ-SW	49	387.30	397.30-387.30

ft. MSL = feet above mean sea level

AS/SVE System Area VMPs

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A8VMPN-S	A8VMPN-S	10	9.5-10	0.75
ASVMPN-M	A8VMPN-M	20	19.5-20	0.75
ASVMPN-D	A8VMPN-D	25	24.5-25	0.75
A8VMPNE-S	A8VMPNE-S	10	9.5-10	0.75
A8VMPNE-M	A8VMPNE-M	20	19.5-20	0.75
A8VMPNE-D	A8VMPNE-D	25	24.5-25	0.75
A8VMPS-S	A8VMPS-S	10	9.5-10	0.75
A8VMPS-M	A8VMPS-M	20	19.5-20	0.75
A8VMPS-D	A8VMPS-D	25	24.5-25	0.75
A8VMPSW-S	A8VMPSW-S	10	9.5-10	0.75
A8VMPSW-M	A8VMPSW-M	20	19.5-20	0.75
A8VMPSW-D	A8VMPSW- D	25	24.5-25	0.75
A8VMP1-S	A8VMP1-S	5	4-5	0.75
A8VMP1-M	A8VMP1-M	15	14-15	0.75
A8VMP1-D	A8VMP1-D	25	24-25	0.75
A8VMP2-S	A8VMP2-S	5	4-5	0.75
A8VMP2-M	A8VMP2-M	15	14-15	0.75
A8VMP2-D	A8VMP2-D	25	24-25	0.75
A8VMP3-S	A8VMP3-S	5	4-5	0.75
A8VMP3-M	A8VMP3-M	15	14-15	0.75
A8VMP3-D	A8VMP3-D	25	24-25	0.75
A8VMP4-S	A8VMP4-S	5	4-5	0.75
A8VMP4-M	A8VMP4-M	15	14-15	0.75
A8VMP4-D	A8VMP4-D	25	24-25	0.75
A8VMP5-S	A8VMP5-S	5	4-5	0.75
A8VMP5-M	A8VMP5-M	15	14-15	0.75
A8VMP5-D	A8VMP5-D	25	24-25	0.75
A8VMP6-S	A8VMP6-S	5	4-5	0.75
A8VMP6-M	A8VMP6-M	15	14-15	0.75
A8VMP6-D	A8VMP6-D	25	24-25	0.75
A8VMP7-S	A8VMP7-S	5	4-5	0.75
A8VMP7-M	A8VMP7-M	15	14-15	0.75
A8VMP7-D	A8VMP7-D	25	24-25	0.75
A8VMP8-S	A8VMP8-S	5	4-5	0.75
A8VMP8-M	A8VMP8-M	15	14-15	0.75

Exhibit F-1

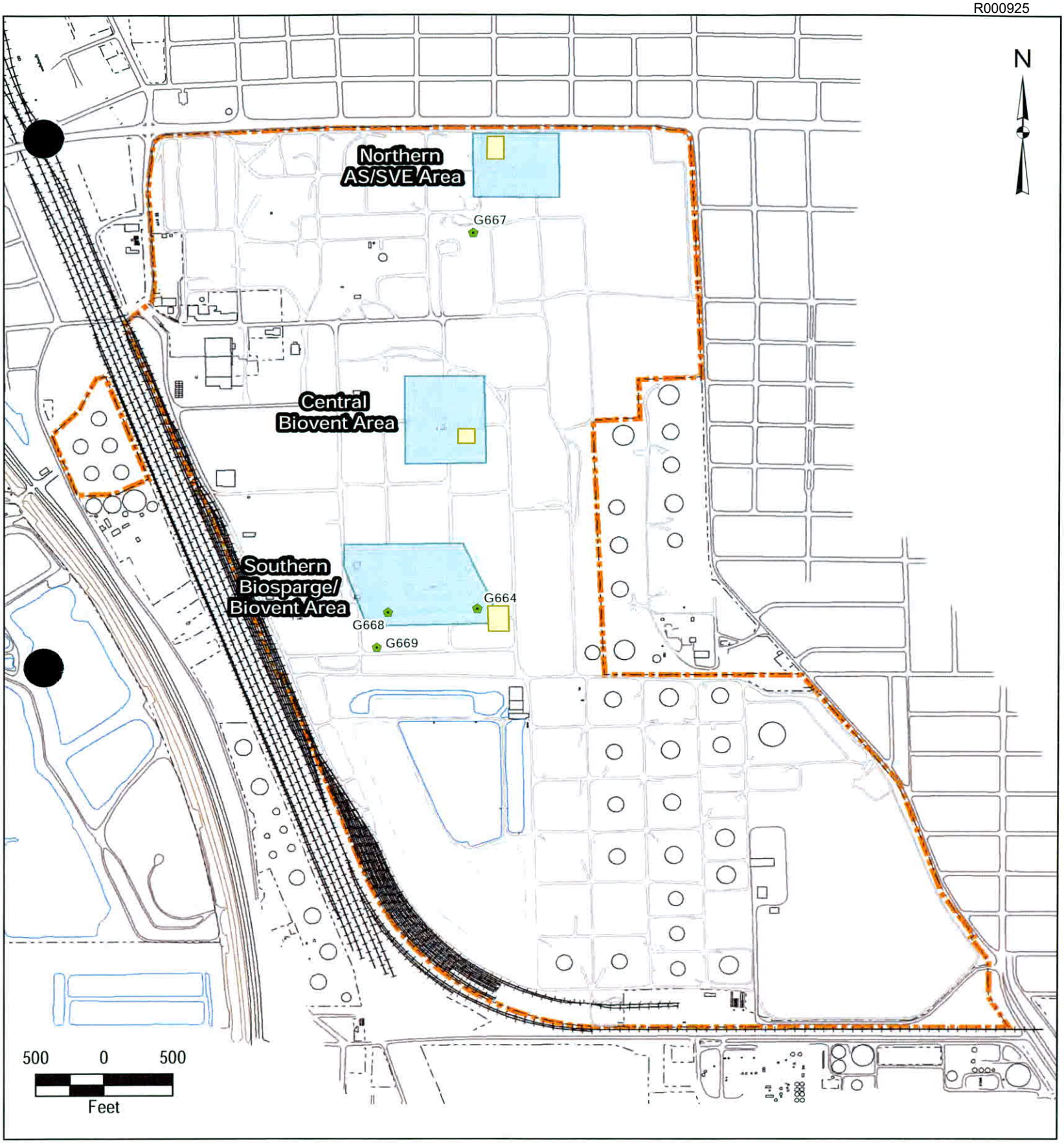
Summary of Historical and Current Hydrocarbon Recovery and Remedial Systems

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth (ft. BGS)	Well Diameter (in.)
A8VMP8-D	A8VMP8-D	25	24-25	0.75
A8VMP9-S	A8VMP9-S	5	4-5	0.75
A8VMP9-M	A8VMP9-M	15	14-15	0.75
A8VMP9-D	A8VMP9-D	25	24-25	0.75
A8VMP10-S	A8VMP10-S	5	4-5	0.75
A8VMP10-M	A8VMP10-M	15	14-15	0.75
A8VMP10-D	A8VMP10-D	25	24-25	0.75
A8VMP11-S	A8VMP11-S	5	4-5	0.75
A8VMP11-M	A8VMP11-M	15	14-15	0.75
A8VMP11-D	A8VMP11-D	25	24-25	0.75
A8VMP12-S	A8VMP12-S	5	4-5	0.75
A8VMP12-M	A8VMP12-M	15	14-15	0.75
A8VMP12-D	A8VMP12-D	25	24-25	0.75
A8VMP13-S	A8VMP13-S	5	4-5	0.75
A8VMP13-M	A8VMP13-M	15	14-15	0.75
A8VMP13-D	A8VMP13-D	25	24-25	0.75

ft. BGS = feet below ground surface

in. = inches

FIGURES



Legend

- Active COD Well (G664, G667, G668, G669)
- BP Main Plant Boundary
- Initial Bioremediation Pilot Systems
- Bioremediation Pilot Systems Expansion Areas

FIGURE 1

SITE PLAN

BP MAIN PLANT PROPERTY
Wood River, Illinois

wood.
15933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Project: BP Wood River
Date: 8/28/2020

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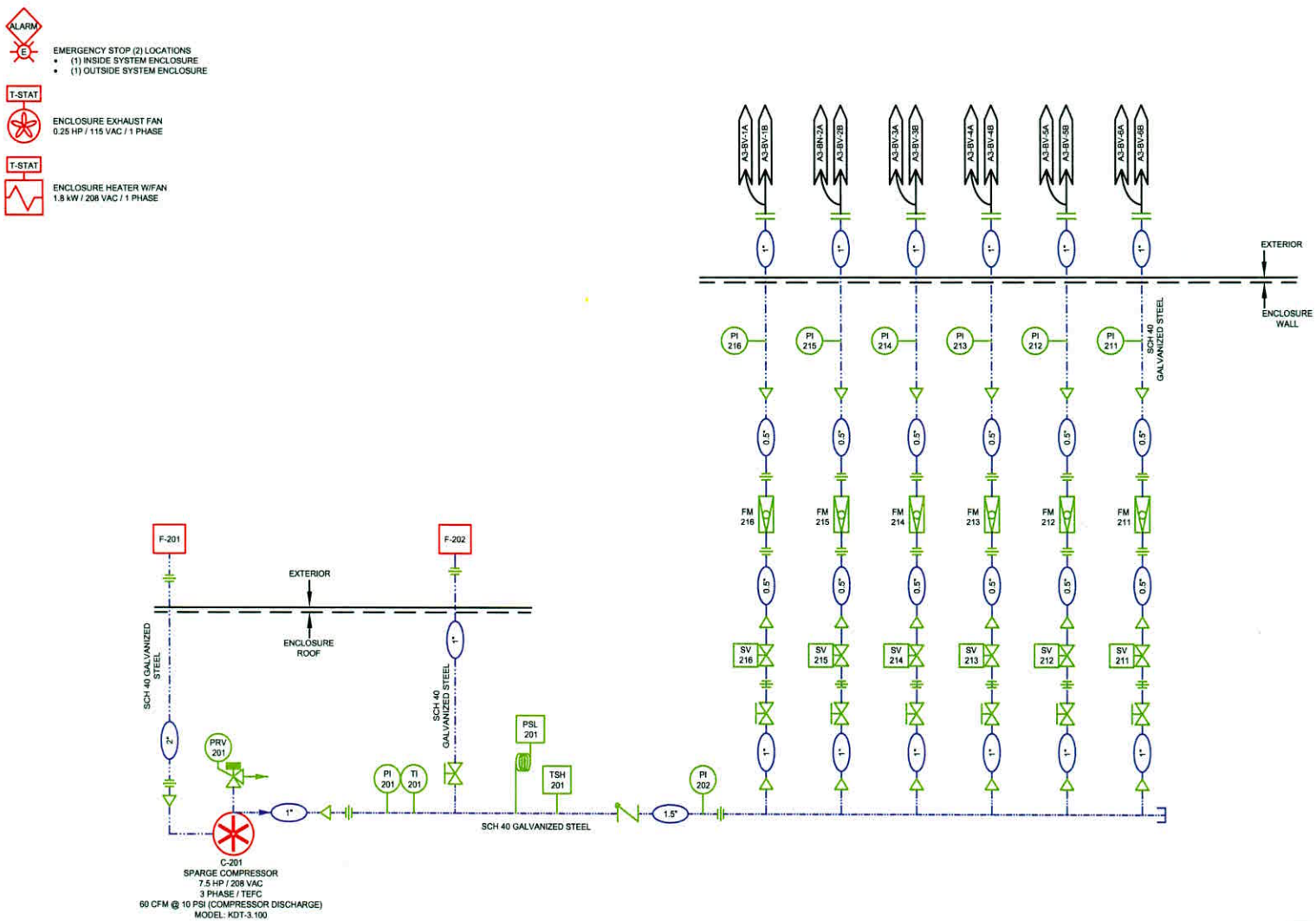

Figure 2
Central Biovent System

NOTES:
1. PROCESS & INSTRUMENTATION DIAGRAM IS A REPRESENTATIVE DRAWING SHOWING EQUIPMENT SPECIFICATIONS, PROCESS PIPING, VALVES AND INSTRUMENTATION NOT TO BE INTERPRETED AS A LAYOUT DRAWING DEPICTING PLUMBING LOCATION, CONNECTIONS, OR FITTINGS.
2. NEC ELECTRICAL CLASSIFICATION
   - PROCESS TREATMENT INTERIOR NEC NON-CLASSIFIED LOCATION
   - ALL ENCLOSURE EXTERIORS NEC NON-CLASSIFIED LOCATIONS
3. REFER TO TABLE 1 FOR INSTRUMENTATION LIST
4. REFER TO TABLE 2 FOR INTERLOCKS

REV	DESCRIPTION	DATE	APPROVED
B	MODIFIED MANIFOLD TAGGING POST SHIPMENT	01-05-17	CJJ
A	AS-BUILT	12-01-16	CJJ

REVISIONS

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DRWN BY	CJJ
DATE	10-31-16
CHK BY	
DATE	
APPR BY	
DATE	

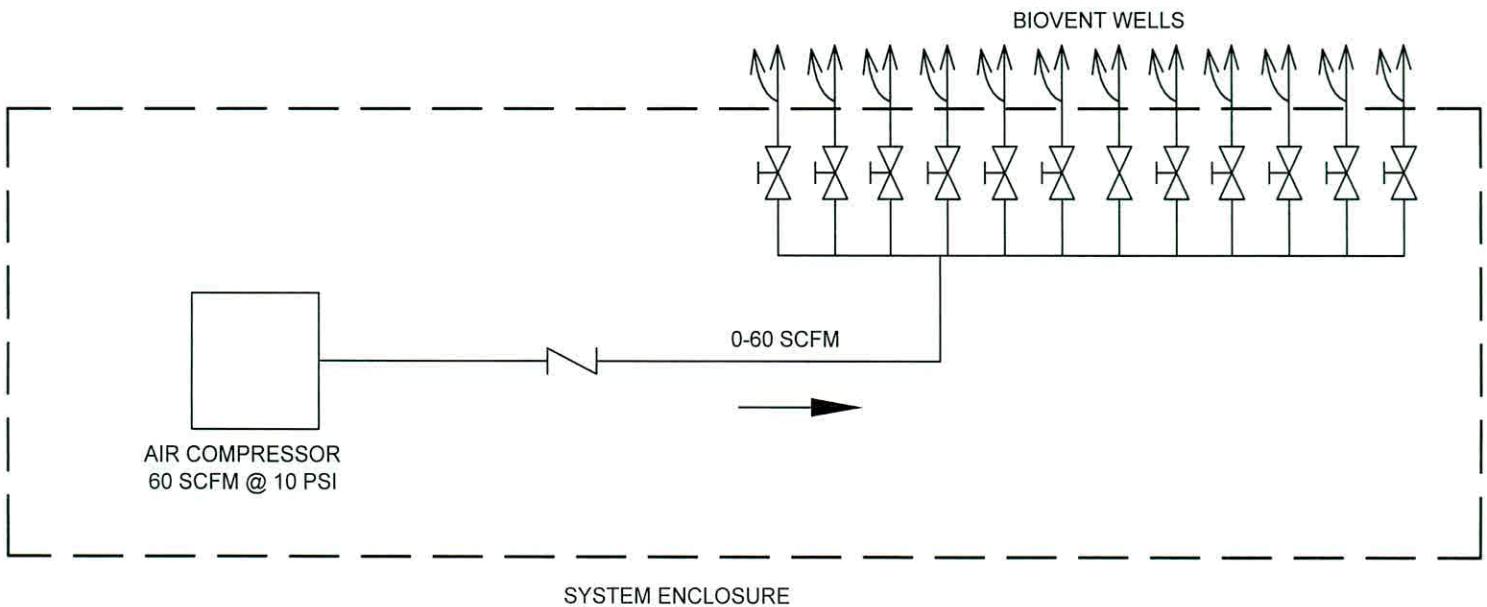
TITLE: PROCESS & INSTRUMENTATION DIAGRAM

SOVEREIGN CONSULTING - BIOVENT
BP FACILITY / WOOD RIVER, IL

JOB NO. 16-192

SCALE	SIZE	DWG NO.	SHEET	REV
NTS	C	M-1	1 OF 2	B

R000926



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Robbinsville, NJ 08691
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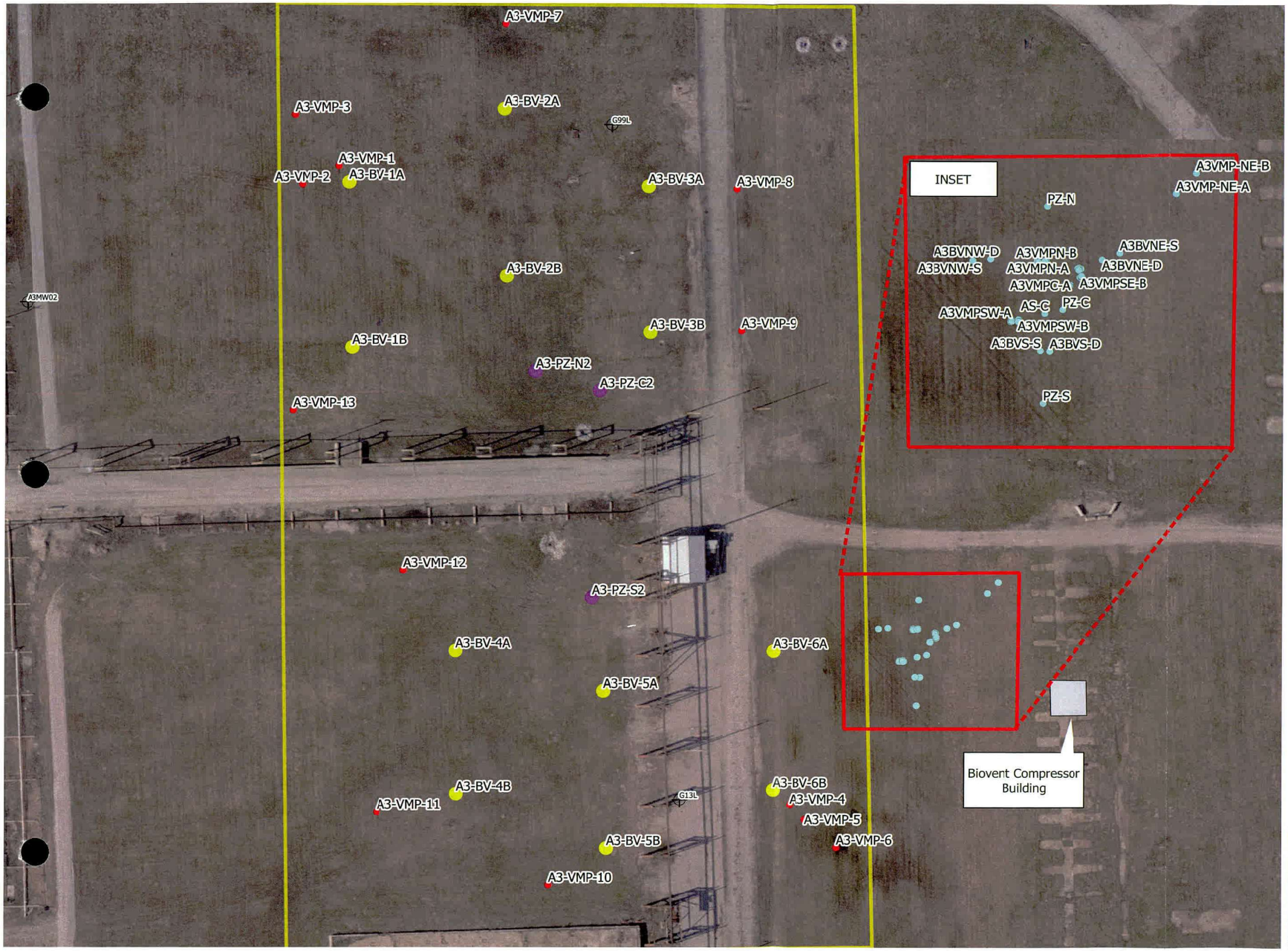
Project No. BP050.003 File: 0820_WR_Fig2A_PFD_BioVent.dwg Date: 09/13/2020

FIGURE 2A
PROCESS FLOW SCHEMATIC
CENTRAL BIOVENT AREA

BP FORMER WOOD RIVER REFINERY
WOOD RIVER, ILLINOIS

R000927





Legend

- Expansion Biovent Wells
- Expansion Piezometers
- Expansion Vapor Monitoring Points
- Existing Biovent Locations
- Existing Monitoring Wells
- Active COD Wells
- Initial Pilot System Area
- Biovent Expansion Treatment Area
- Main Plant Boundary

N
W E
S

0 50 100 ft

Central Biovent Pilot System Area

Updated System and Monitoring Layout

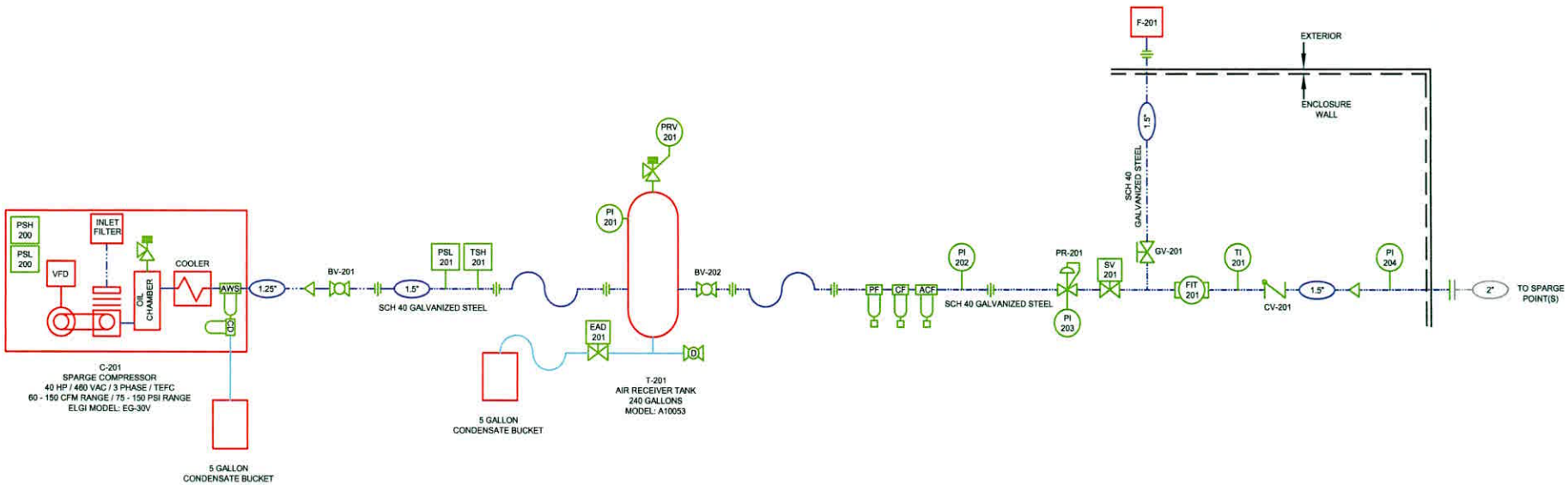
FIGURE NO: 3

SOVEREIGN CONSULTING INC.

Biovent Expansion (Area 3)
Former BP Refinery
Wood River, Illinois

DRAWN: AMM	FIGURE NO: 3	DATE: 03/14/2020

R000928



ALARM
E
EMERGENCY STOP (2) LOCATIONS
- (1) INSIDE SYSTEM ENCLOSURE
- (1) OUTSIDE SYSTEM ENCLOSURE

T-STAT
ENCLOSURE EXHAUST FAN
0.25 HP / 115 VAC / 1 PHASE

T-STAT
ENCLOSURE HEATER W/FAN
5 kW / 480 VAC / 1 PHASE

NOTES:
1. PROCESS & INSTRUMENTATION DIAGRAM IS A REPRESENTATIVE DRAWING SHOWING EQUIPMENT SPECIFICATIONS, PROCESS PIPING, VALVES AND INSTRUMENTATION NOT TO BE INTERPRETED AS A LAYOUT DRAWING DEPICTING PLUMBING LOCATION, CONNECTIONS, OR FITTINGS.
2. NEC ELECTRICAL CLASSIFICATION
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   - ALL ENCLOSURE EXTERIORS NEC NON-CLASSIFIED LOCATIONS
3. REFER TO TABLE 1 FOR INSTRUMENTATION LIST
4. REFER TO TABLE 2 FOR INTERLOCKS

Figure 4
Southern Biosparge System

REV	DESCRIPTION	DATE	APPROVED
A	AS-BUILT	02-22-17	CJJ

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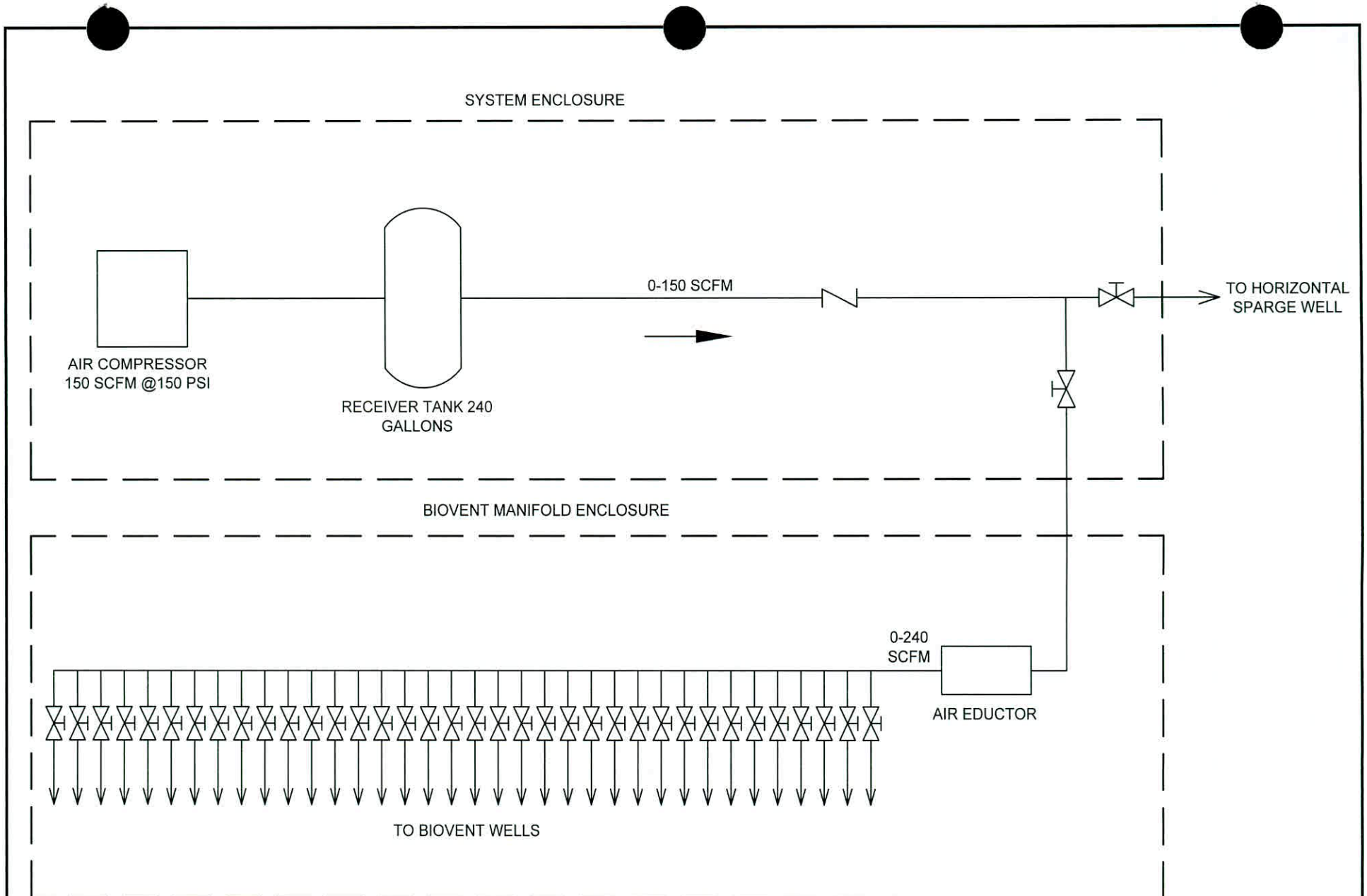
TITLE
PROCESS & INSTRUMENTATION DIAGRAM

SOVEREIGN CONSULTING - BIOSPARGE
BP FACILITY / WOOD RIVER, IL
JOB NO. 16-192

SCALE	SIZE	DWG NO.	SHEET	REV
NTS	C	M-1	1 OF 2	A

R000929



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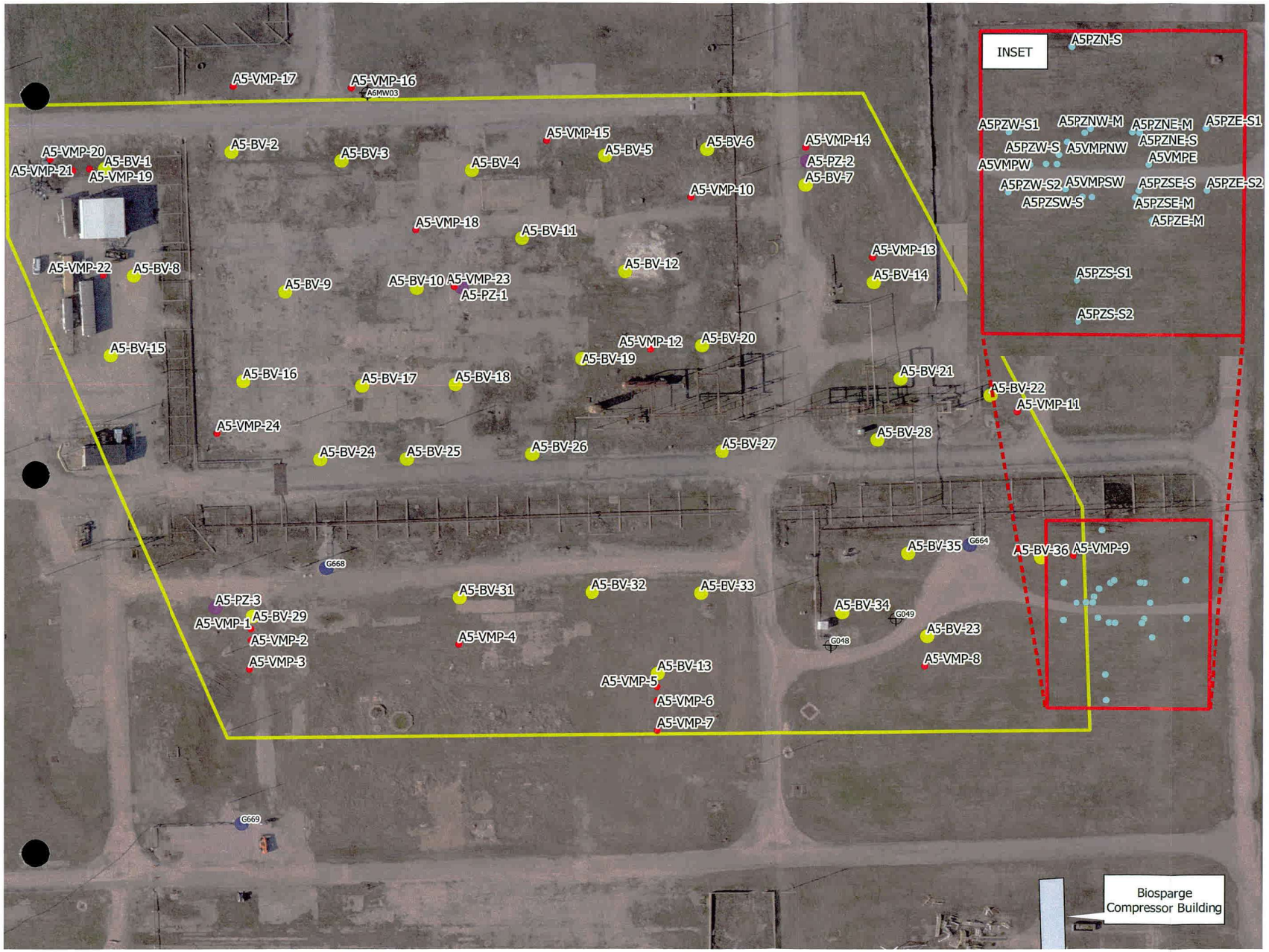
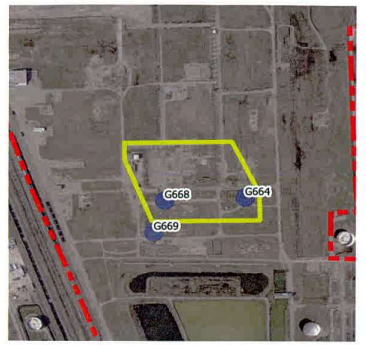
Project No. BP050.003 File: 0820_WR_Fig4A_PFD_NEW_Biosparge.dwg Date: 09/13/2020

FIGURE 4A
PROCESS FLOW SCHEMATIC
SOUTHERN BIOSPARGE/BIOVENT AREA

BP FORMER WOOD RIVER REFINERY
WOOD RIVER, ILLINOIS

R000930





Legend

- Expansion Biovent Wells
- Expansion Piezometers
- Expansion Vapor Monitoring Points
- Existing Biosparge Locations
- Existing Monitoring Wells
- Active COD Wells
- Existing Pilot System Area
- Expansion Treatment Area
- Main Plant Boundary

N
W E
S

0 100 200 ft

Southern Biosparge/Biovent System Area

Updated System and Monitoring Layout

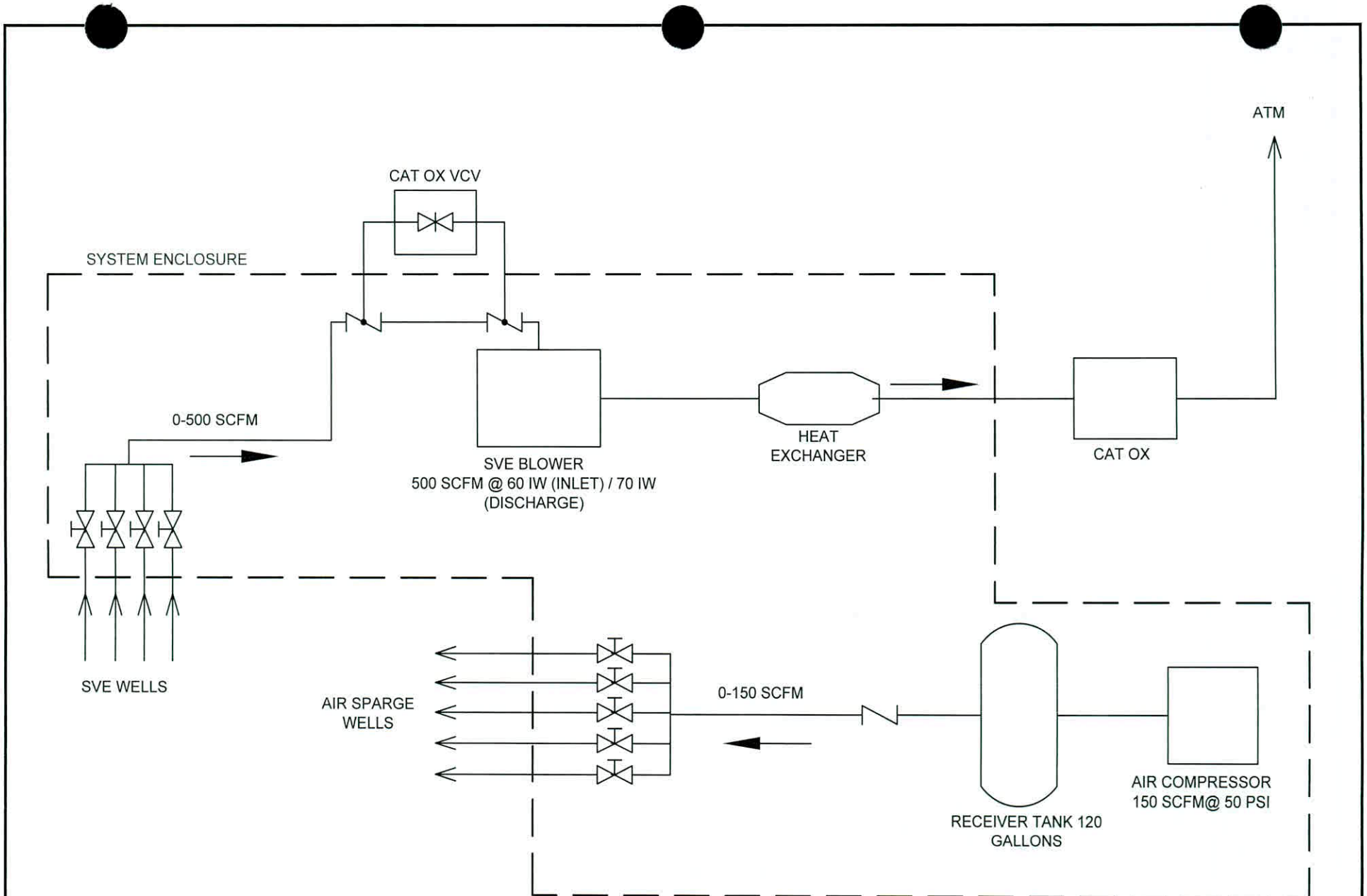
FIGURE NO: 5

SOVEREIGN CONSULTING INC.

Biosparge Expansion (Area 5)
Former BP Refinery
Wood River, Illinois

DRAWN: AMM	FIGURE NO: 5	DATE: 09/14/2020
CHECKED: JCM	PROJECT NO: BP050.106.02	

R000931



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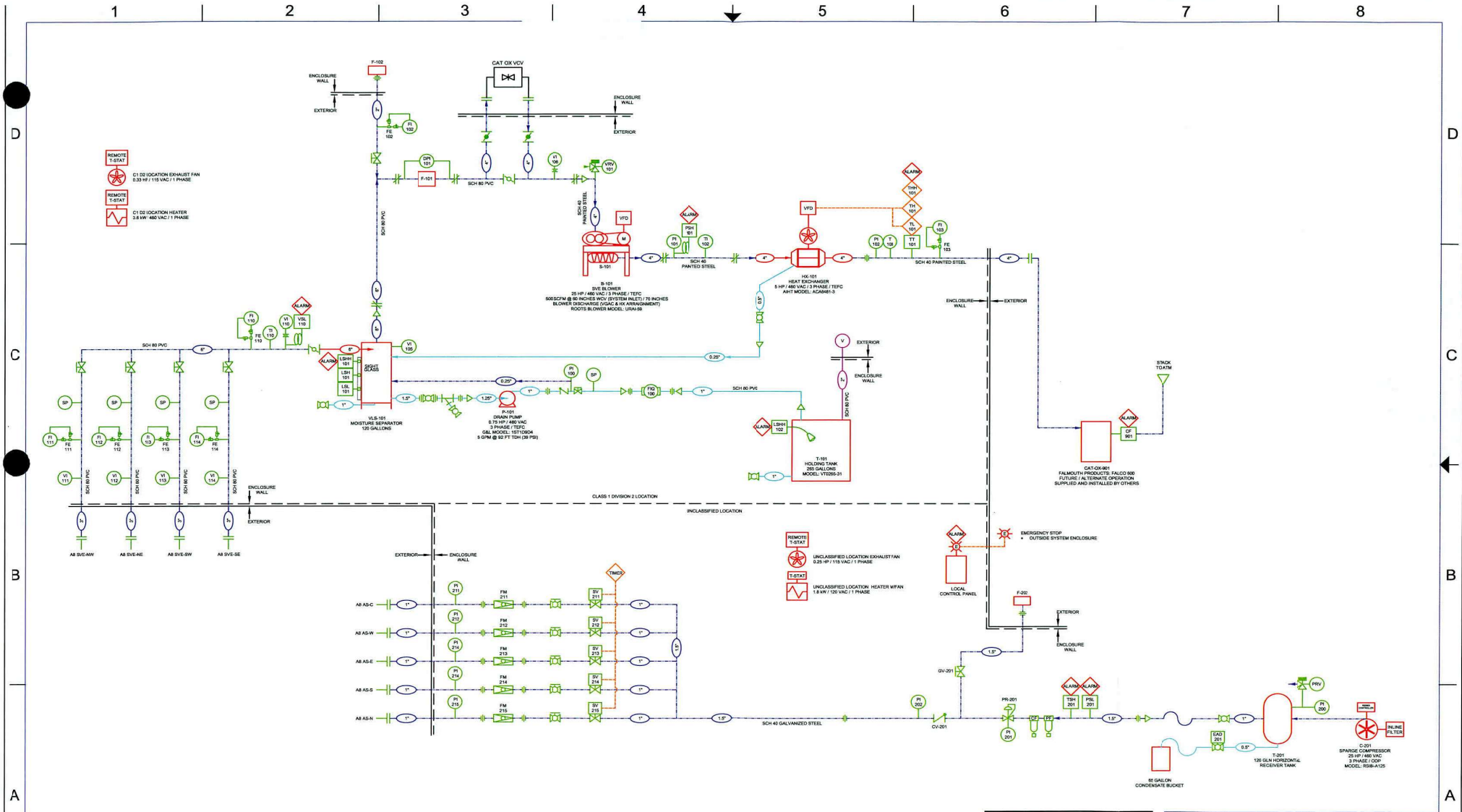
Project No. BP050.003 File: 0820_WR_Fig6A_PFD_AS_SVE.dwg Date: 09/13/2020

FIGURE 6A
PROCESS FLOW SCHEMATIC
NORTHERN AS/SVE AREA

BP FORMER WOOD RIVER REFINERY
WOOD RIVER, ILLINOIS

R000932



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2. NEC ELECTRICAL CLASSIFICATION
   - SVE PROCESS ROOM INTERIOR NEC CLASS I, DIVISION 2 LOCATION
   - SPARGE & CONTROL PANEL ROOM AS WELL AS INCLOSURE EXTERIOR NEC NON-CLASSIFIED LOCATIONS
3. REFER TO TABLE 1 FOR INSTRUMENTATION LIST
4. REFER TO TABLE 2 FOR INTERLOCKS

Figure 6
Air Sparge/Soil Vapor
Extraction System

REV	DESCRIPTION	DATE	APPROVED
A	AS-BUILT	05-05-17	CJJ

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DRWN BY: CJJ	DATE: 02-27-17	TITLE: PRCCESS & INSTRUMENTATION DIAGRAM
CHK BY: XXX	DATE: XX-XX-XX	SOVEREIGN CONSULTING - AS & SVE PILOT SYSTEM BP FACILITY / WOOD RIVER, IL — JOB NO. 16-192 (3)
APPR BY: XXX	DATE: XX-XX-XX	SCALE: NTS — SIZE: D — DWG NO.: M-1 — SHEET: 1 OF 2 — REV: A

R000933





Legend

- Expansion Air Sparge Wells
- Expansion Soil Vapor Extraction Wells
- Expansion Piezometers
- Expansion Vapor Monitoring Points
- Existing AS-SVE Locations
- Existing Monitoring Wells
- Active COD Wells
- Existing Pilot System Area
- Expansion Treatment Area
- Main Plant Boundary

N W E S

0 50 100 ft

Northern Air Sparge, Soil Vapor Extraction System Area

Updated System and Monitoring Layout

FIGURE NO: 7

SOVEREIGN CONSULTING INC.

AS-SVE Expansion (Area 8)
Former BP Refinery
Wood River, Illinois

DRAWN: AMM	FIGURE NO: 7	DATE: 09/14/2020
CHECKED: KCM	PROJECT NO: BP050.136.03	

R000934

EXHIBIT F-2

Main Plant Corrective Action Cost Estimate

BP Job Categories		
Environmental Services		
Level	**Labor/Role Category**	**Role Definition**
P6	Partner / Director / Discipline Expert	Degreed professional with over 20 years of experience in the relevant discipline. Minimum 5 years' experience dealing at the highest levels within the client organization.
P5	Principal Consultant / Principal Engineer / Principal Scientist	Degreed professional with a minimum of 15 years' experience in the relevant discipline or a degreed professional with a minimum of 13 years' experience in the relevant discipline and a relevant advanced degree.
P4	Program / Portfolio Manager / Senior Consultant / Sr. Engineer / Sr. Scientist	Degreed professional with a minimum of 10 years' experience in the relevant discipline or a degreed professional with a minimum of 8 years' experience in the relevant discipline and a relevant advanced
P3	Project Manager / Consultant II / Engineer II / Scientist II	Degreed professional with a minimum of 6 years' experience in the relevant discipline or a degreed professional with a minimum of 4 years' experience in the relevant discipline and a relevant advanced
P2	Consultant I / Engineer I / Scientist I	Degreed professional with a minimum of 3 years' experience in the relevant discipline or a degreed professional with relevant advanced degree (MA / MS / MBA)
P1	Staff Professional	Degreed professional (BA / BS) with less than 3 years' experience in the relevant discipline.
T4	Senior Technician	Technician with a minimum 10 years of relevant experience.
T3	Technician II	Technician with a minimum 3 years relevant experience.
T2	Technician / CAD Operator	Technician with less than 3 years' experience. CAD operator.
T1	Administrative / Clerical	Includes office clerical, database administration, word processing.

BP WOOD RIVER MAIN PLANT
CORRECTIVE ACTION COST ESTIMATE

CORRECTIVE ACTION COST ESTIMATE SUMMARY

Cost Element	Cost Detail*	Planned Activities Detail	Labor Costs	Expenses and Equipment	Subcontractors	Cost	Number of Years/ Occurrences	Extended Cost	Contingency	Financial Assurance Total Cost
Project Management (PM) [see Project Management Detail, p. 2]	PM for Land Reuse Areas Activities	PM for Land Reuse Areas Activities	$ 155,402	$ -	$ -	$ 155,402	1	$ 155,402	5%	$ 163,172
	PM for GWCA: Sampling, Reporting and Permitting	PM for GWCA: Sampling, Reporting and Permitting	$ 16,723	$ -	$ -	$ 16,723	30	$ 501,682	5%	$ 526,766
	PM for GWCA: COD System Operation & Well Evaluation/Rehabilitation	PM for GWCA: COD System Operation	$ 27,302	$ -	$ -	$ 27,302	30	$ 819,072	5%	$ 860,026
	PM for GWCA: GMZ Well Installation	PM for GWCA: GMZ Well Installation	$ 3,822	$ -	$ -	$ 3,822	1	$ 3,822	5%	$ 4,013
	PM for GWCA: Bioremediation Pilot Systems Operation	PM for GWCA: Bioremediation Pilot Systems Operation	$ 11,376	$ -	$ -	$ 11,376	2	$ 22,752	5%	$ 23,890
Land Reuse Areas Activities [see Land Reuse Areas Summary, p. 3-4 and individual Land Reuse Areas details, pp. 5-54]	Assessment and Continued Compliance of Land Reuse Areas	Comply with Conditions of NFA and ELUC, Address comments as necessary to bring areas into NFA designation, assess other areas to determine corrective action required.	$ 840,190	$ 86,960	$ 619,140	$ 1,546,290	1	$ 1,546,290	10%	$ 1,700,919
Groundwater Corrective Action (GWCA) [see detailed cost breakdown, pp. 55-61]	Sampling, Reporting and Permitting	Site wide sampling, reporting, and permitting activities	$ 352,855	$ 30,050	$ 159,028	$ 541,933	30	$ 16,257,991	10%	$ 17,883,790
	COD System Operation	Operation, Monitoring and Maintenance of COD Wells	$ 394,509	$ 42,500	$ 135,000	$ 572,009	30	$ 17,160,266	10%	$ 18,876,293
	COD Well Evaluation/ Rehabilitation	Evaluate and rehabilitate 2 existing production wells and install existing COD well equipment.	$ 169,763	$ 70,000	$ 290,000	$ 529,763	2	$ 1,059,525	10%	$ 1,165,478
	GMZ Well Installation	Install 10 New GMZ Wells	$ 38,186	$ 5,050	$ 59,506	$ 102,742	1	$ 102,742	10%	$ 113,017
	Bioremediation Pilot Systems Operation	Operation of the bioremediation pilot systems: biovent, biosparge, AS/SVE	$ 667,618	$ 46,452	$ 186,896	$ 900,966	2	$ 1,801,932	10%	$ 1,982,125
	Water Disposal at Wood River WWTP	Operation, Monitoring and Maintenance of COD Wells	$ -	$ -	$ 1,300,000	$ 1,300,000	30	$ 39,000,000	5%	$ 40,950,000
					December 2017 (for 2018) Corrective Action Cost Estimate Subtotal	$ 5,708,328		$ 78,431,477		$ 84,249,488
									December 2017 (for 2018) Corrective Action Cost Total with Contingency	$ 84,249,488

Notes:

*Pages 2-61 are included to provide cost detail information, but were not revised for 2020. Revised cost detail information will be submitted with the Main Plant Permit Renewal Application due to the Illinois EPA in October 2020.

Inflation Factor:		1.91%
Inflation Amount:	$	1,612,253
2019 Corrective Action Total Cost :	$	85,861,741
Inflation Factor:		2.40%
Inflation Amount:	$	2,060,682
2020 Corrective Action Total Cost :	$	87,922,423

R000937

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Project Management Detail

Task	Task Detail		Labor Category	Rate	Hours	Total
Land Reuse Areas Activities	Area 1 - Northwest Corner		-	-	-	-
	Area 2 - Northeast Corner		-	-	-	
	Area 3 - North Central Corner		P5	$ 113.76	120	$ 13,651
	Area 4 - Former Rail Yard		-	-	-	
	Area 5 - South Central Corner		P5	$ 113.76	137	$ 15,585
	Area 6 - Former APAC		P5	$ 113.76	126	$ 14,334
	Area 7 - Former Alkyl Plant, Area 8 - North Tank Farm		P5	$ 113.76	135	$ 15,363
	Area 9 - Korea Tank Farm		P5	$ 113.76	80	$ 9,101
	Area 10 - East Tank Farm		P5	$ 113.76	72	$ 8,191
	Area 11 - Spray Ponds 1, 2 & Intake Channel		P5	$ 113.76	160	$ 18,202
	Area 12 - South Tank Farm - BP retained areas		P5	$ 113.76	68	$ 7,736
	Area 13 - Wildlife Enhancement Area		P5	$ 113.76	64	$ 7,281
	Area 14 - Southeast Corner		P5	$ 113.76	72	$ 8,191
	Area 15 - Administration Building		-	-	-	
	Area 16 - Marketing Operations Area		P5	$ 113.76	116	$ 13,196
	Area 17 - Liquid Propane Gas Caverns		P5	$ 113.76	100	$ 11,376
	Area 18 - North Cell Spray Pond and South Flare Pit		-	-	-	
	Area 19 - Spray Pond 2		P5	$ 113.76	116	$ 13,196
					Land Reuse Areas Activities Total	**$ 155,402**
[redacted]undwater [redacted]ctive Action	Sampling, Reporting and Permitting	Permitting activities	P5	$ 113.76	32	$ 3,640
		Hazardous Waste Reports and Nonhazardous Waste Reports	P5	$ 113.76	11	$ 1,251
		Quarterly RFI Reports on the Progress of Corrective Action Activities	P5	$ 113.76	16	$ 1,820
		Semi-Annual Analytical Report - Main Plant	P5	$ 113.76	48	$ 5,460
		Groundwater Modeling & Software	P5	$ 113.76	40	$ 4,550
					Sampling, Reporting and Permitting Total	**$ 16,723**
	COD System Operation	Operation, Monitoring and Maintenance of COD Wells	P5	$ 113.76	80	$ 9,101
	COD Well Evaluation/ Rehabilitation	Well Rehabilitation	P5	$ 113.76	80	$ 9,101
		COD Pump Test and Evaluation	P5	$ 113.76	80	$ 9,101
					COD System Operation & Well Evaluation/Rehabilitation Total	**$ 27,302**
	GMZ Well Installation	Install 10 New GMZ Wells	P5	$ 113.76	34	$ 3,822
					GMZ Well Installation Total	**$ 3,822**
	Bioremediation Pilot Systems Operation	Operation of the bioremediation pilot systems: biovent, biosparge, AS/SVE	P5	$ 113.76	100	$ 11,376
					Bioremediation Pilot Systems Operation Total	**$ 11,376**

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Land Reuse Areas Summary

[redacted] Number	Area Description	2018 Corrective Action Status	2018 Planned Activities	Labor Costs	Expenses	Equipment	Subcontractor - Driller	Subcontractor - Waste Disposal	Subcontractor - Laboratory	Subcontractor - Surveyor	Annual Cost	Number of Years/ Occurrences	Extended Cost w/o contingency	2018 Contingency	Financial Assurance Total Cost w/ contingency
Area 1	Northwest Corner	NFA	Comply with Conditions of NFA and ELUC												
Area 2	Northeast Corner	NFA	Comply with Conditions of NFA and ELUC												
Area 3	North Central Area	Land Reuse Investigation	Limited TCLP Lead Sampling, ELUC Establishment, Address IEPA Comments	$ 68,598	$ 3,500	$ 2,640	$ 23,339	$ 632	$ 18,958	$ 1,500	$ 119,167	$ 1	$ 119,167	$ 0	$ 131,084
Area 4	Former Rail Yard	NFA	Comply with Conditions of NFA and ELUC												
Area 5	South Central Area	Land Reuse Investigation	Limited assessment to define extent of COC, evaluate remedial options (ie Excavation or Engineered Barriers) for COCs, ELUC establishment, Address IEPA Comments	$ 84,890	$ 3,500	$ 5,750	$ 31,365	$ 632	$ 21,878	$ 3,000	$ 151,015	$ 1	$ 151,015	$ 0	$ 166,117
Area 6	Former APAC Area	Land Reuse Investigation	Limited Xylene assessment, Evaluate Remedial options (ie Excavation or Engineered Barriers) for ELUC establishment, Address IEPA Comments	$ 75,953	$ 3,500	$ 3,400	$ 31,091	$ 632	$ 25,855	$ 1,500	$ 141,930	$ 1	$ 141,930	$ 0	$ 156,123
Area 7	Former Alkyl Plant	Land Reuse Investigation	Address IEPA Comments	$ -	$ -	$ -									
Area 8	North Tank Farm	Land Reuse Investigation	Limited assessment to define extent of COC, evaluate remedial options (ie Excavation or Engineered Barriers) for COCs, ELUC establishment, Address IEPA Comments	$ 103,361	$ 5,000	$ 7,000	$ 53,665	$ 948	$ 38,921	$ 3,000	$ 211,895	$ 1	$ 211,895	$ 0	$ 233,084
Area 9	Korea Tank Farm	NFA Pending	LNAPL Investigation, Establish ELUC	$ 42,215	$ 3,500	$ 3,310	$ 20,613	$ 1,580	$ 5,026	$ -	$ 76,243	$ 1	$ 76,243	$ 0	$ 83,868
[redacted] 10	East Tank Farm	NFA Pending	Limited assessment to define extent of COC, evaluate remedial options (ie Excavation or Engineered Barriers) for COCs, ELUC establishment, Address IEPA Comments	$ 49,555	$ 1,000	$ 1,980	$ 8,975		$ 1,000		$ 62,510	$ 1	$ 62,510	$ 0	$ 68,761
Area 11	Spray Ponds 1, 2 & Intake Channel	Assessment	Perform work in Area 11 Current Conditions Report/Characterization Work Plan, prepare Comprehensive Land Reuse Investigation and Remediation Plan, Establish ELUC	$ 82,783	$ 6,000	$ 5,580	$ 79,998	$ 1,264	$ 27,796	$ 1,500	$ 204,921	$ 1	$ 204,921	$ 0	$ 225,413
Area 12	Area 12 Parcels owned by BP (Former South Tank Farm	RFI Phase 1 Report for SWMU in area approved	Prepare Area 12 Current Conditions Report/Characterization Work Plan, perform Investigation, prepare Comprehensive Land Reuse Investigation and Remediation Plan, Establish ELUC	$ 38,275	$ 3,000	$ 2,960	$ 17,807	$ 632	$ 12,411	$ 4,500	$ 79,585	$ 1	$ 79,585	$ 0	$ 87,544
Area 13	Wildlife Enhancement Area	Assessment	Perform work in Area 13 Current Conditions Report/Characterization Work Plan, prepare Comprehensive Land Reuse Investigation and Remediation Plan, Establish ELUC	$ 49,363	$ 1,000	$ 1,360	$ 12,575		$ 1,600		$ 65,898	$ 1	$ 65,898	$ 0	$ 72,488
Area 14	Southeast Corner	Assessment	Perform work in Area 14 Current Conditions Report/Characterization Work Plan, Investigation, prepare Comprehensive Land Reuse Investigation and Remediation Plan, Establish ELUC	$ 40,036	$ 1,000	$ 680	$ 2,925		$ 200		$ 44,841	$ 1	$ 44,841	$ 0	$ 49,325
Area 15	Administration Building	NFA	Comply with Conditions of NFA and ELUC	$ -	$ -	$ -					$ -	NA	$ -	$ -	$ -
[redacted] tail informati	Marketing Operations Area	Assessment	Address Comprehensive Land Reuse Investigation and Remediation Plan deficiencies based on IEPA 2016 letter, Perform Additional Investigation/Remediation, Establish ELUC	$ 67,216	$ 3,500	$ 4,110	$ 15,787	$ 632	$ 8,975	$ 1,500	$ 101,720	$ 1	$ 101,720	$ 0	$ 111,892

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BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Land Reuse Areas Summary

Area Number	Area Description	2018 Corrective Action Status	2018 Planned Activities	Labor Costs	Expenses	Equipment	Subcontractor - Driller	Subcontractor - Waste Disposal	Subcontractor - Laboratory	Subcontractor - Surveyor	Annual Cost	Number of Years/ Occurrences	Extended Cost w/o contingency	2018 Contingency	Financial Assurance Total Cost w/ contingency
Area 17	Liquid Propane Gas Caverns	NFA Pending	Limited assessment to define extent of COC, evaluate remedial options (ie Excavation or Engineered Barriers) for COCs, ELUC establishment, Address IEPA Comments	$ 70,730	$ 2,580	$ 3,500	$ 13,739	$ 632	$ 8,498	$ 1,500	$ 101,179	$ 1	$ 101,179	$ 0	$ 111,297
Area 18	North Cell Spray Pond and South Flare Pit	NFA	Continue with Post-Closure Care for Regulated Hazardous Waste Units	$ -	$ -	$ -					$ -	NA	$ -	$ -	$ -
Area19	Spray Pond 3	Assessment	Limited assessment to define extent of COC, evaluate remedial options (ie Excavation or Engineered Barriers) for COCs, ELUC establishment, Address IEPA Comments	$ 67,216	$ 3,500	$ 4,110	$ 79,998	$ 1,264	$ 27,796	$ 1,500	$ 185,384	$ 1	$ 185,384	$ 0	$ 203,923
										December 2017 Land Reuse Areas Cost Total	$ 1,546,290		$ 1,546,290		$ 1,700,919
											December 2017 Land Reuse Areas Cost Total with Contingency				$ 1,700,919

Notes;
- Not applicable
Detailed breakdown for each Land Reuse Area is included on pages 5-54

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BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 3

Task Objective

Conduct limited Benzo(a)pyrene and TCLP lead delineation assessment in three remediation areas in accordance with the 2012 Area 3 Comprehensive Land Reuse Investigation Report and Remediation Plan. The object of the investigation is to determine extent (vertical and lateral) of Csat exceedances and evaluate remedial methods.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	4	1	$ 465
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			
	Scientist II	P2	82.15			
	Scientist I	P1	75.83	60	1	$ 4,550
	Technician IV	T4	75.83			
	Technician III	T3	69.52			
	Technician II	T2	63.2			
	Technician I	T1	56.88			
	Draftsperson/CAD II	T2	56.88			
	Senior Admin. Assistant	T1	56.88	16	1	$ 910
	Labor Total					$ 10,855
	Travel and Expenses Total					$ 2,500
Benzo(a)pyrene and TCLP Lead Assessment	**Title**	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	
	Equipment					
	PID	day	4.00	$75.00	1	$ 300
	Sampling Supplies	day	4.00	$20.00	1	$ 80
	4 Gas Meter (LEL/O2/H2S/CO)	day	4.00	$75.00	1	$ 300
	XRF	day	2.00	$300.00	1	$ 600
	Equipment Total					$ 1,280
	Subcontractor					
	Driller					
	Mobilization/Demobilization	LS	2	$475.00	1	$ 950
	Borings (27 borings to 8ft)	foot	216	$22.75	1	$ 4,914
	Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
	Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
	Surveyor					
		day	1	$1,500.00	1	$ 1,500
	Waste Disposal					
	Drum Disposal	drum	2	$316.01	1	$ 632
	Lab					
	Soil Analytical (Benzo(a)pyrene)	sample	81	$192.14	1	$ 15,563
	pH	sample	24	$17.70	1	$ 425
	Lead (Total and TCLP)	sample	24	$40.42	1	$ 970
	Subcontractors Total					$ 27,454
Benzo(a)pyrene and TCLP Lead Assessment Total						$ 42,089

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 3

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	Not Anticipated				$ -
	Equipment Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$ 27,719

Task Objective	Design and install Engineered Barrier where Csat exceedances exist in the remediation areas being evaluated.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 3

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 3. Area 3 is approx 44 acres and contains two occupied building (Remediation office building #7, Grey Metal Shed #9 and Electrical Substation #21). Two vapor monitoring cluster points will be installed next to each occupied building. A total of 6 vapor monitoring point clusters will be installed every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft., 22 ft. and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

or Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	32	1	$ 3,721
Geologist I	P4	88.48	60	1	$ 5,309
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	30	1	$ 2,465
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 15,085
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	2.00	$75.00	1	$ 150
4 gas meter	day	2.00	$45.00	1	$ 90
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,360
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	10	$1,200.00	1	$ 12,000
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	10	$200.00	1	$ 2,000
Subcontractors Total					$ 16,975
VI Total					$ 34,420

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 3

Task Objective	ELUC Preparation and formally filing documents and incorporating IEPA comments.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 7,015
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 7,015

Labor Total	$ 68,598
Equipment Total	$ 2,640
Travel & Expense Total	$ 3,500
Subcontractor Total	$ 44,429
Task Total	$ 119,167

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 5

Task Objective

Conduct delineation assessment in five remediation areas (RA01 - elevated arsenic concentration in soil; RA02 - elevated PAH concentrations in surface and subsurface soil; RA03 - elevated lead concentrations in soil; RA04 and RA-05 - xylenes Csat exceedances) identified in the 2011 Area 5 Comprehensive Land Reuse Investigation Report and Remediation Plan. The object of the investigation is to determine extent (vertical and lateral) of Csat exceedances and evaluate remedial methods.

zo(a)pyrene and Xylene C_{sat} Assessment

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05			$ -
Professional Geologist	P5	116.29	34	1	$ 3,954
Geologist I	P4	88.48	68	1	$ 6,017
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	72	1	$ 5,915
Scientist I	P1	75.83	72	1	$ 5,460
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88			$ -
Senior Admin. Assistant	T1	56.88	102	1	$ 5,802
Labor Total					$ 27,147
Travel and Expenses Total					$ 2,500

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	17.00	$75.00	1	$ 1,275
Sampling Supplies	day	17.00	$20.00	1	$ 340
4 Gas Meter	day	17.00	$75.00	1	$ 1,275
XRF	day	5.00	$300.00	1	$ 1,500
Equipment Total					$ 4,390

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Mobilization/Demobilization	LS	2	$475.00	1	$ 950
Borings (70 borings to 8ft)	foot	560	$22.75	1	$ 12,740
Utility clearance GPR	day	3	$1,250.00	1	$ 3,750
Utility clearance Air Knife	day	3	$1,250.00	1	$ 3,750
Surveyor					
	day	2	$1,500.00	1	$ 3,000
Waste Disposal					
Drum Disposal	drum	2	$316.01	1	$ 632
Lab					
Soil Analytical (VOCs)	sample	18	$221.63	1	$ 3,989
Soil Analytical (PAH)	sample	60	$192.14	1	$ 11,528
Soil Analytical (Arsenic)	sample	18	$21.21	1	$ 382
Lead (Total and TCLP)	sample	44	$40.42	1	$ 1,778
Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	6	$500.00	1	$ 3,000
Subcontractor Total					$ 42,500

Xylene and Benzo(a)pyrene Assessment Total	$ 76,537

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 5

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	**Not Anticipated**				$ -
	Equipment Total	**Not Anticipated**				$ -
	Total	**Not Anticipated**				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$ 27,719

Task Objective	Design and install Engineered Barrier where Csat exceedances exist in the remediation areas being evaluated.					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	**Not Anticipated**				$ -
	Total	**Not Anticipated**				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 5

Indoor Vapor Exposure Investigation

Task Objective: Evaluate indoor vapor exposure routes in Area 5. Area 5 is approx 33 acres and no occupied buildings are present. A total

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	32	1	$ 3,721
Geologist I	P4	88.48	60	1	$ 5,309
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	30	1	$ 2,465
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 15,085
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	2.00	$75.00	1	$ 150
4 gas meter	day	2.00	$45.00	1	$ 90
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,360

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	6	$1,200.00	1	$ 7,200
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	6	$200.00	1	$ 1,200
Subcontractors Total					$ 11,375
VI Total					$ 28,820

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 5							
Task Objective	**ELUC Preparation and formally filing documents and incorporating IEPA comments.**						
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**	
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	4	1	$	556
	Professional Geologist	P5	116.29		1	$	-
	Geologist I	P4	88.48	40	1	$	3,539
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	30	1	$	2,465
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	8	1	$	455
	Senior Admin. Assistant	T1	56.88			$	-
	Labor Total					$	7,015
	Travel and Expenses Total	**Not Anticipated**				$	-
	Subcontractors and Equipment	**Not Anticipated**				$	-
ELUC Preparation Total						$	7,015
				Labor Total		$	84,890
				Equipment Total		$	5,750
				Travel & Expense Total		$	3,500
				Subcontractor Total		$	56,875
				Task Total		$	151,015

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 6

Task Objective

Conduct delineation assessment in remediation areas (RA01 - Arsenic and PAH; RA02 - benzo(a)pyrene in RA03 and RA04 - Benzene; RA05) identified in the Area 6 Comprehensive Land Reuse Investigation Report and Remediation Plan. Delineation is not required at previously identified RA06 as the historical samples were collected from the smear zone. Additional gauging of perched groundwater wells is needed in RA07 due to the presence of LNAPL.The object of the investigation is to determine extent (vertical and lateral) of Csat exceedances and evaluate remedial methods.

Xylene Csat Assessment

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	4	1	$ 556
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	54	1	$ 4,778
Scientist III	P3	88.48	90	1	$ 7,963
Scientist II	P2	82.15			$ -
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	54	1	$ 3,072
Labor Total					$ 18,209
Travel and Expenses Total					$ 2,500

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	4.00	$75.00	1	$ 300
Sampling Supplies	day	4.00	$20.00	1	$ 80
4 Gas Meter	day	4.00	$75.00	1	$ 300
Equipment Total					$ 680

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Mobilization/Demobilization	LS	2	$475.00	1	$ 950
Borings (63 borings to aver 8ft)	foot	504	$22.75	1	$ 11,466
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Surveyor					
	day	1	$1,500.00	1	$ 1,500
Waste Disposal					
Drum Disposal	drum	2	$316.01	1	$ 632
Lab					
Soil Analytical (VOCs)	sample	54	$221.63	1	$ 11,968
Soil Analytical (Arsenic)	sample	18	$21.21	1	$ 382
Soil Analytical (PAH)	sample	36	$192.14	1	$ 6,917
Soil Analytical (TPH)	sample	9	$154.21	1	$ 1,388
Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	6	$500.00	1	$ 3,000
Subcontractor Total					$ 40,703
Remediation Area Assessment Total					$ 62,092

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 6

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	**Not Anticipated**				$ -
	Equipment Total	**Not Anticipated**				$ -
	Total	**Not Anticipated**				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$ -

Task Objective	Design and install Engineered Barrier where Csat exceedances exist in the remediation areas being evaluated.					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	**Not Anticipated**				$ -
	Total	**Not Anticipated**				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 6

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 6. Area 6 is approx 57 acres and contains one occupied building (Lewis and Clark #11). Two vapor monitoring cluster points will be installed next to the occupied building. A total of11 vapor monitoring point clusters will be installed every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

or Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	32	1	$ 3,721
Geologist I	P4	88.48	60	1	$ 5,309
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	30	1	$ 2,465
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 15,085
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	4.00	$75.00	1	$ 300
4 gas meter	day	4.00	$45.00	1	$ 180
Air Sample Pump (Low Flow)	day	4.00	$20.00	1	$ 80
Pump Calibrator	day	4.00	$20.00	1	$ 80
Electric Generator	day	4.00	$20.00	1	$ 80
Sampling Supplies	day	4.00	$500.00	1	$ 2,000
Equipment Total					$ 2,720
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	11	$1,200.00	1	$ 13,200
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	11	$200.00	1	$ 2,200
Subcontractors Total					$ 18,375
VI Total					$ 37,180

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 6

Task Objective	ELUC Preparation and formally filing documents and incorporate IEPA comments.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporate IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 7,015
	Travel and Expenses Total	Not Anticipated				$ -
	Total	Not Anticipated				$ -
ELUC Preparation Total						$ 7,015
				Labor Total		$ 75,953
				Equipment Total		$ 3,400
				Travel & Expense Total		$ 3,500
				Subcontractor Total		$ 59,078
				Task Total		$ 141,930

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 7/8

Task Objective

Complete the delineation assessment in thirteen remediation areas (RA03/RA04 - elevated lead in soil; ethyl- benzene, toluene, and/or xylenes exceeded Tier 2 Csat limits in RA01,2,7-13) in identified in the 2012 Area 7/8 Comprehensive Land Reuse Investigation Report and Remediation Plan. The object of the investigation is to determine extent (vertical and lateral) of Csat exceedances and evaluate remedial methods.

Benzo(a)pyrene and Xylene C_{sat} Assessment

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			$ -
Professional Engineer	P6	139.05	24	1	$ 3,337
Professional Geologist	P5	116.29	48	1	$ 5,582
Geologist I	P4	88.48	72	1	$ 6,371
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15			$ -
Scientist I	P1	75.83	240	1	$ 18,199
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88			$ -
Senior Admin. Assistant	T1	56.88	48	1	$ 2,730
Labor Total					$ 36,219
Travel and Expenses Total					$ 4,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	12.00	$75.00	1	$ 900
Sampling Supplies	day	12.00	$20.00	1	$ 240
4 Gas Meter	day	12.00	$75.00	1	$ 900
XRF	day	12.00	$300.00	1	$ 3,600
Equipment Total					$ 5,640

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Mobilization/Demobilization	LS	2	$475.00	1	$ 950
Borings (80 borings to 12ft)	foot	960	$22.75	1	$ 21,840
Utility clearance GPR	day		$1,250.00	0	$ -
Utility clearance Air Knife	day	4	$1,250.00	1	$ 5,000
Survor					
	day	2	$1,500.00	1	$ 3,000
Waste Disposal					
Drum Disposal	drum	3	$316.01	1	$ 948
Lab					
Soil Analytical (VOCs)	sample	120	$221.63	1	$ 26,596
Lead (Total and TCLP)	sample	60	$40.42	1	$ 2,425
Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	13	$500.00	1	$ 6,500
Subcontractor Total					$ 67,259
Xylene and Benzo(a)pyrene Assessment Total					$ 113,118

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 7/8

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total	
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	10	1	$	1,391
	Professional Geologist	P5	116.29	60	1	$	6,977
	Geologist I	P4	88.48	120	1	$	10,618
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	80	1	$	6,572
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	30	1	$	1,706
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	27,719
	Travel and Expenses Total	Not Anticipated				$	-
	Equipment Total	Not Anticipated				$	-
	Subcontractors and	Not Anticipated				$	-
Preparation of Comprehensive Land Reuse Investig Report and Remediation Plan - addendum						$	27,719

Task Objective	Design and install Engineered Barrier where there is lead impact and/or Csat excedances exist in the remedation areas being evaluated.						
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total	
Engineered Barrier	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	4	1	$	556
	Professional Geologist	P5	116.29		1	$	-
	Geologist I	P4	88.48	40	1	$	3,539
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	30	1	$	2,465
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	16	1	$	910
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	7,925
	Travel and Expenses Total	Not Anticipated				$	-
	Subcontractors and Equipment Total	Not Anticipated				$	-
Engineered Barrier Total						$	7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 7/8

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 7/8. Area 7/8 is approx 86 acres and no occuplied buildings are present. A total of 17 vapor monitoring point clusters will be installed in every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximium depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	32	1	$ 3,721
Geologist I	P4	88.48	80	1	$ 7,078
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	80	1	$ 6,572
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 20,962
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	2.00	$75.00	1	$ 150
4 gas meter	day	2.00	$45.00	1	$ 90
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,360

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster	Cluster	17	$1,200.00	1	$ 20,400
Utility clearance GPR	day	2	$1,250.00	1	$ 2,500
Utility clearance Air Knife	day	2	$1,250.00	1	$ 2,500
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	17	$200.00	1	$ 3,400
Subcontractors Total					$ 29,275
VI Total					$ 52,597

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 7/8

Task Objective	ELUC Preparation and formally filing documents and incorporating IEPA comments.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	60	1	$ 5,309
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	40	1	$ 3,286
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 10,536
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
				Labor Total		$ 103,361
				Equipment Total		$ 7,000
				Travel & Expense Total		$ 5,000
				Subcontractor Total		$ 96,534
				Task Total		$ 211,895

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 9

Task Objective: Additional LNAPL Investigation

LNAPL Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	80	1	$ 9,303
Geologist I	P4	88.48	120	1	$ 10,618
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	80	1	$ 6,572
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	16	1	$ 910
Labor Total					$ 30,538
Travel and Expenses Total					$ 2,500

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	10.00	$75.00	1	$ 750
Sampling Supplies	day	10.00	$20.00	1	$ 200
4 Gas Meter	day	10.00	$75.00	1	$ 750
IP	day	10.00	$25.00	1	$ 250
Equipment Total					$ 1,950

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Mobilization/Demobilization	LS		$475.00	1	$ -
15 Borings to 30ft	foot	450	$22.75	1	$ 10,238
6 - 6" Recovery Wells to 30ft	foot	180	$31.60	1	$ 5,688
Utility clearance GPR	day	2	$1,250.00	1	$ 2,500
Utility clearance Air Knife	day	2	$1,250.00	1	$ 2,500
Surveyor					
	day		$1,500.00	1	$ -
Waste Disposal					
Drum Disposal	drum	5	$316.01	1	$ 1,580
Lab					
Soil Analytical (TPH)	sample	30	$154.21	1	$ 4,626
Subcontractor Total					$ 27,132

LNAPL Investigation Assessment Total $ 62,120

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 9

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 9. Area 9 is approx. 9 acres. No buildings are present. Two vapor monitoring point clusters will be installed. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	24	1	$ 2,791
Geologist I	P4	88.48	32	1	$ 2,831
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	30	1	$ 2,465
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 11,677
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	2.00	$75.00	1	$ 150
4 gas meter	day	2.00	$45.00	1	$ 90
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,360

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	2	$1,200.00	1	$ 2,400
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	2	$200.00	1	$ 400
Subcontractors Total					$ 5,775
VI Total					$ 19,812

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 9

Task Objective	ELUC Preparation and formally filing documents and incorporating IEPA comments.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 7,015
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 7,015

Labor Total	$ 42,215
Equipment Total	$ 3,310
Travel & Expense Total	$ 3,500
Subcontractor Total	$ 27,219
Task Total	$ 76,243

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 10

Task Objective	Completed the delineation assessment in seven remediation areas identified in Area 10 Comprehensive Land Reuse Investigation Report and Remediation Plan which is under review by IEPA.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Remediation Area Assessment	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05			$ -
	Professional Geologist	P5	116.29			$ -
	Geologist I	P4	88.48			$ -
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15			$ -
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88			$ -
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ -
	Equipment Total					$ -
	Subcontractor Total					$ -
Remediation Area Assessment - Completed in 2017						$ -

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
*Pages 2-63 are included to provide cost detail information, but were not revised for 2020. Revised cost detail information will be submitted with the Main Plant Permit Renewal Application due to the Illinois EPA in October 2020.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	Not Anticipated				$ -
	Equipment Total	Not Anticipated				$ -
	Total	Not Anticipated				$ -
Preparation of Comprehensive Land Reuse Investing Report and Remediation Plan - addendum						$ 27,719

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 10							
Task Objective	**Design and install Engineered Barrier where Csat exceedances exist in the remediation areas evaluated.**						
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**	
Engineered Barrier	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	4	1	$	556
	Professional Geologist	P5	116.29		1	$	-
	Geologist I	P4	88.48	40	1	$	3,539
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	30	1	$	2,465
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	16	1	$	910
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	7,925
	Travel and Expenses Total	**Not Anticipated**				$	-
	Total	**Not Anticipated**				$	-
Engineered Barrier Total						$	7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 10

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 10. Area 10 is approx 25 acres. No building are located in Area 10. A total of 5 vapor monitoring point clusters will be installed every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	8	1	$ 1,112
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	24	1	$ 2,124
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15			$ -
Scientist I	P1	75.83	24	1	$ 1,820
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 6,896
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	3.00	$75.00	1	$ 225
4 gas meter	day	3.00	$45.00	1	$ 135
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	3.00	$500.00	1	$ 1,500
Equipment Total					$ 1,980

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	5	$1,200.00	1	$ 6,000
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	5	$200.00	1	$ 1,000
Subcontractors Total					$ 9,975
VI Total					$ 19,851

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 10

Task Objective	ELUC Preparation and formally filing documents and incorporate IEPA comments.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC Preparation and other Follow on Work	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 7,015
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ -

Labor Total	$	49,555
Equipment Total	$	1,980
Travel & Expense Total	$	1,000
Subcontractor Total	$	9,975
Task Total	$	62,510

BP WOOD RIVER MAIN PLANT
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Area 11

Task Objective

Completed the delineation assessment in remediation areas identified in Area 11 Comprehensive Land Reuse Investigation Report and Remediation Plan which is under review by IEPA. Area 11 Assessment includes: 23 sediment and soil borings
-Advance 2 soil borings to a maximum depth of 30 feet using a Geoprobe on a track rig (max of 3 samples/each)
-Advance 16 soil borings to a maximum depth of 4 feet using a Geoprobe on a motorized pontoon boat (2 samples/each)
-Advance 3 soil borings to a maximum depth of 4 feet using a hand auger (2 samples/each)
-Collect 2 sediment samples from concrete bottom of the Separator Box
-Soil Laboratory analyses: BTEX, PAHs, Metals, pH
Parameters in accordance with the Area 11 CCR Characterization Report 2011.

Area 11 Assessment

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	2	1	$ 278
Professional Geologist	P5	116.29	16	1	$ 1,861
Geologist I	P4	88.48	50	1	$ 4,424
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	200	1	$ 16,430
Scientist I	P1	75.83	100	1	$ 7,583
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	16	1	$ 910
Labor Total					$ 32,396
Travel and Expenses Total					$ 5,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	20.00	$75.00	1	$ 1,500
Sampling Supplies	day	20.00	$20.00	1	$ 400
4 Gas Meter	day	20.00	$75.00	1	$ 1,500
Interface Probe	day	20.00	$75.00	1	$ 1,500
Equipment Total					$ 4,900

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Utility clearance GPR	day	3	$1,250.00	1	$ 3,750
Air Knife (borehole clearance)	day	10	$1,250.00	1	$ 12,500
Direct-Push Rig & 2-man Crew	ft	60	$22.75	1	$ 1,365
DT22 Probe Hole Grouting	ft	60	$3.00	1	$ 180
Dual-Tube Sample Liners	ea	14	$8.00	1	$ 112
Direct-Push Rig & 2-man Crew	hr	96	$155.00	1	$ 14,880
Dual-Tube Sample Liners	ea	32	$8.00	1	$ 256
2-man Tech Crew	hr	96	$130.00	1	$ 12,480
Mobilization/Demobilization	LS	2	$475	1	$ 950
Crew Travel Time	day	40	$90	1	$ 3,600
Pontoon Boat Rental for Rig	LS	1	$6,200	1	$ 6,200
Safety Boat & Trolling Motor	LS	1	$1,600	1	$ 1,600
Crane & Operator Rental	hr	18	$225	1	$ 4,050
Drill Rig w/ winch	day	20	$225	1	$ 4,500
Morooka Support Vehicle	day	20	$225	1	$ 4,500
Hydraulic Power Pack	week	4	$800	1	$ 3,200
Steam Cleaner	day	20	$85	1	$ 1,700
Surveyor	1	1	$1,500.00	1	$ 1,500
Waste Disposal	drum	4	$316.01	1	$ 1,264
Soil Analytical (VOCs)	sample	49	$221.63	1	$ 10,860
Soil Analytical (PAHs)	sample	49	$192.14	1	$ 9,415
Soil Analytical (RCRA Metals)	sample	49	$118.81	1	$ 5,822
Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	3	$500.00	1	$ 1,500
Subcontractor Total					$ 106,183

Area 11 Assessment Total	$ 148,479

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 11

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	Not Anticipated				$ -
	Equipment Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan						$ 27,719

Task Objective	Design and install Engineered Barrier where there is lead impact and Csat exceedances exist in the remediation areas being evaluated.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 11

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 11. Area 11 is approx. 22 acres (land and water) approximately 5 acres of dry ground. No occupied buildings are present. 1 vapor monitoring point clusters will be installed. The vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	4	1	$ 556
Professional Geologist	P5	116.29	4	1	$ 465
Geologist I	P4	88.48	16	1	$ 1,416
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	16	1	$ 1,314
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	4	1	$ 228
Senior Admin. Assistant	T1	56.88	4	1	$ 228
Labor Total					$ 4,206
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	1.00	$75.00	1	$ 75
4 gas meter	day	1.00	$45.00	1	$ 45
Air Sample Pump (Low Flow)	day	1.00	$20.00	1	$ 20
Pump Calibrator	day	1.00	$20.00	1	$ 20
Electric Generator	day	1.00	$20.00	1	$ 20
Sampling Supplies	day	1.00	$500.00	1	$ 500
Equipment Total					$ 680
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	1	$1,200.00	1	$ 1,200
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	1	$200.00	1	$ 200
Subcontractors Total					$ 4,375
VI Total					**$ 10,261**

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 11						
Task Objective	**ELUC Preparation and formally filing documents and incorporating IEPA comments.**					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	60	1	$ 5,309
ELUC preparation and formally filing documents and incorporating IEPA comments.	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	40	1	$ 3,286
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 10,536
	Travel and Expenses Total	**Not Anticipated**				$ -
	Subcontractors and Equipment	**Not Anticipated**				$ -
ELUC Preparation Total						$ 10,536

Labor Total	$	82,783
Equipment Total	$	5,580
Travel & Expense Total	$	6,000
Subcontractor Total	$	110,558
Task Total	$	204,921

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 12

Task Objective	Area 12 Current Conditions Report/Characterization Work Plan Preparation for the four retained areas in Area 12.					
Preparation of Current Conditions Work Plan	**Title**	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
	Project Manager	P5	113.76			$ -
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	4	1	$ 465
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	50	1	$ 4,108
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 10,033
	Equipment Total					$ -
	Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
	Survey	day	2	$1,500.00	1	$ 3,000
	Subcontractor Total					$ 3,000
CCR/Characterization Work Plan Preparation						$ 13,033

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 12

Task Objective	Conduct Land Reuse Investigation - 2 -15ft borings in each area						
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**	
	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	2	4	$	1,112
	Professional Geologist	P5	116.29	4	4	$	1,861
	Geologist I	P4	88.48	6	4	$	2,124
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15			$	-
	Scientist I	P1	75.83	10	4	$	3,033
Land Reuse Investigation	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88			$	-
	Senior Admin. Assistant	T1	56.88	4	4	$	910
	Labor Total					$	9,040
	Travel and Expense Total					$	2,000
	Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**	
	PID	day	4.00	$75.00	1	$	300
	Sampling Supplies	day	4.00	$20.00	1	$	80
	4 Gas Meter	day	4.00	$75.00	1	$	300
	IP	day	4.00	$75.00	1	$	300
	Bladder Pump	day	2.00	$75.00	1	$	150
	YSI Meter	day	2.00	$75.00	1	$	150
	Tubing	LS	1.00	$200.00	1	$	200
	Equipment Total					$	1,480
	Subcontractor	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**	
	Driller						
	Mobilization/Demobilization	LS	2	$475.00	1	$	950
	Utility clearance GPR	day	2	$1,250.00	2	$	5,000
	Utility clearance Air Knife	day	2	$1,250.00	1	$	2,500
	Borings (8 borings to 15ft)	foot	120	$22.75	1	$	2,730
	Monitoring Wells						
	Well Installation (2 wells)	foot	30	$20.86	2	$	1,252
	Surveyor	day	1	$1,500.00	1	$	1,500
	Waste - Drum Disposal	drum	2	$316.01	1	$	632
	Lab - Soil Sampling	Sample	17	$17.00	1	$	289
	VOCs	Sample	17	$221.63	1	$	3,768
	Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	2	$500.00	1	$	1,000
	PAH (low level)	Sample	17	$192.14	1	$	3,266
	Total Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag) + Beryllium	Sample	17	$118.81	1	$	2,020
	GW Sampling - VOCs	Sample	3	$213.63	1	$	641
	GW Sampling - PAH	Sample	3	$192.14	1	$	576
	Total Metals (As, Ba, Cd, Cr, Pb, Hg, Se, Ag) + Beryllium	Sample	3	$150.42	1	$	451
	Subcontractor Total					$	26,575
Land Reuse Investigation Total						$	39,095

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 12							
Task Objective	**Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan**						
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**	
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	10	1	$	1,391
	Professional Geologist	P5	116.29	60	1	$	6,977
	Geologist I	P4	88.48	80	1	$	7,078
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	60	1	$	4,929
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	30	1	$	1,706
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	22,537
	Travel and Expenses Total	**Not Anticipated**				$	-
	Equipment Total	**Not Anticipated**				$	-
	Subcontractors and Equipment Total	**Not Anticipated**				$	-
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$	22,537

BP WOOD RIVER MAIN PLANT
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Area 12

Task Objective

Indoor vapor exposure routes for the remain areas in Area 12. Area 12 is approx 5 acres. No buildings are present. A total of 2 vapor monitoring point clusters will be installed. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	8	1	$ 1,112
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	30	1	$ 2,654
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	40	1	$ 3,286
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	4	1	$ 228
Labor Total					$ 8,666
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	3.00	$75.00	1	$ 225
4 gas meter	day	3.00	$45.00	1	$ 135
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,480
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster	Cluster	2	$1,200.00	1	$ 2,400
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	2	$200.00	1	$ 400
Subcontractors Total					$ 5,775
VI Total					$ 16,921

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 12

Task Objective	ELUC Preparation and Follow on NFA Pending Work					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	60	1	$ 5,309
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	40	1	$ 3,286
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 10,536
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 10,536

Labor Total	$ 38,275
Equipment Total	$ 2,960
Travel & Expense Total	$ 3,000
Subcontractor Total	$ 35,350
Task Total	$ 79,585

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 13

Task Objective	Area 13 Land Reuse Investigation completed in accordance with the 2012 Current Conditions Report/Characterization Work Plan					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Area 13 Land Reuse Investigation Completed	Project Manager	P5	113.76			$ -
	Professional Engineer	P6	139.05			$ -
	Professional Geologist	P5	116.29			$ -
	Geologist I	P4	88.48			$ -
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15			$ -
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88			$ -
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ -
	Travel and Expenses Total					$ -
	Subcontractors and Equipment					$ -
Area 13 Investigation Completed in 2017						$ -

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
*Pages 2-63 are included to provide cost detail information, but were not revised for 2020. Revised cost detail information will be submitted with the Main Plant Permit Renewal Application due to the Illinois EPA in October 2020.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			
	Technician III	T3	69.52			
	Technician II	T2	63.2			
	Technician I	T1	56.88			
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	**Not Anticipated**				$ -
	Equipment Total	**Not Anticipated**				$ -
	Subcontractors and Equipment	**Not Anticipated**				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan						$ 27,719

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 13

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 13. Area 13 is approx 44 acres and no occupied buildings are present. A total of 8 vapor monitoring point clusters will be installed in every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	16	1	$ 2,225
Professional Geologist	P5	116.29	32	1	$ 3,721
Geologist I	P4	88.48	60	1	$ 5,309
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	30	1	$ 2,465
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 15,085
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	2.00	$75.00	1	$ 150
4 gas meter	day	2.00	$45.00	1	$ 90
Air Sample Pump (Low Flow)	day	2.00	$20.00	1	$ 40
Pump Calibrator	day	2.00	$20.00	1	$ 40
Electric Generator	day	2.00	$20.00	1	$ 40
Sampling Supplies	day	2.00	$500.00	1	$ 1,000
Equipment Total					$ 1,360
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	8	$1,200.00	1	$ 9,600
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab - Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	8	$200.00	1	$ 1,600
Subcontractors Total					$ 14,175
VI Total					$ 31,620

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 13

Task Objective	ELUC Preparation and Follow on NFA Pending Work					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC Preparation and other Follow on Work	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88			$ -
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 6,560
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 6,560

Labor Total	$ 49,363
Equipment Total	$ 1,360
Travel & Expenses Total	$ 1,000
Subcontractor Total	$ 14,175
TASK TOTAL	$ 65,898

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 14

Task Objective	Area 14 Land Reuse Investigation completed in accordance with the 2012 Current Conditions Report/Characterization Work Plan					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Area 14 Land Reuse Investigation Completed	Project Manager	P5	113.76			$ -
	Professional Engineer	P6	139.05			$ -
	Professional Geologist	P5	116.29			$ -
	Geologist I	P4	88.48			$ -
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15			$ -
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88			$ -
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ -
	Travel and Expenses Total					$ -
	Subcontractors and Equipment					$ -
Area 14 Investigation - Completed in 2017						$ -

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan					
Task Objective	**Title**	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan	Project Manager	P5	113.76			$ -
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	**Not Anticipated**				$ -
	Equipment Total	**Not Anticipated**				$ -
	Subcontractors and Equipment Total	**Not Anticipated**				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan						$ 27,719

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 14

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 14. Area 14 is approx 4 acres and no occupied buildings are present. A total of 1 vapor monitoring point clusters will be installed in every 5 acres. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	4	1	$ 556
Professional Geologist	P5	116.29	10	1	$ 1,163
Geologist I	P4	88.48	24	1	$ 2,124
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	15	1	$ 1,232
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	4	1	$ 228
Labor Total					$ 5,757
Travel and Expenses Total					$ 1,000
Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
PID	day	1.00	$75.00	1	$ 75
4 gas meter	day	1.00	$45.00	1	$ 45
Air Sample Pump (Low Flow)	day	1.00	$20.00	1	$ 20
Pump Calibrator	day	1.00	$20.00	1	$ 20
Electric Generator	day	1.00	$20.00	1	$ 20
Sampling Supplies	day	1.00	$500.00	1	$ 500
Equipment Total					$ 680
Subcontractors	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	1	$1,200.00	1	$ 1,200
Utility clearance GPR	day	0.5	$1,250.00	1	$ 625
Utility clearance Air Knife	day	0.5	$1,250.00	1	$ 625
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab - Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	1	$200.00	1	$ 200
Subcontractors Total					$ 3,125
VI Total					$ 10,562

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 14

Task Objective	ELUC Preparation and Follow on NFA Pending Work					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC Preparation and other Follow on Work	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88			$ -
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 6,560
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ -

Labor Total	$	40,036
Equipment Total	$	680
Travel & Expenses Total	$	1,000
Subcontractor Total	$	3,125
TASK TOTAL	$	44,841

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 16

Task Objective

Conduct delineation assessment in the two remediation areas identified in the Area 16 Comprehensive Land Reuse Investigation Report and Remediation Plan. The object of the investigation is to determine extent (vertical and lateral) of Csat benzene and xylene exceedances and investigation the area were elevated lead concentrations exceeded the Tier 1 ingestions SRO for lead. Based on the investigation results evaluate remedial methods (limited excavation or installation of EB for COCs). The investigation will address the items noted in the IEPA 2016 letter in regards to the Area 16 Comprehensive Land Reuse Investigation Report and Remediation Plan.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Area 16 Delineation Assessment	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	42	1	$ 3,716
	Scientist III	P3	88.48	70	1	$ 6,194
	Scientist II	P2	82.15			$ -
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	42	1	$ 2,389
	Labor Total					$ 14,695
	Travel and Expenses Total					$ 2,500
	Equipment	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
	PID	day	7.00	$75.00	1	$ 525
	Sampling Supplies	day	7.00	$20.00	1	$ 140
	4 Gas Meter	day	7.00	$75.00	1	$ 525
	IP	day	7.00	$20.00	1	$ 140
	XRF	day	7.00	$300.00	1	$ 2,100
	Equipment Total					$ 3,430
	Subcontractor	**unit**	**quantity**	**cost/unit or cost per foot**	**frequency of events**	**Total**
	Driller					
	Mobilization/Demobilization	LS	2	$475.00	1	$ 950
	Borings (18 borings to 17ft)	foot	306	$22.75	1	$ 6,962
	Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
	Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
	Survey					
		day	1	$1,500.00	1	$ 1,500
	Waste Disposal					
	Drum Disposal	drum	2	$316.01	1	$ 632
	Lab					
	Soil Analytical (VOCs)	sample	27	$221.63	1	$ 5,984
	Lead (Total and TCLP)	sample	27	$40.42	1	$ 1,091
	Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	3	$500.00	1	$ 1,500
	Subcontractor Total					$ 21,119
Area 16 Remediaiton Area Additional Investigation Total						$ 41,744

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 16

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	Not Anticipated				$ -
	Equipment Total	Not Anticipated				$ -
	Total	Not Anticipated				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$ 27,719

Task Objective	Design and install Engineered Barrier where Csat exceedances exist in the remediation areas evaluated.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	Not Anticipated				$ -
	Total	Not Anticipated				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 16

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 16. Area 16 is approx 8 acres. No occupied buildings are present. A total of 2 vapor monitoring point clusters will be installed. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	8	1	$ 1,112
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	16	1	$ 1,416
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	24	1	$ 1,972
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 6,340
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	1.00	$75.00	1	$ 75
4 gas meter	day	1.00	$45.00	1	$ 45
Air Sample Pump (Low Flow)	day	1.00	$20.00	1	$ 20
Pump Calibrator	day	1.00	$20.00	1	$ 20
Electric Generator	day	1.00	$20.00	1	$ 20
Sampling Supplies	day	1.00	$500.00	1	$ 500
Equipment Total					$ 680

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster	Cluster	2	$1,200.00	1	$ 2,400
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	2	$200.00	1	$ 400
Subcontractors Total					$ 5,775

VI Total	$ 13,795

BP WOOD RIVER MAIN PLANT
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Area 16

Task Objective	ELUC Preparation and formally filing documents and incorporating IEPA comments.					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	60	1	$ 5,309
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	40	1	$ 3,286
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 10,536
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 10,536

Labor Total	$ 67,216
Equipment Total	$ 4,110
Travel & Expense Total	$ 3,500
Subcontractor Total	$ 26,894
Task Total	$ 101,720

BP WOOD RIVER MAIN PLANT
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Area 17

Task Objective

Conduct delineation assessment in the three remediation areas identified in the Area 17 Comprehensive Land Reuse Investigation Report and Remediation Plan. The object of the investigation is to determine extent (vertical and lateral) of Csat PAH and arsenic exceedances and investigation into tar-like NAPL substance. Based on the investigation results evaluate remedial methods (limited excavation or installation of EB for COCs). Area 17 Comprehensive Land Reuse Investigation Report and Remediation Plant which is under review by IEPA.

Area 17 Delineation Assessment

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	4	1	$ 556
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	54	1	$ 4,778
Scientist III	P3	88.48	90	1	$ 7,963
Scientist II	P2	82.15			$ -
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	16	1	$ 910
Senior Admin. Assistant	T1	56.88	54	1	$ 3,072
Labor Total					$ 18,209
Travel and Expenses Total					$ 2,500

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	10.00	$75.00	1	$ 750
Sampling Supplies	day	10.00	$20.00	1	$ 200
4 Gas Meter	day	10.00	$75.00	1	$ 750
IP	day	10.00	$20.00	1	$ 200
Equipment Total					$ 1,900

Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Mobilization/Demobilization	LS	2	$475.00	1	$ 950
Borings (27 borings to 10ft)	foot	216	$22.75	1	$ 4,914
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Surveyor					
	day	1	$1,500.00	1	$ 1,500
Waste Disposal					
Drum Disposal	drum	2	$316.01	1	$ 632
Lab					
Soil Analytical (PAHs)	sample	18	$192.14	1	$ 3,459
Soil Analytical (TPH)	sample	18	$154.21	1	$ 2,776
Soil Analytical (Arsenic)	sample	18	$20.21	1	$ 364
Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	3	$500.00	1	$ 1,500
Subcontractor Total					$ 18,594
Area 17 Remediation Area Additional Investigation Total					$ 41,203

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Area 17

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	10	1	$ 1,391
	Professional Geologist	P5	116.29	60	1	$ 6,977
	Geologist I	P4	88.48	120	1	$ 10,618
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	80	1	$ 6,572
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	30	1	$ 1,706
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 27,719
	Travel and Expenses Total	**Not Anticipated**				$ -
	Equipment Total	**Not Anticipated**				$ -
	Subcontractors and Equipment Total	**Not Anticipated**				$ -
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$ 27,719
Task Objective	**Design and install Engineered Barrier where Csat exceedances exist in the remediation areas evaluated.**					
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**
Engineered Barrier	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29		1	$ -
	Geologist I	P4	88.48	40	1	$ 3,539
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	30	1	$ 2,465
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	8	1	$ 455
	Labor Total					$ 7,925
	Travel and Expenses Total	**Not Anticipated**				$ -
	Subcontractors and Equipment Total	**Not Anticipated**				$ -
Engineered Barrier Total						$ 7,925

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 17

Indoor Vapor Exposure Investigation

Task Objective

Evaluate indoor vapor exposure routes in Area 17. Area 17 is approx 7 acres. No occupied buildings are present. A total of 2 vapor monitoring point clusters will be installed. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	8	1	$ 1,112
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	16	1	$ 1,416
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	24	1	$ 1,972
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 6,340
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	1.00	$75.00	1	$ 75
4 gas meter	day	1.00	$45.00	1	$ 45
Air Sample Pump (Low Flow)	day	1.00	$20.00	1	$ 20
Pump Calibrator	day	1.00	$20.00	1	$ 20
Electric Generator	day	1.00	$20.00	1	$ 20
Sampling Supplies	day	1.00	$500.00	1	$ 500
Equipment Total					$ 680

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster (10 clusters) - (Includes crew, direct push rig, samples liners, expendable drive points, grouting and surface caps, 6"x 1/4" stainless steel implant, 0.17"x1/4" nylon tubing, filter sand and bentonite chips)	Cluster	2	$1,200.00	1	$ 2,400
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	2	$200.00	1	$ 400
Subcontractors Total					$ 5,775

VI Total	$ 13,795

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 17							
Task Objective	**ELUC Preparation and formally filing documents and incorporating IEPA comments.**						
	Title	**Labor Category**	**Billing Rate**	**Hours**	**Frequency of Events**	**Total**	
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	4	1	$	556
	Professional Geologist	P5	116.29	8	1	$	930
	Geologist I	P4	88.48	60	1	$	5,309
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	40	1	$	3,286
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	8	1	$	455
	Senior Admin. Assistant	T1	56.88			$	-
	Labor Total					$	10,536
	Travel and Expenses Total	**Not Anticipated**				$	-
	Subcontractors and Equipment Total	**Not Anticipated**				$	-
ELUC Preparation Total						$	10,536

Labor Total	$	70,730
Equipment Total	$	2,580
Travel & Expense Total	$	3,500
Subcontractor Total	$	24,369
Task Total	$	101,179

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Area 19

[redacted]sk Objective	Conduct limited excavation or installation of EB for 4 subareas in accordance with NFA Designation conditions.

	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	42	1	$ 3,716
	Scientist III	P3	88.48	70	1	$ 6,194
	Scientist II	P2	82.15			$ -
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	16	1	$ 910
	Senior Admin. Assistant	T1	56.88	42	1	$ 2,389
	Labor Total					$ 14,695
	Travel and Expenses Total					$ 2,500
	Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
	PID	day	7.00	$75.00	1	$ 525
	Sampling Supplies	day	7.00	$20.00	1	$ 140
	4 Gas Meter	day	7.00	$75.00	1	$ 525
	IP	day	7.00	$20.00	1	$ 140
	XRF	day	7.00	$300.00	1	$ 2,100
	Equipment Total					$ 3,430
Area 19 Delineation Assessment [redacted]	Subcontractor	unit	quantity	cost/unit or cost per foot	frequency of events	Total
	Utility clearance GPR	day	3	$1,250.00	1	$ 3,750
	Air Knife (borehole clearance)	day	10	$1,250.00	1	$ 12,500
	Direct-Push Rig & 2-man Crew	ft	60	$22.75	1	$ 1,365
	DT22 Probe Hole Grouting	ft	60	$3.00	1	$ 180
	Dual-Tube Sample Liners	ea	14	$8.00	1	$ 112
	Direct-Push Rig & 2-man Crew	hr	96	$155.00	1	$ 14,880
	Dual-Tube Sample Liners	ea	32	$8.00	1	$ 256
	2-man Tech Crew	hr	96	$130.00	1	$ 12,480
	Mobilization/Demobilization	LS	2	$475	1	$ 950
	Crew Travel Time	day	40	$90	1	$ 3,600
	Pontoon Boat Rental for Rig	LS	1	$6,200	1	$ 6,200
	Safety Boat & Trolling Motor	LS	1	$1,600	1	$ 1,600
	Crane & Operator Rental	hr	18	$225	1	$ 4,050
	Drill Rig w/ winch	day	20	$225	1	$ 4,500
	Morooka Support Vehicle	day	20	$225	1	$ 4,500
	Hydraulic Power Pack	week	4	$800	1	$ 3,200
	Steam Cleaner	day	20	$85	1	$ 1,700
	Survor	1	1	$1,500.00	1	$ 1,500
	Waste Disposal	drum	4	$316.01	1	$ 1,264
	Soil Analytical (VOCs)	sample	49	$221.63	1	$ 10,860
	Soil Analytical (PAHs)	sample	49	$192.14	1	$ 9,415
	Soil Analytical (RCRA Metals)	sample	49	$118.81	1	$ 5,822
	Physical Soil Params (ph, ps, pb, w%, sieve, foc, porosity)	sample	3	$500.00	1	$ 1,500
	Subcontractor Total					$ 106,183
	Area 19 Remediation Area Additional Investigation					$ 126,809

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Area 19

Task Objective	Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total	
Prepare Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	10	1	$	1,391
	Professional Geologist	P5	116.29	60	1	$	6,977
	Geologist I	P4	88.48	120	1	$	10,618
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	80	1	$	6,572
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	30	1	$	1,706
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	27,719
	Travel and Expenses Total	Not Anticipated				$	-
	Equipment Total	Not Anticipated				$	-
	Subcontractors and Equipment	Not Anticipated				$	-
Preparation of Comprehensive Land Reuse Investigation Report and Remediation Plan - addendum						$	27,719

Task Objective	Design and install Engineered Barrier where Csat exceedances exist in the remediation areas evaluated.						
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total	
Engineered Barrier	Project Manager	P5	113.76				
	Professional Engineer	P6	139.05	4	1	$	556
	Professional Geologist	P5	116.29		1	$	-
	Geologist I	P4	88.48	40	1	$	3,539
	Scientist III	P3	88.48			$	-
	Scientist II	P2	82.15	30	1	$	2,465
	Scientist I	P1	75.83			$	-
	Technician IV	T4	75.83			$	-
	Technician III	T3	69.52			$	-
	Technician II	T2	63.2			$	-
	Technician I	T1	56.88			$	-
	Draftsperson/CAD II	T2	56.88	16	1	$	910
	Senior Admin. Assistant	T1	56.88	8	1	$	455
	Labor Total					$	7,925
	Travel and Expenses Total	Not Anticipated				$	-
	Subcontractors and Equipment	Not Anticipated				$	-
Engineered Barrier Total						$	7,925

BP WOOD RIVER MAIN PLANT
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Area 19

Task Objective

Evaluate indoor vapor exposure routes in Area 19. Area 19 is approx 19 acres (land and water) less than 5 acres of dry ground. No occupied buildings are present. 1 vapor monitoring point clusters will be installed. Each vapor monitoring point cluster will be installed at three depths - 30 ft, 22 ft and 3.5 ft. Maximum depth will above the water table. Prepare Subsurface Vapor Assessment Report summarizing the conditions encountered during the field activities, and present analytical results. Subsurface vapor analytical results will be compared to the applicable remediation objectives presented in Title 35 Illinois Administrative Code (IAC) Part 742, (TACO).

Sampling will be conducted utilizing the sampling train configuration and helium as the tracer gas for the system. The subsurface vapor sampling locations will be allowed to equilibrate for two hours prior to purging and sampling. Shut-in test will be conducted on the sampling train prior to purging and sample collection. A leak test will be conducted on the installed sampling point prior to connecting the point to the sampling train. If a helium concentration in the discharge is greater than 10% of the helium concentration in the shroud from the point, the surface seal will be reset and the point retested prior to sampling. A minimum of three tubing volumes will be purged utilizing a vacuum pump at a flow rate of 100 mL per minute at a vacuum of 100 inches of water or less. Following the purging, the sample will be collected in 1L Summa canister.

Vapor Investigation

Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Project Manager	P5	113.76			
Professional Engineer	P6	139.05	8	1	$ 1,112
Professional Geologist	P5	116.29	8	1	$ 930
Geologist I	P4	88.48	16	1	$ 1,416
Scientist III	P3	88.48			$ -
Scientist II	P2	82.15	24	1	$ 1,972
Scientist I	P1	75.83			$ -
Technician IV	T4	75.83			$ -
Technician III	T3	69.52			$ -
Technician II	T2	63.2			$ -
Technician I	T1	56.88			$ -
Draftsperson/CAD II	T2	56.88	8	1	$ 455
Senior Admin. Assistant	T1	56.88	8	1	$ 455
Labor Total					$ 6,340
Travel and Expenses Total					$ 1,000

Equipment	unit	quantity	cost/unit or cost per foot	frequency of events	Total
PID	day	1.00	$75.00	1	$ 75
4 gas meter	day	1.00	$45.00	1	$ 45
Air Sample Pump (Low Flow)	day	1.00	$20.00	1	$ 20
Pump Calibrator	day	1.00	$20.00	1	$ 20
Electric Generator	day	1.00	$20.00	1	$ 20
Sampling Supplies	day	1.00	$500.00	1	$ 500
Equipment Total					$ 680

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Driller					
Vapor monitoring point cluster	Cluster	1	$1,200.00	1	$ 1,200
Utility clearance GPR	day	1	$1,250.00	1	$ 1,250
Utility clearance Air Knife	day	1	$1,250.00	1	$ 1,250
Mobilization/Demobilization	LS	1	$475	1	$ 475
Summa Can and Lab					
Non-halogenated VOCs, Methane, BTEX using USEPA Method TO-15	sample	1	$200.00	1	$ 200
Subcontractors Total					$ 4,375
VI Total					$ 12,395

BP WOOD RIVER MAIN PLANT
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Area 19

Task Objective	ELUC Preparation and Follow on NFA Pending Work					
	Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
ELUC preparation and formally filing documents and incorporating IEPA comments.	Project Manager	P5	113.76			
	Professional Engineer	P6	139.05	4	1	$ 556
	Professional Geologist	P5	116.29	8	1	$ 930
	Geologist I	P4	88.48	60	1	$ 5,309
	Scientist III	P3	88.48			$ -
	Scientist II	P2	82.15	40	1	$ 3,286
	Scientist I	P1	75.83			$ -
	Technician IV	T4	75.83			$ -
	Technician III	T3	69.52			$ -
	Technician II	T2	63.2			$ -
	Technician I	T1	56.88			$ -
	Draftsperson/CAD II	T2	56.88	8	1	$ 455
	Senior Admin. Assistant	T1	56.88			$ -
	Labor Total					$ 10,536
	Travel and Expenses Total	Not Anticipated				$ -
	Subcontractors and Equipment Total	Not Anticipated				$ -
ELUC Preparation Total						$ 10,536

Labor Total			$ 67,216
Equipment			$ 4,110
Travel & Expense Total			$ 3,500
Subcontractor Total			$ 110,558
Task Total			$ 185,384

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Groundwater Corrective Action: Sampling, Reporting & Permitting							
Task		Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Permitting Activities and Well Repairs/Replacement	Class 1* Permit modifications to the RCRA Part B Permits for the Main Plant and Riverfront. The permit modifications will be submitted when necessary, in accordance with the Permits.	Professional Engineer	P6	$ 139.05	4	1	$ 556
		Scientist III	P3	$ 88.48	23	1	$ 2,035
		Scientist II	P2	$ 82.15	23	1	$ 1,889
		Technician I	T1	$ 56.88	4	1	$ 228
	Labor Total						$ 4,708
	Travel & Expenses						$ 225
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 4,933
Hazardous Waste Reports and Nonhazardous Waste Reports	Hazardous Waste Reports and Nonhazardous Waste Reports will be submitted to the IEPA annually in February	Professional Engineer	P6	$ 139.05	2	1	$ 278
		Professional Geologist	P5	$ 116.29	8	1	$ 930
		Scientist III	P3	$ 88.48	30	1	$ 2,654
		Scientist II	P2	$ 82.15	18	1	$ 1,479
		Scientist I	P1	$ 75.83	18	1	$ 1,365
	Labor Total						$ 6,706
	Travel & Expenses						$ 180
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 6,886
Quarterly MP RFI Reports on the Progress of Corrective Action Activities	Quarterly RFI status reports regarding the progress of Corrective Action activities at the Main Plant will be submitted to the IEPA.	Professional Engineer	P6	$ 139.05	4	1	$ 556
		Scientist III	P3	$ 88.48	64	1	$ 5,663
		Scientist II	P2	$ 82.15	32	1	$ 2,629
		Scientist I	P1	$ 75.83	160	1	$ 12,133
	Labor Total						$ 20,981
	Travel & Expenses						$ 200
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 21,181
Main Plant GMZ and OW Fluid Level Collection at 89 Monitoring Wells	Fluid level collection at 89 monitoring wells will be performed per the IEPA letter dated 10/29/2013. Results will be presented to the IEPA.	Scientist II	P2	$ 82.15	30	4	$ 9,858
		Scientist I	P1	$ 75.83	90	4	$ 27,299
		Technician IV	T4	$ 75.83	90	4	$ 27,299
	Labor Total						$ 64,456
	Travel & Expenses						$ 2,000
	Subcontractors., Equipment, and Materials						
	Interface Prove			$ 20.00	9	4	$ 720
	Supplies			$ 150.00	9	4	$ 5,400
	TOTAL						$ 72,576
Semi-Annual Sampling of 36 Wells for 49 Constituents - Main Plant	Thirty-six (36) Main Plant GMZ monitoring wells will require sampling on a semi-annual basis and analyzed for (at most) 49 constituents	Scientist III	P3	88.48	40	2	$ 7,078
		Scientist II	P2	82.15	60	2	$ 9,858
		Scientist I	P1	75.83	60	2	$ 9,100
	Labor						$ 26,036
	Travel & Expenses						$ 1,500
	Subcontractors., Equipment, and Materials						$ 900
	TOTAL						$ 28,436
Semi-Annual Sampling of 55 Wells for 49 Constituents - Main Plant	Fifty-five (55) Main Plant observation monitoring wells will require sampling on a semi-annual basis and analyzed for (at most) 49 constituents	Scientist III	P3	88.48	40	2	$ 7,078
		Scientist II	P2	82.15	150	2	$ 24,645
		Scientist I	P1	75.83	150	2	$ 22,749
	Labor						$ 54,472
	Travel & Expenses						$ 4,000
	Subcontractors., Equipment, and Materials						$ 4,000
	TOTAL						$ 62,472
Semi-Annual Analytical Report - Main Plant	Main Plant Semi-Annual Report	Professional Engineer	P6	139.05	4	2	$ 1,112
		Geologist I	P4	88.48	50	2	$ 8,848
		Scientist III	P3	88.48	40	2	$ 7,078
		Scientist II	P2	82.15	60	2	$ 9,858
		Scientist I	P1	75.83	60	2	$ 9,100
		Draftsperson/CAD II	T2	63.2	40	2	$ 5,056
	Labor						$ 41,052
	Travel & Expenses						$ 1,500
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 42,552
Main Plant 1st, 2nd, 3rd, and 4th Quarter Sampling of 17 Monitoring Wells	1st, 2nd, 3rd, and 4th Quarter sampling of 17 monitoring wells per IEPA letter December 2012	Scientist III	P3	88.48	12	4	$ 4,247
		Geologist I	P4	88.48	6	4	$ 2,124
		Scientist II	P2	82.15	60	4	$ 19,716
		Scientist I	P1	75.83	60	4	$ 18,199
	Labor						$ 44,286
	Travel & Expenses						$ 1,200
	Subcontractors., Equipment, and Materials						$ 4,600
	TOTAL						$ 50,086
Data Management	All environmental data (i.e., analytical data, fluid levels, survey information, etc.) that are collected at the site will be managed in a SQL database to perform trend analysis, analytical queries, produce electronic data	Geologist I	P4	88.48	180	1	$ 15,926
		Scientist III	P3	88.48	150	1	$ 13,272
		Scientist II	P2	82.15	45	1	$ 3,697
		Technician IV	T4	75.83	150	1	$ 11,375
	Labor						$ 44,270
	Travel & Expenses						$ 2,625
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 46,895

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: Sampling, Reporting & Permitting							
Task		Title	Labor Category	Billing Rate	Hours	Frequency of Events	Total
Quarterly Electronic Reporting	All environmental data (i.e., analytical data, fluid levels, survey information, etc.) that are collected at the site will be compiled into electronic data deliverables (EDDs) that are submitted to the IEPA on a quarterly	Geologist I	P4	88.48	15	4	$ 5,309
		Scientist III	P3	88.48	30	4	$ 10,618
		Scientist I	P1	75.83	16	4	$ 4,853
		Scientist II	P2	82.15	24	4	$ 7,886
	Labor						$ 28,666
	Travel & Expenses						
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 28,666
Groundwater Modeling & Software	The IEPA requires BP to be current on groundwater modeling software in order to run the Site Groundwater Model effectively. BP will update the existing Groundwater Model to current software. Site Model to	Professional Engineer	P6	139.05	4	1	$ 556
		Professional Geologist	P5	116.29	8	1	$ 930
		Scientist III	P3	88.48	75	1	$ 6,636
		Scientist I	P1	75.83	120	1	$ 9,100
	Labor						$ 17,222
	Travel & Expenses						$ 1,000
	Subcontractors., Equipment, and Materials						
	TOTAL						$ 18,222
Laboratory Fees	Labor						
	Travel & Expenses						
	Subcontractors., Equipment, and Materials						
	2Q and 4Q MP OW						
	VOCs			$ 221.00	40	2	$ 17,680
	SVOCs			$ 395.00	40	2	$ 31,600
	SIM PAH			$ 192.00	40	2	$ 15,360
	Metals			$ 150.00	40	2	$ 12,000
	2Q and 4Q MP GMZ						
	VOCs			$ 221.00	43	2	$ 19,006
	SVOCs			$ 395.00	43	2	$ 33,970
	SIM PAH			$ 192.00	43	2	$ 16,512
	Metals			$ 150.00	43	2	$ 12,900
	TOTAL						$ 159,028
			LABOR TOTAL				$ 352,855
			TRAVEL & EXPENSES TOTAL				$ 14,430
			EQUIPMENT TOTAL				$ 15,620
			SUBCONTRACTOR TOTAL				$ 159,028
			TOTAL				$ 541,933

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: COD Well Operation						
Task Objectives	Continued pumping of the site four COD wells (G664, G667, G668 and G669) to maintain hydraulic control of groundwater across the Main Plant and Riverfront Groundwater Management Zones (GMZ) and operation technicians on site to monitor the COD system.					
	Task	**Title**	**Labor Category**	**Billing Rate**	**Hours**	**Project Labor/Exp**
Operation of COD System	Operation of COD System	Project Manager	P5	$113.76		
		Professional Engineer	P6	$139.05	540	$ 75,087
		Professional Geologist	P5	$116.29		
		Geologist I	P4	$88.48	810	$ 71,669
		Scientist III	P3	$88.48		
		Scientist II	P2	$82.15		
		Scientist I	P1	$75.83		
		Technician IV	T4	$75.83	1620	$ 122,845
		Technician III	T3	$69.52		
		Technician II	T2	$63.20		
		Technician I	T1	$56.88	1620	$ 112,622
		Draftsperson/CAD II	T2	$56.88		
		Senior Admin. Assistant	T1	$56.88	216	$ 12,286
					Labor	$ 394,509
					Travel & Expenses	$ 7,500
					Equipment and Materials	$ 35,000
					Subcontractors	$ 15,000
	TOTAL					$ 452,009
Electrical Systems Repairs	Normal periodic electro-mechanical maintenance performed, which may either be performed directly or through the use of subcontractors. Electrical system repairs will be performed by qualified and/or licensed subcontractors, exclusively.					
	Subcontractors, Equipment, and Materials					$ 50,000
	TOTAL					$ 50,000
Electricity for Remediation	Electricity costs for remediation.					
	Subcontractors, Equipment, and Materials					$ 70,000
	TOTAL					$ 70,000
					Labor Total	$ 394,509
					Travel & Expense Total	$ 7,500
					Equipment Total	$ 35,000
					Subcontractor Total	$ 135,000
					Annual Total	$ 572,008.88

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: COD Well Rehabilitation

Task Objectives	This task includes: conducting a pumping test to determine pumping capabilities; preparing the necessary documents, construction plans and specifications; modifying and/or obtaining permits; and, administrative considerations such as preparing eMOCS, Tech Memos, Hazard IDs, etc. In addition, each existing COD well (4 wells in total) will be rehabilitated on an annual basis to achieve maximum pumping efficiency.

COD WELL PUMPING TESTS AND EVALUATION

		Title	Labor Category	Hours	Billing Rate	Frequency of Events	Total
COD Well Pumping Test and Evaluation	Assumes pumping tests to be conducted on 4 active COD wells. Each test will include test design and permitting, pumping tests, data evaluations, modeling and analysis, memo preparation. Assumes frequency of four 96 hour tests.	Project Manager	P5		$113.76		
		Professional Engineer	P6	20	$139.05	4	$ 11,124
		Professional Geologist	P5	20	$116.29	4	$ 9,303
		Geologist I	P4	20	$88.48	4	$ 7,078
		Scientist III	P3	120	$88.48	4	$ 42,470
		Scientist II	P2	120	$82.15	4	$ 39,432
		Scientist I	P1		$75.83		
		Technician IV	T4	100	$75.83	4	$ 30,332
		Technician III	T3		$69.52		
		Technician II	T2		$63.20		
		Technician I	T1	8	$56.88	4	$ 1,820
		Draftsperson/CAD II	T2		$56.88		
		Senior Admin. Assistant	T1		$56.88		
	Labor Total						**$ 141,560**
	Travel and Exp Total				**$1,750**	**4**	**$ 7,000**
	Equip and Materials Total				**$10,000**	**4**	**$ 40,000**
	Subcontractors Total				**$10,000**	**4**	**$ 40,000**
COD WELL PUMPING TESTS AND EVALUATION TOTAL							**$ 188,560**

REHABILITATION OF EXISTING COD WELL

			Labor	Hours	Billing Rate	frequency of events	Total
[redacted]bilitation Existing COD Wells	Assumes each rehabilitation will be performed by a subcontractor with oversight. COD rehab be 1X/yr	Professional Engineer	P6	8	$139.05	1	$ 1,112
		Professional Geologist	P5	16	$116.29	1	$ 1,861
		Geologist I	P4	160	$88.48	1	$ 14,157
		Scientist III	P3	120	$88.48	1	$ 10,618
		Technician I	T1	8	$56.88	1	$ 455
	Labor Total						**$ 28,202**
	Travel and Exp Total				**$3,000**	**1**	**$ 3,000**
	Equip and Materials Total				**$20,000**	**1**	**$ 20,000**
	Subcontractors Total				**$250,000**	**1**	**$ 250,000**
REHABILITATION OF EXISTING COD WELL TOTAL							**$ 301,202**

Labor Total	**$ 169,763**
Travel & Expense Total	**$ 10,000**
Equipment Total	**$ 60,000**
Subcontractor Total	**$ 290,000**
Annual Total	**$ 529,763**

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: GMZ Well Installation						
Task Objectives	Install 10 new wells to a depth of 60' bgs. No soil samples will be collected. Develop, purge, and collect a groundwater sample for each well. Analyze groundwater for VOCs, SVOCs, PAH and Metals. Prepare Characterization Report.					
Task		**Title**	**Labor Category**	**Rate**	**Hours**	**Project Labor/Exp**
GMZ Well Installation	Install 10 new wells to a depth of 60' bgs. Collect 3 soil samples from each well. Develop, purge, and collect a groundwater sample for each well. Analyze groundwater and soil samples for BTEX/Metals. Prepare Characterization Report.	Project Manager	P5	$113.76	0	$ -
		Professional Engineer	P6	$139.05	24	$ 3,337
		Professional Geologist	P5	$116.29	60	$ 6,977
		Geologist I	P4	$88.48	120	$ 10,618
		Scientist III	P3	$88.48	120	$ 10,618
		Scientist II	P2	$82.15	0	$ -
		Scientist I	P1	$75.83	40	$ 2,275
		Technician IV	T4	$75.83	0	$ -
		Technician III	T3	$69.52	30	$ 2,086
		Technician II	T2	$63.20	0	$ -
		Technician I	T1	$56.88	0	$ -
		Draftsperson/CAD II	T2	$56.88	40	$ 1,138
		Senior Admin. Assistant	T1	$56.88	20	$ 1,138
		Labor Total				**$ 38,186**
		Travel and Expenses Total				**$ 1,000**

Equipment	unit	quantity	cost/unit	frequency of events	Total
PID	day	10	$75.00	1	$ 750
4 Gas Meter	day	10	$45.00	1	$ 450
Water Quality Meter	day	3	$60.00	1	$ 180
Air Sample Pump (Low Flow)	day	3	$20.00	1	$ 60
Pump Calibrator	day	3	$20.00	1	$ 60
Electric Generator	day	3	$50.00	1	$ 150
Sampling Supplies	day	10	$20.00	1	$ 200
Interface Probe	day	10	$20.00	1	$ 200
Misc Equipment	day	10	$200.00	1	$ 2,000
Equipment Total					**$ 4,050**

Subcontractors	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Utility clearance GPR	day	3	$1,250.00	1	$ 3,750
Utility clearance Air Knife	day	3	$1,250.00	1	$ 3,750
Mobilization/Demobilization	LS	3	$450	1	$ 1,350
Soil borings	ft	600	$29.07	1	$ 17,442
Monitoring wells (instalaltion)	ft	600	$20.86	1	$ 12,516
Well Development	well	10	175	1	$ 1,750
Protective Cover	well	10	200	1	$ 2,000
Professional Survey	day	2	$1,500.00	1	$ 3,000
Waste characterization - soil	Sample	2	$50	1	$ 100
Waste characterization - gw	Sample	2	$50	1	$ 100
Disposal (Non Haz)	drum	10	$316.01	1	$ 3,160
Backfill (delivered and placed)	CY	1	$50	1	$ 50
Laboratory					
VOCs	Sample	11	$ 221.00	1	$ 2,431
SVOCs	Sample	11	$ 395.00	1	$ 4,345
SIM PAH	Sample	11	$ 192.00	1	$ 2,112
Metals	Sample	11	$ 150.00	1	$ 1,650
				Subcontractors Equipment Total	**$ 59,506**
				TOTAL	**$ 102,742**

Labor Total	**$ 38,186**
Equipment Total	**$ 4,050**
Travel & Expense Total	**$ 1,000**
Subcontractor Total	**$ 59,506**
Task Total	**$ 102,742**

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: Bioremediation System Operation

Task Objectives: Operations, Maintenance, and Monitoring (OMM) of the AS/SVE, biovent and biosparge pilot test systems. Monitoring includes collection of all data required to make NSZD arguments to support communications with IEPA and a review of data with the BWT. Subcontractors include a carbon change subcontractor.

	Task	Title	Labor Category	Rate	Hours	Frequency of Events	Project Labor/Exp
Bioremediation System Operation	PM/Calls/Coordination/HSSE (Monthly for 12 months)	Professional Engineer	P6	$ 139.05	4	12	$6,674
		Project Manager	P5	$ 113.76	8	12	
		Geologist I	P4	$ 88.48	4	12	$4,247
		Technician IV	T4	$ 75.83	4	12	$3,640
		Senior Admin. Assistant	T1	$ 56.88	4	12	$2,730
	Weekly Monitoring (48 weeks)						
	Engineer	Professional Engineer	P6	$ 139.05	4	48	$26,698
	Task Manager/Data Management	Scientist II	P2	$ 82.15	20	48	$78,864
	Biovent OMM	Technician IV	T4	$ 75.83	10	48	$36,398
	Biosparge OMM	Technician IV	T4	$ 75.83	10	48	$36,398
	AS/SVE OMM	Technician IV	T4	$ 75.83	20	48	$72,797
	Monthly Monitoring (12 months)						
	Engineer	Professional Engineer	P6	$ 139.05	4	12	$6,674
	Task Manager/Oversight	Scientist II	P2	$ 82.15	20	12	$19,716
	Biovent OMM	Technician IV	T4	$ 75.83	100	12	$90,996
	Biosparge OMM	Technician IV	T4	$ 75.83	100	12	$90,996
	AS/SVE OMM	Technician IV	T4	$ 75.83	100	12	$90,996
	Quarterly Monitoring (4 quarters)						
	Engineer	Professional Engineer	P6	$ 139.05	4	4	$2,225
	Task Manager/Oversight	Scientist II	P2	$ 82.15	20	4	$6,572
	Biovent OMM	Technician IV	T4	$ 75.83	100	4	$30,332
	Biosparge OMM	Technician IV	T4	$ 75.83	100	4	$30,332
	AS/SVE OMM	Technician IV	T4	$ 75.83	100	4	$30,332
						Labor Total	**$667,618**

EQUIPMENT	unit	quantity	cost/unit or cost per foot	frequency of events	Total
Truck	Month	1	$1,200	12.00	$1,800
Misc. supplies (plastic, ice, etc.)	Month	1	$150	12.00	$1,440
Submersible Pump	Month	1	$120	12.00	$8,052
YSI Meter	Month	1	$671	12.00	$2,400
IP	Month	1	$200	12.00	$3,840
PID 10.6 eV (2)	Month	1	$320	12.00	$3,840
LEL/O2 Meter (2)	Month	1	$320	12.00	$3,840
Eagle Air Monitor	Month	1	$320	12.00	$3,840
Bladder Pump and Compressor	VaporTech	1	$800	12.00	$3,000
Bubbler	VaporTech	1	$250	12.00	$3,000
Tubing	VENDOR	1	$250	12.00	$3,000
Miscellaneous	VENDOR	1	$250	12.00	$3,000
				Equipment Subtotal	**$41,052**
TRAVEL AND EXPENSES					
Airfare	VARIOUS	4	$100	4.00	$1,600
Car Hire	VARIOUS	3	$150	4.00	$1,800
Hotel and Meals	VARIOUS	4	$125	4.00	$2,000
				Expenses Subtotal :	**$5,400**

SUBCONTRACTORS	unit	cost/unit or cost per foot	quantity	frequency of events	Total
Dissolved Gas Sampling-biovent	VaporTech	48	$70	1.00	$3,360
Dissolved Gas Sampling-biosparge	VaporTech	96	$70	1.00	$6,720
Soil Gas Sampling-biovent	VaporTech	48	$100	1.00	$4,800
Product chemical profile	elson Geochem	4	$135	1.00	$540
Product physical properties	elson Geochem	4	$505	1.00	$2,020
Carbon Changes	Evoqua	4	$19,000	1.00	$76,000
Electric	Ameren	12	$4,500	1.00	$54,000
GW Sampling					
VOCs					
Total Petroleum Hydrocarbons (TPH) GRO+DRO	GW	20	$41	12.00	$9,840
MNA Parameters	GW	20	$55	12.00	$13,200
Compound Specific Isotope Analysis	GW	12	$54	12.00	$7,776
VOCs	GW	4	$540	4.00	$8,640
	Air (Summa)	1	$250	12.00	$3,000
				Subcontractor Subtotal:	**$189,896**

Labor Total	**$ 667,618**
Equipment Total	**$ 41,052**
Travel & Expense Total	**$ 5,400**
Subcontractor Total	**$ 186,896**
Task Total	**$ 900,966**

BP WOOD RIVER MAIN PLANT
DECEMBER 2017 CORRECTIVE ACTION COST ESTIMATE

Groundwater Corrective Action: WATER DISPOSAL AT WOOD RIVER WWTP					
Task		Labor Category	Rate	Projected Yearly Expense	Project Labor/Exp
Waste Water Treatment	City of Wood River WWTP waste water disposal costs.	-	-	-	-
	Subcontractors, Equipment, and Materials			$ 1,300,000.00	$ 1,300,000
	TOTAL				$ 1,300,000
			Labor Total		
			Travel & Expense Total		$ -
			Equipment Total		$ -
			Subcontractor Total		$ 1,300,000
			Annual Total		$ 1,300,000

Exhibit F-3

Financial Assurance Mechanism Documentation

ALSTON & BIRD

The Atlantic Building
950 F Street, NW
Washington, DC 20004-1404
202-239-3300 | Fax: 202-239-3333

Elise N. Paeffgen | Direct Dial: 202-239-3939 | Email: elise.paeffgen@alston.com

December 19, 2019

VIA OVERNIGHT DELIVERY

Victoria Slayton
Illinois Environmental Protection Agency
Bureau of Land, Financial Assurance Program
1021 North Grand Avenue East
Springfield, IL 62702

Re: BP Products North America – Wood River Refinery
Site ID Nos. ILD980700967 / ILD980503106

Dear Ms. Slayton:

Alston & Bird LLP is counsel to BP Products North America Inc. ("BP"). BP provides financial assurance for the following facility:

BP Products North America – Wood River Refinery
301 Evans Avenue
Wood River, IL 62095
Site ID Nos. ILD980700967 (Main Plant) / ILD980503106 (Riverfront)

BP satisfies the financial assurance requirements for this facility through three financial guarantee bonds.

For the Wood River Refinery Main Plant (Site ID #ILD980700967), BP uses Financial Guarantee Bond #2273155, issued by Westport Insurance Corporation on April 28, 2018, as financial assurance, for the total penal sum of $ 87,922,423.00. The cost estimate for Wood River Refinery, Main Plant has been adjusted for inflation, and this amount matches the inflation-adjusted cost estimate amount. Enclosed please find a bond rider reflecting this amended amount.

For the Wood River Refinery Riverfront (Site ID #ILD980503106), BP uses two financial guarantee bonds as financial assurance: Financial Guarantee Bond #2273154, issued by Westport Insurance Corporation on April 28, 2018, for the total penal sum of $ 13,458,712.00, and Financial Guarantee Bond #2277261, issued by Westport Insurance Corporation on August 6, 2018, for the total penal sum of $1,521,640.00. The cost estimates for Wood River Refinery Riverfront have also been adjusted for inflation, and these amounts match the inflation-adjusted cost estimate amounts. Enclosed please find the bond riders reflecting the amended amounts.

We request that you respond with a letter, e-mail, or other note indicating Illinois EPA's approval of the bond riders for our records. If you have any questions, please do not hesitate to contact me. Thank you.

Sincerely,

Elise N. Paeffgen

Enclosures:
Rider - Financial Guarantee Bond #2273154
Rider - Financial Guarantee Bond #2273155
Rider - Financial Guarantee Bond #2277261

cc: J. Martin, BP Legal

RIDER

To be attached to and form part of:

Bond Number 2273154

issued by the WESTPORT INSURANCE CORPORATION

on behalf of BP PRODUCTS NORTH AMERICA INC.
(Principal)

and in favor of ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
(Obligee)

Now therefore, it is agreed that in consideration of the premium charged, the attached bond shall be amended as follows:

The bond amount shall be amended:

FROM: $13,143,273.00

TO: $13,458,712.00

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This Rider is to be Effective this 1st day of January, 2020.

Signed, Sealed & Dated this 18th day of December, 2019.

BP PRODUCTS NORTH AMERICA INC.
(Principal)

By: _____
Judi Lucky-Eftimov, Attorney-in-Fact

WESTPORT INSURANCE CORPORATION
(Surety)

By: _____
Sandra M. Winsted, Attorney-in-Fact

ACKNOWLEDGEMENT BY SURETY

STATE OF ILLINOIS
COUNTY OF COOK

On this 18th day of December, 2019, before me, Samantha Chierici , a Notary Public, within and for said County and State, personally appeared Sandra M. Winsted to me personally known to be the Attorney-in-Fact of and for Westport Insurance Corporation and acknowledged that he executed the said instrument as the free act and deed of said Company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

Samantha Chierici

Notary Public in the State of Illinois
County of Cook

OFFICIAL SEAL
SAMANTHA CHIERICI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 08/06/2021

SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS. THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Overland Park, Kansas and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Overland Park, Kansas, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Overland Park, Kansas each does hereby make, constitute and appoint:

MARCIA K. CESAFSKY, SUSAN A. WELSH, SANDRA M. WINSTED, DEREK J. ELSTON, CHRISTOPHER P. TROHA, ANN M. MULLINS, CHRISTINA L. SANDOVAL, SANDRA M. NOWAK

JUDITH A. LUCKY-EFTIMOV, JEANNETTE M. DAVIS, SALENA WOOD, JENNIFER WILLIAMS, ERIC D. SAUER, BRYAN J. HUFT, AERIE WALTON and BARTLOMIEJ SIEPIERSKI JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of: ONE HUNDRED TWENTY FIVE MILLION ($125,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

NORTH AMERICAN SPECIALTY INSURANCE COMPANY CORPORATE SEAL 1973 NEW HAMPSHIRE

WASHINGTON INTERNATIONAL INSURANCE COMPANY CORPORATE SEAL NEW HAMPSHIRE

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company & Senior Vice President of Westport Insurance Corporation

By _____
Mike A. Ito, Senior Vice President of Washington International Insurance Company & Senior Vice President of North American Specialty Insurance Company & Senior Vice President of Westport Insurance Corporation

WESTPORT INSURANCE CORPORATION CORPORATE SEAL MISSOURI

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 7th day of JUNE, 20 18.

North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation

State of Illinois
County of Cook ss:

On this 7th day of JUNE, 20 18, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 18th day of December, 20 19.

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company & North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS THAT:

BP PRODUCTS NORTH AMERICA INC., a corporation duly organized and subsisting in good standing under the laws of Maryland (the ***"Company"),*** does hereby make, constitute and appoint each of Christina L. Sandoval, Sandra M. Winsted, Susan A. Welsh, Sandra M. Nowak, Judi Lucky-Eftimov and Nicholas Pantazis in their capacity as employees of Aon Risk Services Central Inc., or any of them, as its lawful Attorney-in-Fact (hereinafter called the ***"Attorney-in-Fact")*** for and in the name of this Company to take any and all of the following actions:

> To approve, make, seal, acknowledge, execute and deliver any bid bonds, performance bonds, customs bonds, labor and material payment bonds, maintenance bonds, commercial surety bonds, and other surety obligations, and guarantees, indemnity agreements or other instruments related thereto, and all bonds or other instruments of a similar nature, for each bond or instrument in an amount up to $3,000,000, or in the case of customs bonds, in an amount up to $6,000,000, as shall be required in connection with: (i) any work to be performed by the Company; (ii) bids, proposals, contracts, agreements, affidavits, or other instruments pertaining to the sale of products by the Company; (iii) tax returns, reports or other instruments relating to collection of taxes; (iv) the conduct of any business of the Company, including requirements of the United States government, any state, county, municipality, or political subdivision, agency or department thereof; or (v) self-insurance applications, permits, returns, reports, and other similar documents relating thereto, which in each case in pursuance of these presents shall be as binding on the Company as if such documents and instruments had been duly signed and attested by officers of the Company.

HEREBY GIVING AND GRANTING said Attorney-in-Fact full power and authority to do and perform all acts necessary and proper to accomplish the foregoing, and hereby ratifying and confirming all that said Attorney-in-Fact shall do or cause to be done by virtue thereof.

THIS POWER OF ATTORNEY contains the following restriction:

> The authorities described herein are not transferable nor can they be sub-delegated to any other individuals.

[Remainder of Page Intentionally Left Blank]

THIS POWER OF ATTORNEY shall be effective as of March 1, 2019 and shall remain valid until the earlier of any of the following:

1. On and through February 28, 2020;
2. The date the Attorney-in-Fact ceases to be an employee of Aon Risk Services Central Inc.; or
3. The date this Power of Attorney is formally revoked by the Company.

IN WITNESS WHEREOF, BP Products North America Inc. has caused this Power of Attorney to be executed by its duly authorized officer on this 28 day of February, 2019.

BP PRODUCTS NORTH AMERICA INC.

By: A Smith Hill
Name: Audrey Smith Hill
Title: Vice President

UNITED STATES OF AMERICA §
STATE OF TEXAS §
COUNTY OF HARRIS §

BEFORE ME, a Notary Public in and for said State, on this day personally appeared Audrey Smith Hill, Vice President of BP Products North America Inc., known to me to be the person whose name is subscribed to the foregoing document and acknowledged to me that she executed said document for the purposes and consideration therein expressed.

GIVEN UNDER my hand and seal of office this 28 day of February, 2019.

Cindy L Chapman
Notary Public

CINDY L. CHAPMAN
My Notary ID # 2811719
Expires November 8, 2022

RIDER

To be attached to and form part of:

Bond Number 2273155

issued by the WESTPORT INSURANCE CORPORATION

on behalf of BP PRODUCTS NORTH AMERICA INC.
(Principal)

and in favor of ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
(Obligee)

Now therefore, it is agreed that in consideration of the premium charged, the attached bond shall be amended as follows:

The bond amount shall be amended:

FROM: $ 85,861,741.00

TO: $ 87,922,423.00

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This Rider is to be Effective this 1st day of January, 2020.

Signed, Sealed & Dated this 18th day of December, 2019.

BP PRODUCTS NORTH AMERICA INC.
(Principal)

By: _____
Judi Lucky-Eftimov, Attorney-in-Fact

WESTPORT INSURANCE CORPORATION
(Surety)

By: _____
Sandra M. Winsted, Attorney-in-Fact

ACKNOWLEDGEMENT BY SURETY

STATE OF ILLINOIS
COUNTY OF COOK

On this 18th day of December, 2019, before me, Samantha Chierici, a Notary Public, within and for said County and State, personally appeared Sandra M. Winsted to me personally known to be the Attorney-in-Fact of and for Westport Insurance Corporation and acknowledged that he executed the said instrument as the free act and deed of said Company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

Samantha Chierici
Notary Public in the State of Illinois
County of Cook

OFFICIAL SEAL
SAMANTHA CHIERICI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 06/06/2021

SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS. THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Overland Park, Kansas and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Overland Park, Kansas, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Overland Park, Kansas each does hereby make, constitute and appoint:

MARCIA K. CESAFSKY, SUSAN A. WELSH, SANDRA M. WINSTED, DEREK J. ELSTON, CHRISTOPHER P. TROHA, ANN M. MULLINS, CHRISTINA L. SANDOVAL, SANDRA M. NOWAK

JUDITH A. LUCKY-EFTIMOV, JEANNETTE M. DAVIS, SALENA WOOD, JENNIFER WILLIAMS, ERIC D. SAUER, BRYAN J. HUFT, AERIE WALTON and BARTLOMIEJ SIEPIERSKI JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

ONE HUNDRED TWENTY FIVE MILLION ($125.000.000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Mike A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 7th day of JUNE, 20 18.

North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation

State of Illinois
County of Cook ss:

On this 7th day of JUNE, 20 18, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 18th day of December, 20 18.

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company &
North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS THAT:

BP PRODUCTS NORTH AMERICA INC., a corporation duly organized and subsisting in good standing under the laws of Maryland (the ***"Company"),*** does hereby make, constitute and appoint each of Christina L. Sandoval, Sandra M. Winsted, Susan A. Welsh, Sandra M. Nowak, Judi Lucky-Eftimov and Nicholas Pantazis in their capacity as employees of Aon Risk Services Central Inc., or any of them, as its lawful Attorney-in-Fact (hereinafter called the ***"Attorney-in-Fact")*** for and in the name of this Company to take any and all of the following actions:

> To approve, make, seal, acknowledge, execute and deliver any bid bonds, performance bonds, customs bonds, labor and material payment bonds, maintenance bonds, commercial surety bonds, and other surety obligations, and guarantees, indemnity agreements or other instruments related thereto, and all bonds or other instruments of a similar nature, for each bond or instrument in an amount up to $3,000,000, or in the case of customs bonds, in an amount up to $6,000,000, as shall be required in connection with: (i) any work to be performed by the Company; (ii) bids, proposals, contracts, agreements, affidavits, or other instruments pertaining to the sale of products by the Company; (iii) tax returns, reports or other instruments relating to collection of taxes; (iv) the conduct of any business of the Company, including requirements of the United States government, any state, county, municipality, or political subdivision, agency or department thereof; or (v) self-insurance applications, permits, returns, reports, and other similar documents relating thereto, which in each case in pursuance of these presents shall be as binding on the Company as if such documents and instruments had been duly signed and attested by officers of the Company.

HEREBY GIVING AND GRANTING said Attorney-in-Fact full power and authority to do and perform all acts necessary and proper to accomplish the foregoing, and hereby ratifying and confirming all that said Attorney-in-Fact shall do or cause to be done by virtue thereof.

THIS POWER OF ATTORNEY contains the following restriction:

> The authorities described herein are not transferable nor can they be sub-delegated to any other individuals.

[Remainder of Page Intentionally Left Blank]

THIS POWER OF ATTORNEY shall be effective as of March 1, 2019 and shall remain valid until the earlier of any of the following:

1. On and through February 28, 2020;
2. The date the Attorney-in-Fact ceases to be an employee of Aon Risk Services Central Inc.; or
3. The date this Power of Attorney is formally revoked by the Company.

IN WITNESS WHEREOF, BP Products North America Inc. has caused this Power of Attorney to be executed by its duly authorized officer on this 28 day of February, 2019.

BP PRODUCTS NORTH AMERICA INC.

By: A Smith Hill
Name: Audrey Smith Hill
Title: Vice President

UNITED STATES OF AMERICA §
STATE OF TEXAS §
COUNTY OF HARRIS §

BEFORE ME, a Notary Public in and for said State, on this day personally appeared Audrey Smith Hill, Vice President of BP Products North America Inc., known to me to be the person whose name is subscribed to the foregoing document and acknowledged to me that she executed said document for the purposes and consideration therein expressed.

GIVEN UNDER my hand and seal of office this 28 day of February, 2019.

Cindy L Chapman
Notary Public

CINDY L. CHAPMAN
My Notary ID # 2811719
Expires November 8, 2022

RIDER

To be attached to and form part of:

Bond Number 2277261

issued by the NORTH AMERICAN SPECIALTY INSURANCE COMPANY

on behalf of BP PRODUCTS NORTH AMERICA INC.
(Principal)

and in favor of ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
(Obligee)

Now therefore, it is agreed that in consideration of the premium charged, the attached bond shall be amended as follows:

The bond amount shall be amended:

FROM: $1,485,977.00

TO: $ 1,521,640.00

It is further understood and agreed that all other terms and conditions of this bond shall remain unchanged.

This Rider is to be Effective this 1st day of January, 2020.

Signed, Sealed & Dated this 18th day of December, 2019.

BP PRODUCTS NORTH AMERICA INC.
(Principal)

By: _____
Judi Lucky-Eftimov, Attorney-in-Fact

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
(Surety)

By: _____
Sandra M. Winsted, Attorney-in-Fact

ACKNOWLEDGEMENT BY SURETY

STATE OF ILLINOIS
COUNTY OF COOK

On this 18th day of December, 2019, before me, Samantha Chierici , a Notary Public, within and for said County and State, personally appeared Sandra M. Winsted to me personally known to be the Attorney-in-Fact of and for North American Specialty Insurance Company and acknowledged that he executed the said instrument as the free act and deed of said Company.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed my official seal, at my office in the aforesaid County, the day and year in this certificate first above written.

Samantha Chierici
Notary Public in the State of Illinois
County of Cook

OFFICIAL SEAL
SAMANTHA CHIERICI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 06/06/2021

SWISS RE CORPORATE SOLUTIONS

NORTH AMERICAN SPECIALTY INSURANCE COMPANY
WASHINGTON INTERNATIONAL INSURANCE COMPANY
WESTPORT INSURANCE CORPORATION

GENERAL POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, THAT North American Specialty Insurance Company, a corporation duly organized and existing under laws of the State of New Hampshire, and having its principal office in the City of Overland Park, Kansas and Washington International Insurance Company a corporation organized and existing under the laws of the State of New Hampshire and having its principal office in the City of Overland Park, Kansas, and Westport Insurance Corporation, organized under the laws of the State of Missouri, and having its principal office in the City of Overland Park, Kansas each does hereby make, constitute and appoint:

MARCIA K. CESAFSKY, SUSAN A. WELSH, SANDRA M. WINSTED, DEREK J. ELSTON, CHRISTOPHER P. TROHA, ANN M. MULLINS, CHRISTINA L. SANDOVAL, SANDRA M. NOWAK

JUDITH A. LUCKY-EFTIMOV, JEANNETTE M. DAVIS, SALENA WOOD, JENNIFER WILLIAMS, ERIC D. SAUER, BRYAN J. HUFT, AERIE WALTON and BARTLOMIEJ SIEPIERSKI JOINTLY OR SEVERALLY

Its true and lawful Attorney(s)-in-Fact, to make, execute, seal and deliver, for and on its behalf and as its act and deed, bonds or other writings obligatory in the nature of a bond on behalf of each of said Companies, as surety, on contracts of suretyship as are or may be required or permitted by law, regulation, contract or otherwise, provided that no bond or undertaking or contract or suretyship executed under this authority shall exceed the amount of:

ONE HUNDRED TWENTY FIVE MILLION ($125,000,000.00) DOLLARS

This Power of Attorney is granted and is signed by facsimile under and by the authority of the following Resolutions adopted by the Boards of Directors of North American Specialty Insurance Company and Washington International Insurance Company at meetings duly called and held on March 24, 2000 and Westport Insurance Corporation by written consent of its Executive Committee dated July 18, 2011.

"RESOLVED, that any two of the President, any Senior Vice President, any Vice President, any Assistant Vice President, the Secretary or any Assistant Secretary be, and each or any of them hereby is authorized to execute a Power of Attorney qualifying the attorney named in the given Power of Attorney to execute on behalf of the Company bonds, undertakings and all contracts of surety, and that each or any of them hereby is authorized to attest to the execution of any such Power of Attorney and to attach therein the seal of the Company; and it is

FURTHER RESOLVED, that the signature of such officers and the seal of the Company may be affixed to any such Power of Attorney or to any certificate relating thereto by facsimile, and any such Power of Attorney or certificate bearing such facsimile signatures or facsimile seal shall be binding upon the Company when so affixed and in the future with regard to any bond, undertaking or contract of surety to which it is attached."

By _____
Steven P. Anderson, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

By _____
Mike A. Ito, Senior Vice President of Washington International Insurance Company
& Senior Vice President of North American Specialty Insurance Company
& Senior Vice President of Westport Insurance Corporation

IN WITNESS WHEREOF, North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation have caused their official seals to be hereunto affixed, and these presents to be signed by their authorized officers this 7th day of JUNE, 20 18.

North American Specialty Insurance Company
Washington International Insurance Company
Westport Insurance Corporation

State of Illinois
County of Cook ss:

On this 7th day of JUNE, 20 18, before me, a Notary Public personally appeared Steven P. Anderson, Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation and Michael A. Ito Senior Vice President of Washington International Insurance Company and Senior Vice President of North American Specialty Insurance Company and Senior Vice President of Westport Insurance Corporation, personally known to me, who being by me duly sworn, acknowledged that they signed the above Power of Attorney as officers of and acknowledged said instrument to be the voluntary act and deed of their respective companies.

OFFICIAL SEAL
M. KENNY
Notary Public - State of Illinois
My Commission Expires
12/04/2021

M. Kenny, Notary Public

I, Jeffrey Goldberg, the duly elected Vice President and Assistant Secretary of North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney given by said North American Specialty Insurance Company, Washington International Insurance Company and Westport Insurance Corporation which is still in full force and effect.

IN WITNESS WHEREOF, I have set my hand and affixed the seals of the Companies this 18th day of December, 20 19.

Jeffrey Goldberg, Vice President & Assistant Secretary of Washington International Insurance Company &
North American Specialty Insurance Company & Vice President & Assistant Secretary of Westport Insurance Corporation

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS THAT:

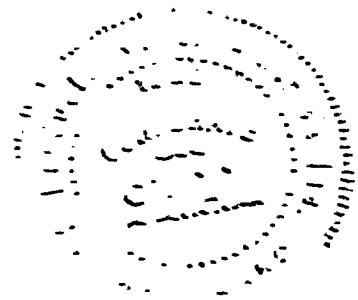
BP PRODUCTS NORTH AMERICA INC., a corporation duly organized and subsisting in good standing under the laws of Maryland (the ***"Company"),*** does hereby make, constitute and appoint each of Christina L. Sandoval, Sandra M. Winsted, Susan A. Welsh, Sandra M. Nowak, Judi Lucky-Eftimov and Nicholas Pantazis in their capacity as employees of Aon Risk Services Central Inc., or any of them, as its lawful Attorney-in-Fact (hereinafter called the ***"Attorney-in-Fact")*** for and in the name of this Company to take any and all of the following actions:

> To approve, make, seal, acknowledge, execute and deliver any bid bonds, performance bonds, customs bonds, labor and material payment bonds, maintenance bonds, commercial surety bonds, and other surety obligations, and guarantees, indemnity agreements or other instruments related thereto, and all bonds or other instruments of a similar nature, for each bond or instrument in an amount up to $3,000,000, or in the case of customs bonds, in an amount up to $6,000,000, as shall be required in connection with: (i) any work to be performed by the Company; (ii) bids, proposals, contracts, agreements, affidavits, or other instruments pertaining to the sale of products by the Company; (iii) tax returns, reports or other instruments relating to collection of taxes; (iv) the conduct of any business of the Company, including requirements of the United States government, any state, county, municipality, or political subdivision, agency or department thereof; or (v) self-insurance applications, permits, returns, reports, and other similar documents relating thereto, which in each case in pursuance of these presents shall be as binding on the Company as if such documents and instruments had been duly signed and attested by officers of the Company.

HEREBY GIVING AND GRANTING said Attorney-in-Fact full power and authority to do and perform all acts necessary and proper to accomplish the foregoing, and hereby ratifying and confirming all that said Attorney-in-Fact shall do or cause to be done by virtue thereof.

THIS POWER OF ATTORNEY contains the following restriction:

> The authorities described herein are not transferable nor can they be sub-delegated to any other individuals.



[Remainder of Page Intentionally Left Blank]

THIS POWER OF ATTORNEY shall be effective as of March 1, 2019 and shall remain valid until the earlier of any of the following:

1. On and through February 28, 2020;
2. The date the Attorney-in-Fact ceases to be an employee of Aon Risk Services Central Inc.; or
3. The date this Power of Attorney is formally revoked by the Company.

IN WITNESS WHEREOF, BP Products North America Inc. has caused this Power of Attorney to be executed by its duly authorized officer on this 28 day of February, 2019.

BP PRODUCTS NORTH AMERICA INC.

By: Audrey Smith Hill
Name: Audrey Smith Hill
Title: Vice President

UNITED STATES OF AMERICA §
STATE OF TEXAS §
COUNTY OF HARRIS §

BEFORE ME, a Notary Public in and for said State, on this day personally appeared Audrey Smith Hill, Vice President of BP Products North America Inc., known to me to be the person whose name is subscribed to the foregoing document and acknowledged to me that she executed said document for the purposes and consideration therein expressed.

GIVEN UNDER my hand and seal of office this 28 day of February, 2019.

Cindy L Chapman
Notary Public

CINDY L. CHAPMAN
My Notary ID # 2811719
Expires November 8, 2022

EXHIBIT F-4

Land Reuse Area No Further Action Letters

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
RENEE CIPRIANO, DIRECTOR

217/524-3300

December 5, 2001

CERTIFIED MAIL
7099 3400 0001 1279 1827

Gregory S. Jevyak, Environmental Business Manager
BP America
Global Environmental Management Business Unit
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 – Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-11
Date Received: June 20, 2001
RCRA Permit

Dear Mr. Jevyak:

This letter responds to the June 19, 2001 revised Land Reuse Investigation Report regarding RCRA corrective action activities at an area known as the "Notthwest Corner Parcel (Area 1)" at the above-referenced facility, submitted on your behalf by Mr. Frederick W. Johnson, P.E. of URS. Mr. Johnson's submittal contained soil investigation effort results and a risk-based evaluation of the subject parcel in accordance with 35 Ill. Adm. Code 742. A site layout map, showing this area within the Main Plant facility, and the parcel's legal description, are enclosed. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The Illinois EPA has completed its review of the revised investigation/risk evaluation report for the Northwest Corner Parcel (the "Parcel") of the above-referenced facility. The IEPA hereby approves no further action at the Parcel subject to the following conditions and modifications:

1. Based upon a comparison of the results in the report to soil remediation objectives developed in accordance with 35 Ill. Adm. Code 742, Illinois EPA has determined that subject to certain conditions: (1) the soils within the Parcel pose no threat via the soil ingestion, inhalation, and migration to groundwater exposure route; and (2) no further action is required for the groundwater ingestion route for perched groundwater only. This no further action determination applies to the soils and perched groundwater within the Parcel as shown and described in the enclosed legal description, subject to the following conditions:

PRINTED ON RECYCLED PAPER

a. Two areas within the Parcel require an engineered barrier and associated institutional control to restrict exposure to the soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of the parcel delineating the two areas identified is presented in Attachment 3.

b. Any excavation and subsurface construction work in the Parcel shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in the Parcel and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

c. The soil within the Parcel shall in place, except where necessary to remove it for construction activities.

d. Contaminated soil removed from the Parcel shall be sent off-site for disposal as a special waste. Soil excavated during construction/demolition/excavation activities within the Parcel must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

(1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former

refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

e. Appropriate institutional controls meeting the requirements of 35 Ill. Admin. Code, Part 742, Subpart J must be established to ensure the requirements in subparagraphs 1(a) through 1(d) immediately above will be met in the future.

f. The parcel's use shall remain commercial/industrial in the future.

g. With respect to perched groundwater, an institutional control must be established in accordance with 35 Ill. Adm. Code Part 742, Subpart J, for the exclusion of the groundwater ingestion exposure route, to meet the criteria found 35 Ill. Adm. Code 742.925. The institutional control shall include either an Environmental Land Use Control (ELUC) prohibiting the use of groundwater at the Parcel in accordance with 35 Ill. Adm. Code 742.1010 or the approval of a City of Wood River ordinance as follows:

(1) The facility may submit to the Illinois EPA for review and approval, a City of Wood River ordinance that will serve as an institutional control restricting groundwater use at the Parcel. In addition to meeting the 35 Ill. Adm. Code, Part 742, Subpart J, institutional control requirements, the ordinance will also address the issue of the possibility of the groundwater ingestion exposure route becoming active in the future, as required by 35 Ill. Adm. Code 742.925(f).

(2) Once the City of Wood River ordinance is approved for use as an institutional control to restrict the use of groundwater at the Parcel, BP must submit the information requirements under Ill. Adm. Code 742.1015 for the Parcel to the Illinois EPA for review and approval. Attached to this letter is Agency guidance entitled "Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects".

2. The groundwater beneath the facility is being addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications; and

b. An approved institutional control to meet the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, shall be established in accordance with 35 Ill. Adm. Code, Part 742, Subpart J. Such institutional control may include the approval of a City of Wood River ordinance as set forth in subparagraph 1(g) above. Once such an institutional control is established, no further remediation will be required with respect to the groundwater at the Parcel, except as required by Condition No. 2a above.

c. The Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility shall be revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following IEPA's receipt and review of the revised GMZ, Illinois EPA will determine whether the proposed changes to the GMZ are adequate and grant approval of the GMZ, if appropriate.

3. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

4. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them.

The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to Kalpesh A. Patel, P.E. at 217/524-3862.

Sincerely,

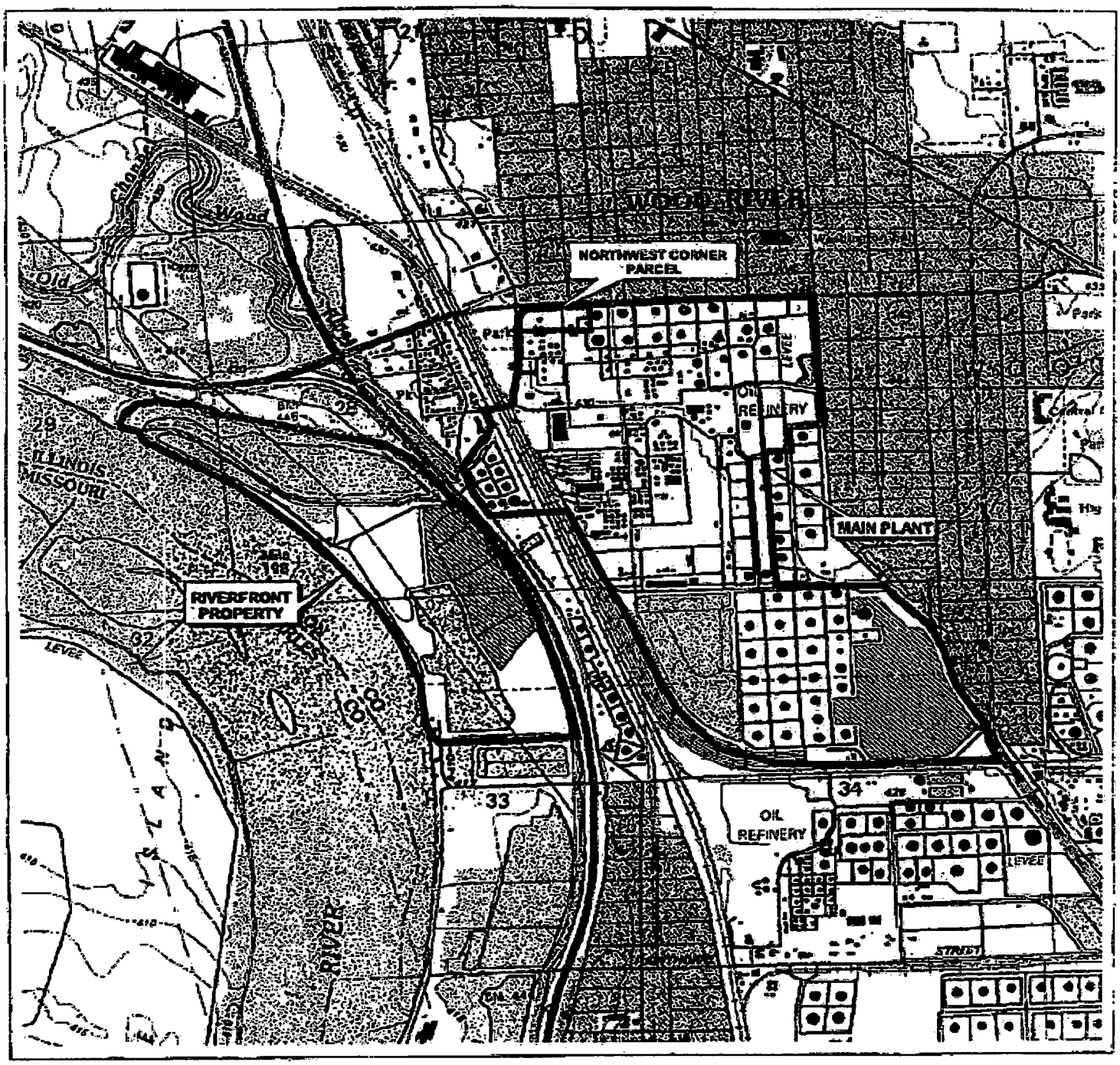
Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:KAP:bjh\2001261s.doc

Attachments:
1. Topographic Map/Site Layout Map
2. Legal Description of Northwest parcel
3. Institutional Control and Restrictive Covenant Locations Map
4. Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects
5. Corrective Action Certification Form

cc: Frederick W. Johnson, P.E. – URS Corporation (w/attachments)

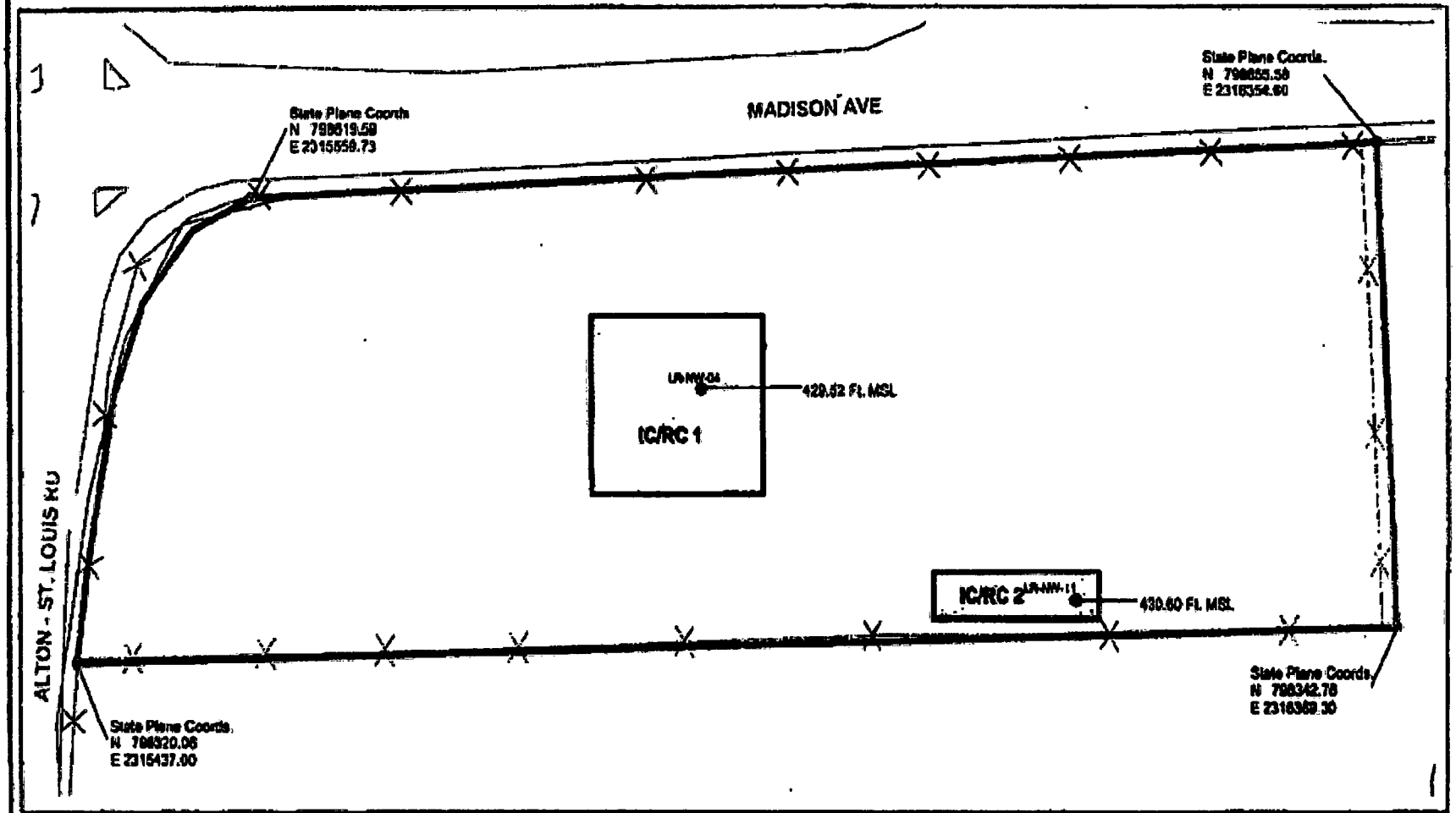
Attachment 1



Attachment 2

Legal Description of 6.29 Acres Parcel in the Northwest Corner of Amoco Main Plant Facility, Wood River, Illinois

Commencing at Northeast corner of the Southeast Quarter of the Northeast Quarter if Section 28, Township 5 North, Range 9 West; thence South 00° 46' 18" East, along the east line of said Quarter Quarter Section, a distance of 60.06 feet to the south right of way line of Illinois Route 143 (F.A. Route 789) (Madison Avenue, 60 feet wide); thence North 88° 13' 21" West, along said south right of way line, a distance of 1.44 feet; thence south 89° 25' 05" West, continuing along said right of way, a distance of 309.27 feet to the POINT OF BEGINNING of the tract herein described; thence South 00° 40' 48" East a distance of 313.19 feet; thence North 89° 23' 04" West a distance of 932.64 feet to the existing easterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 06° 30' 37" East, along said right of way, a distance of 35.04 feet to the easterly line of a tract of land conveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3186 Page 440 of Madison County Records; thence North 13° 21' 11" East, along said east line, a distance of 50.36 feet; thence North 06° 30' 37" East, continuing along said east line, a distance of 102.97 feet to the easterly line of a tract of land surveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3164 Page 272 of Madison County Records; thence north 18° 28' 37" East, along said easterly right of way line, a distance of 72.16 feet; thence north 54° 30' 50" East, continuing along said right of way line, a distance of 48.71 feet; thence North 74° 14' 40' East, continuing along said right of way line, a distance of 45.06 feet to the existing south right of way line of said Illinois Route 143; thence North 89° 25' 05" east, along said south right of way line, a distance of 795.74 feet to the point of beginning, containing 6.29 acres.



Legend

- Sample Locations
- Locations Planned for Institutional Control/ Restrictive Covenant (IC/RC)
- Northwest Corner Parcel (Area 1)

Note:
- Elevations shown hereon are ground elevations.
- Coordinates in Illinois State Plane Coordinate System (NAD83).

Basis For IC/RC Area Identification:

- Application of Institutional Controls to ensure 10 feet of soil is maintained stop exceedences of Tier 2 Inhalation Remediation Objectives (ROs)
- Application of Restrictive Covenants to require site Safety Plan to protect Construction Workers.
- The proposed Tier 2 soil inhalation institutional control areas are represented as polygons to facilitate georeferencing of area boundaries.

IC/RC Boundary Survey Locations:

IC/RC 1

Location	East	North
NW Corner	2,315,800	798,644
NE Corner	2,316,021	798,644
SE Corner	2,316,021	798,428
SW Corner	2,315,800	798,428

The surface elevation of IC/RC1 must remain over 424 feet MSL.

IC/RC 2

Location	East	North
NW Corner	2,316,042	798,378
NE Corner	2,316,139	798,378
SE Corner	2,316,159	798,348
SW Corner	2,316,042	798,348

The surface elevation of IC/RC1 must remain over [illegible] feet MSL.

* Illinois State Plane Coordinates NAD 83

50 0 50
Feet
Scale
1" = 100 Feet

URS

INSTITUTIONAL CONTROL AND RESTRICTIVE COVENANT LOCATIONS
NW CORNER LAND REUSE PARCEL
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

		83C054	2

R001024

Attachment 4

Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects

35 Ill. Adm. Code 742.1015 sets forth the requirements for using ordinances as institutional controls to restrict groundwater usage in an area. Such an ordinance must effectively prohibit the installation and use of potable water supply wells. 35 Ill. Adm. Code 742.1015(b) and (c) prescribes specific requirements for the information that must be submitted to the Illinois EPA along with a request for approval of an ordinance. The remainder of 35 Ill. Adm. Code 742.1015 includes notification, tracking, and recording requirements that also must be met. All provisions of 35 Ill. Adm. Code 742.1015 must be satisfied to perfect the use of the ordinance as an environmental institutional control. The purpose of this document is to identify the requirements which must be met when using an ordinance as an institutional control to restrict groundwater usage at a RCRA closure site.

The informational requirements under 35 Ill. Adm. Code 742.1015(b) (Items 1.a through f below) must be met and submitted to Illinois EPA for the approval of a local ordinance as an institutional control. The document prepared to address these informational requirements will be incorporated into the Illinois EPA's eventual no further remediation determination to be recorded as required by 35 Ill. Adm. Code 742.1015(f). Additionally, upon Illinois EPA approval of this document, the document shall be submitted to all owners of each affected property and to the unit of local government as required in 35 Ill. Adm. Code 742.1015(b)(6) (Item 1.f below) and 742.1015(c), respectively. A more detailed discussion of these requirements follows:

1. Pursuant to 35 Ill. Adm. Code 742.1015(b), a request submitted to Illinois EPA for approval of a local ordinance as an institutional control shall provide the following:

    a. A copy of the ordinance restricting groundwater use certified by an official of the unit of local government in which the site is located that it is the latest, most current copy of the ordinance. The ordinance must demonstrate that potable use of groundwater from potable water supply wells is prohibited;

    b. A scaled map(s) delineating the areal extent of groundwater contamination (measured or modeled) above the applicable Tier 1, Class I groundwater remediation objectives, including:

        i. map scale (i.e., 1 inch is equal to no more than 200 feet) and date,

        ii. orientation of the map (north arrow),

        iii. legal boundaries of the facility,

iv. buildings and other permanent structures,

c. Information showing the concentration of contaminants of concern in which the applicable Tier 1, Class I groundwater remediation objectives are exceeded. This information would best be presented as a table identifying the contaminant(s) of concern and their respective concentration(s);

d. A scaled map delineating the boundaries of all properties under which groundwater is located which exceeds the applicable Tier 1, Class I groundwater remediation objectives;

e. Information identifying the current owner(s) of each property identified in 1.d. This information would best be presented as a table which identifies the property owner's name(s) and address(es); and

f. A copy of the proposed submission of the information to the current owners identified in 1.d of the information required in 1.a through 1.e and a copy of the written notification document required in 2.

As required by 35 Ill. Adm. Code 742.1015(b)(6) (Item 1.f above), the written notification in 742.1015(c) (Item 2 below) shall be prepared and submitted for Illinois EPA review. This document shall, upon Illinois EPA approval, be submitted, as required by 35 Ill. Adm. Code 742.1015(c) (Item 2 below) to the property owners identified in 35 Ill. Adm. Code 742.1015(b)(5) (Item 1.e above) and the unit of local government. This document shall also be incorporated into the Illinois EPA's no further remediation determination to be recorded as required by 35 Ill. Adm. Code 742.1015(f).

2. Each of the property owners identified in 1.d and the unit of local government must receive written notification from the party desiring to use the institutional control that groundwater remediation objectives have been approved by the Illinois EPA. Written proof of this notification shall be submitted to the Illinois EPA within 45 days from the date of the instrument memorializing the Illinois EPA's no further remediation determination. The notification shall include:

a. The name and address of the unit of local government;

b. The citation to the ordinance;

c. A description of the property being sent notice by adequate legal description or by reference to a plat showing the boundaries;

d. A statement that the ordinance restricting groundwater use has been used by the Illinois EPA in reviewing a request for a groundwater remediation objective;

e. A statement as to the nature of the release and response action with the site name, address, and Illinois EPA site number or Illinois inventory identification number; and

f. A statement that more information may be obtained regarding the ordinance through a written request under the Freedom of Information Act (5 ILCS 140) to:

Illinois Environmental Protection Illinois EPA
Attention: Freedom of Information Act Officer
Bureau of Land -- #24
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

RH\mls\993311S.WPD

Attachment 5

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: _____ County: _____

Street Address: _____ Site No. (IEPA): _____

City: _____ Site No. (USEPA): _____

2.0 OWNER INFORMATION

Name: _____

Mailing Address: _____

_____

_____

Contact Name: _____

Contact Title: _____

Phone No.: _____

3.0 OPERATOR INFORMATION

_____

_____

_____

_____

_____

_____

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

___ RFI Phase I Workplan/Report
___ RFI Phase II Workplan/Report
___ CMP Report; Phase _____
___ Other (describe): _____
_____
Date of Submittal _____

IEPA Permit Log No. _____
Date of Last IEPA Letter on Project _____
Log No. of Last IEPA Letter on Project _____
Does this submittal include groundwater information: _ Yes _ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

_____

_____

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

_____

_____

7.0 CERTIFICATION STATEMENT - ***(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below).*** The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.1 **OWNER/OPERATOR CERTIFICATION** (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ _____ (Date)

Title: _____

Operator Signature: _____ _____ (Date)

Title: _____

7.2 **PROFESSIONAL CERTIFICATION** *(if necessary)* - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: _____ _____ Date:

Professional's Name: _____ Professional's Seal:

Professional's Address: _____

_____

_____

Professional's Phone No.: _____

7.3 **LABORATORY CERTIFICATION** *(if necessary)* - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

_____ _____
Name of Laboratory Signature of Laboratory Responsible Officer Date

Mailing Address of Laboratory _____
Name and Title of Laboratory Responsible Officer

_____

_____

_____

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

August 13, 2002

CERTIFIED MAIL
7001 2510 0002 3279 8113

Gregory S. Jevyak, Environmental Business Manager
Global Environmental Management Business Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

Dear Mr. Jevyak:

This is in response to several recent submittals regarding RCRA corrective action activities at an area known as the "Northeast Corner Parcel (Area 2)" at the above-referenced facility (a list of these submittals is provided in Attachment 1 to this letter). A site layout map showing this area within the facility and the parcel's legal description, are provided as Attachments 2 and 3 respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The submittals identified in Attachment 1 to this letter contain information regarding the investigative and remedial activities completed to date in Area 2. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 2 on August 15, 2000. Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 2 provided the following requirements are met:

1. Two areas within Area 2 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 2 delineating the two areas where an engineered barrier must be established is presented in Attachment 4 to this letter.

2. Any excavation and subsurface construction work in Area 2 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 2 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 2 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 2 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

   (3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 2 must remain commercial/industrial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5, 7 and 8 will be met in the future.

7. Contaminated soil present at the following sample locations is properly managed via engineered barriers or SWMU9-BH02 addressed to achieve remediation objectives developed in accordance with 35 Ill. Adm. Code 742:

LR-NE-03	LR-NE-03-N020
LR-NE-03-E020	LR-NE-07

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

   a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications;

   b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the Parcel, except as required by Condition 8(a) above; and

   c. In an Illinois EPA letter dated March 13, 2002, the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility was revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following Illinois EPA's review of the associated permit modification request dated May 10, 2002 for the revised GMZ, the Illinois EPA will modify the RCRA Part B permit to incorporate the revision to the GMZ.

9. Prior to completion of a corrective action associated with a GMZ the groundwater quality standards (Class I or Class II) are not applicable while the GMZ is being monitored and maintained. As stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary,

and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code 742.1000(c).

10. Additional field duplicates must be collected in future groundwater sampling events. One (1) field duplicate must be collected for every ten (10) samples collected.

11. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

12. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\20021582s.doc
JKM-TBM

Attachments:
1. List of Area 2 Submittals
2. Topographic Map/Site Layout Map
3. Legal Description of Area 2
4. Portions of Area 2 Requiring an Engineered Barrier
5. Corrective Action Certification Form

Attachment 1
Log No. B-147-CA-14
Information Submitted by Facility

This document identifies the information received and reviewed by Illinois EPA as it evaluated a request for No Further Action in Area 2 of the Amoco/Main Plant Facility (Illinois EPA ID No 1191150001; USEPA ID No. ILD980700967). This information was assigned Log No. B-147-CA-14 by Illinois EPA.

1. A September 21, 2001 submittal from Frederick W. Johnson, URS, and Gregory S. Jevyak, BP which included a document entitled "Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

2. A October 12, 2002 submittal from Keith T. Wilcoxson, URS, containing revised tables in response to comments received from Harry Chappel.

3. A December 20, 2001 submittal from Frederick W. Johnson, URS which included a document entitled "Addendum 1—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

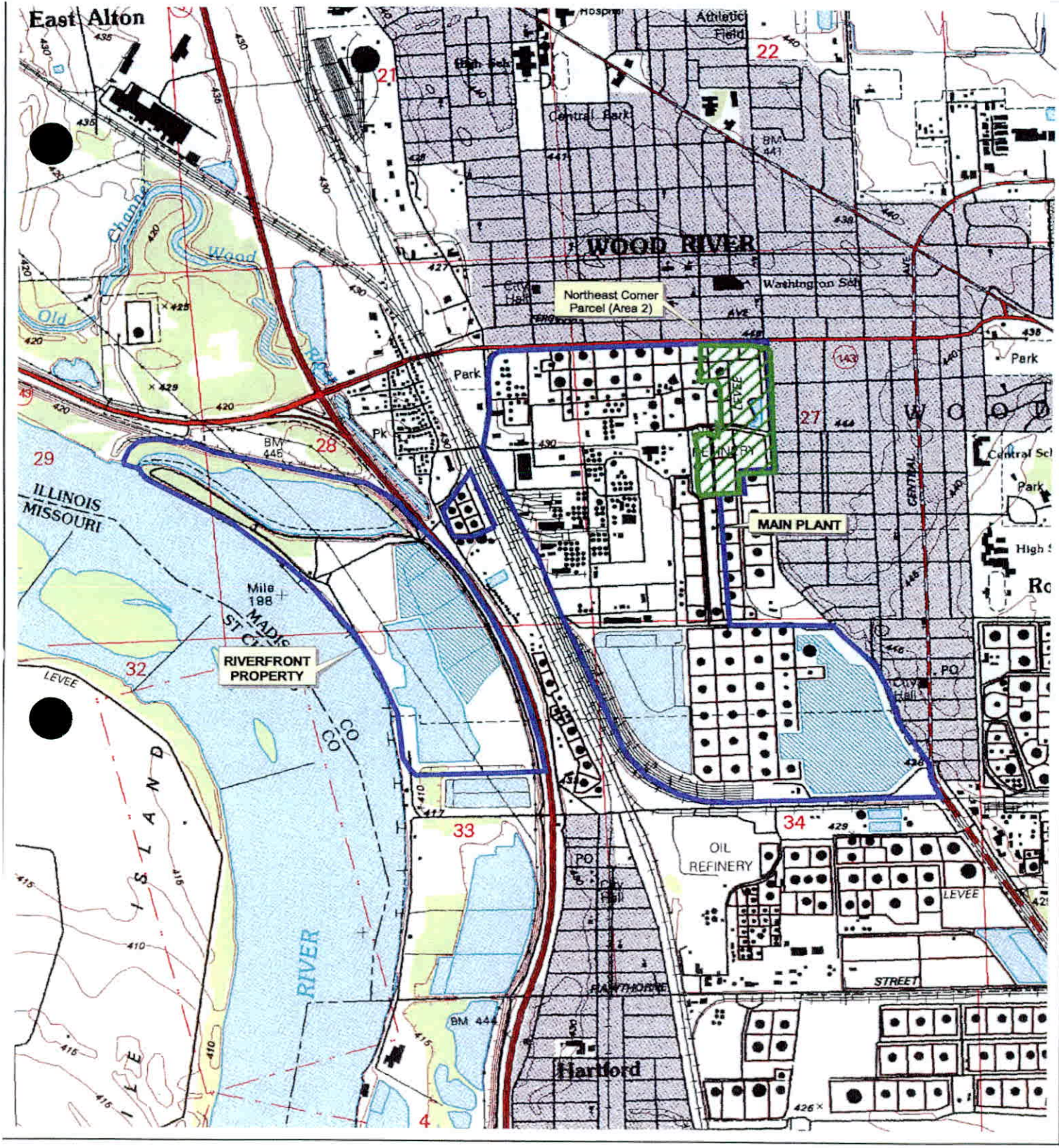
4. A January 22, 2002 submittal from Gregory S. Jevyak, BP America, Inc., which included a document entitled "Addendum 2—Northeast Corner (Area 2) Land Reuse and Investigation Report

5. An April 5, 2002 submittal from Dennis A. Kasner and Frederick W. Johnson, URS which included a document entitled "Addendum 3—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

6. A May 16, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, URS which served as Addendum 4 to the Northeast Corner (Area 2) Land Reuse Investigation and Status Report.

7. A July 26, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, PE., URS, which contained additional information regarding issues addressed in Addendum 3.

8. A July 26, 2002 submittal from John Dennison, URS, which contained drawings of Area 2 and the legal description for Area 2.



Legend

- BP Property
- Northeast Corner Parcel (Area 2)

Source: U.S.G.S. 7.5 Minute Series
Topographic Map
Wood River, ILL.-MO., 1994

1000 0 1000 Feet

Scale
1" = 2000 Feet

URS
122 South Michigan Avenue Suite 1920
Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: JTD	CHKD: KW	PROJECT NO. 83	FIG. NO.
DRAWN: MDC	DATE: 7/26/02		

J:\MSOB64\GIS\SITEWIDE\PROJECTS\TOPO_BP.APR

Attachment 2

Attachment 3
B-147-CA-14

This document contains the legal description for that portion of the former BP refinery in Wood River, Illinois (Illinois EPA Site No. 1191150001; USEPA ID No. ILD980700967) referred to as the "Northeast Corner" or "Area 2." Area 2 is 43.17 acres and is composed of two tracts (a 36.91 acre tract referred to as "Leased Tract 2" and a 6.26 acre tract referred to as "Leased Tract 3"). A legal description of each of these individual tracts is provided on the following pages.

att2 b-147-ca-14

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET • P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 2
See Corlew Plat CC 2051A

(36.91 Acres in the Northeast Corner of Amoco Main Plant in Wood River, IL)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide), the POINT OF BEGINNING of the tract herein described; thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet; thence North 00° 37' 37" West a distance of 862.36 feet; thence North 00° 23' 02" East a distance of 205.96 feet; thence South 63° 47' 13" East a distance of 67.39 feet; thence North 00° 18' 42" West a distance of 533.37 feet; thence North 07° 12' 26" West a distance of 32.06 feet; thence North 20° 48' 32" West a distance of 36.49 feet; thence North 33° 45' 54" West a distance of 36.12 feet; thence North 54° 50' 03" West a distance of 33.22 feet; thence North 88° 59' 50" West a distance of 233.69 feet; thence North 08° 34' 18" East a distance of 210.75 feet; thence North 01° 07' 40" East a distance of 324.73 feet; thence South 88° 13' 21" East a distance of 719.43 feet; thence South 73° 53' 06" East a distance of 103.38

M. B. CORLEW & ASSOCIATES, INC.

feet; thence South 84° 54' 03" East a distance of 100.13 feet; thence South 33° 47' 40" East a distance of 83.60 feet; thence South 00° 41' 06" East a distance of 1242.50 feet to the point of beginning, containing 36.91 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.



Larry L. Stahlhut, RLS #2214 (Seal)
My License Expires 11/30/2002

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET • P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 3
See Corlew Plat CC 2051A

(6.26 Acres in the Northeast Corner of Amoco Main Plant in Wood River, Illinois)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide); thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00 ° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet to the POINT OF BEGINNING of the tract herein described; thence North 85 ° 28' 20" West a distance of 66.31 feet; thence South 76 ° 05' 07" West a distance of 176.24 feet; thence North 86° 57' 09" West a distance of 19.35 feet; thence North 32 ° 52' 02" West a distance of 68.25 feet; thence North 09 ° 08' 23" West a distance of 79.65 feet; thence North 00 ° 01' 05" West a distance of 331.70 feet; thence North 10° 17' 24" East a distance of 94.49 feet; thence North 01 ° 16' 11" West a distance of 140.22 feet; thence North 14° 34' 25" West a distance of 157.07 feet; thence North 08° 34' 56" East a distance of

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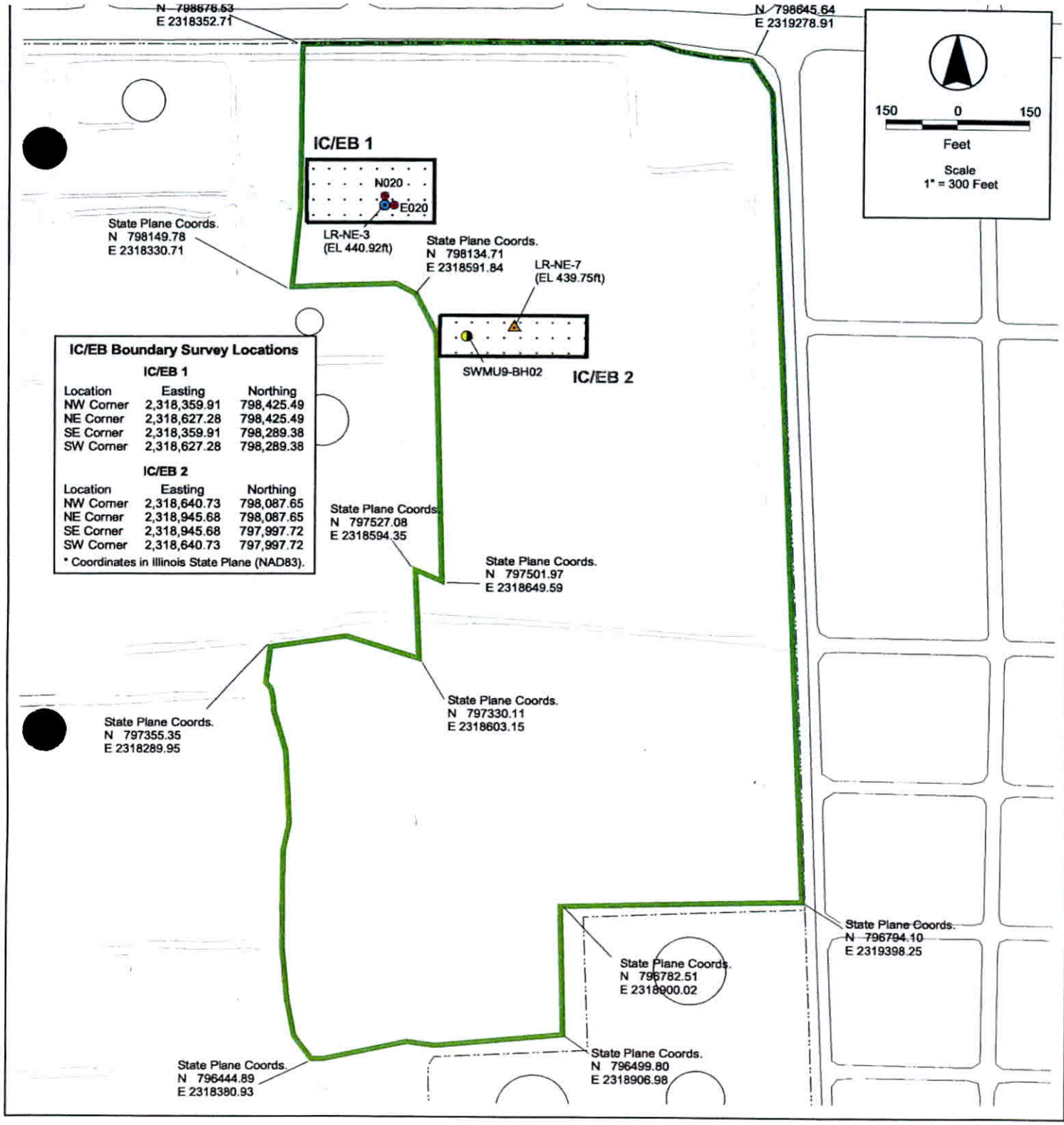
80.46 feet; thence North 83° 50' 58" East a distance of 167.06 feet; thence South 70° 15' 17" East a distance of 153.53 feet; thence South 00° 37' 37" East a distance of 862.36 feet to the point of beginning, containing 6.26 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.



Larry L. Stahlhut, RLS #2214 (Seal)
My License Expires 11/30/2002

MBC 99-168



IC/EB Boundary Survey Locations

IC/EB 1

Location	Easting	Northing
NW Corner	2,318,359.91	798,425.49
NE Corner	2,318,627.28	798,425.49
SE Corner	2,318,359.91	798,289.38
SW Corner	2,318,627.28	798,289.38

IC/EB 2

Location	Easting	Northing
NW Corner	2,318,640.73	798,087.65
NE Corner	2,318,945.68	798,087.65
SE Corner	2,318,945.68	797,997.72
SW Corner	2,318,640.73	797,997.72

* Coordinates in Illinois State Plane (NAD83).

Legend

- RFI Sampling Locations (1995)

Sampling Locations

- Confirmation Samples of RFI Results
- Former Tank Location
- Step-Out Borings
- Northeast Parcel (Area 2)
- Areas Planned for Institutional Controls/ Engineered Barriers (IC/EB)

Basis For IC/EB Area Identification:

- Application of Institutional Controls to ensure a surface engineered barrier of approved specifications is maintained atop exceedances of Tier 2 Inhalation Remediation Objectives (ROs).
- Application of Institutional Control to require Site Safety Plan to protect Construction Workers.
- The proposed IC/EB areas are represented as polygons to facilitate georeferencing of area boundaries.

Note:
- Elevations shown hereon are ground elevations (ft above MSL).
- Coordinates in Illinois State Plane Coordinate System (NAD83)

J:\83C054\GIS\MAINPLANT\PROJECTMP_AREA_02.APR

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

AREA 2 ELUC EXHIBIT D
INSTITUTIONAL CONTROL/
ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: JD	CHK'D: KW	PROJECT NO.	FIG. NO.
DRAWN: MDC	DATE: 7/26/02	8[illegible]	

Attachment 4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

August 22, 2003

CERTIFIED MAIL
7002 3150 0000 1219 8124

Mr. Gregory S. Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

AREA 4 - NFA

Re: 1191150001 -- Madison County
BP Products North America Inc./Main Plant
ILD980700967
Log No. B-147-CA-30
Received: October 7, 2002 and June 2, 2003
RCRA Permit

RECEIVED AUG 25 2003

Dear Mr. Jevyak:

This is in response to a document entitled Area 4 Land Reuse Investigation Report and Closure Plan, dated October 4, 2002, which was prepared and submitted on your behalf by Mr. Dennis A. Kasner and Frederick W. Johnson, P.E., of URS. An addendum to this submittal was submitted on May 30, 2003 that contained additional information requested by Illinois EPA. These submittals contained information regarding investigative activities performed as part of RCRA corrective action at an area referred to as "Area 4" at the above-referenced facility. Illinois EPA had previously approved to conduct these activities for all recognized environmental conditions in Area 4 on January 10, 2002 (Log No. B147-CA-17). Minor modifications to this plan were approved by Illinois EPA on September 5, 2002. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

Area 4 has been divided into three subareas referred to as "the Rail Yard Subarea", "the Overflow Basin Subarea", and "the SWMU 13 Subarea". A site layout map showing the location of Area 4 within the facility and the location of the three subareas within Area 4 are provided as Attachments 1 and 2, respectively. A legal description of Area 4 parcel is provided in Attachment 3.

Based on a review of the information, Illinois EPA has determined that no further action is necessary for Area 4 provided the requirements set forth in Conditions 1 through 8, 10 and 11 are met:

1. Soils within three areas within the Overflow Basin Subarea and the SWMU 13 Subarea require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier.

   a. The boundaries of the engineered barriers proposed for the Overflow Basin Subarea and SWMU 13 Subarea within Area 4 are depicted in Attachments 4 and 5, respectively.

   b. The engineered barrier in these areas must meet the requirements of Illinois EPA's August 3, 2001 letter.

   c. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these areas, and proper management of any soil removed from beneath the engineered barrier.

   d. Plans/reports depicting construction of the required engineered barriers must be submitted along with the draft institutional control required by Condition 6 below.

2. Any excavation and subsurface construction work within Area 4 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 4 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 4 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

(1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 4 must remain industrial/commercial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5 and 10 will be met in the future. A draft institutional control to establish the required restrictions on the property must be submitted to Illinois EPA for review and approval.

7. High lead levels (above 1.5 mg/l TCLP) detected in the vicinity of sample location A4BH53 in the Overflow Basin Subarea shall be addressed by removal/off-site disposal of contaminated soil followed by collection of verification samples. A report documenting the results of this soil removal effort must be submitted to Illinois EPA for review and approval along with the draft ELUC required by Condition 6 above.

8. Figure 6-2 of the subject submittal indicates that limit of the engineered barrier proposed for the Overflow Basin Subarea extends over the Overflow Basin. The facility must provide a detailed design of the proposed engineer barrier for the Overflow Basin Subarea including an explanation how an engineered barrier will be placed over the Overflow Basin.

9. At this time, the Illinois EPA can approve the exclusion of the groundwater ingestion exposure route from consideration, for perched groundwater only, in accordance with 35 Ill. Adm. Code 742.925.

10. The facility must now submit details associated with the institutional control required by Condition 6, to restrict the use of groundwater for the subject Area, to the Illinois EPA for

review and approval prior to completing the recording requirements found in 35 Ill. Adm. Code Part 742, Subpart J. Such institutional controls may include an ordinance restricting the use of groundwater for the City of Wood River. Once such an institutional control is approved for the subject Area, no further action will be required with respect to the groundwater, except as required by Condition 11 below.

11. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications.

12. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

13. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

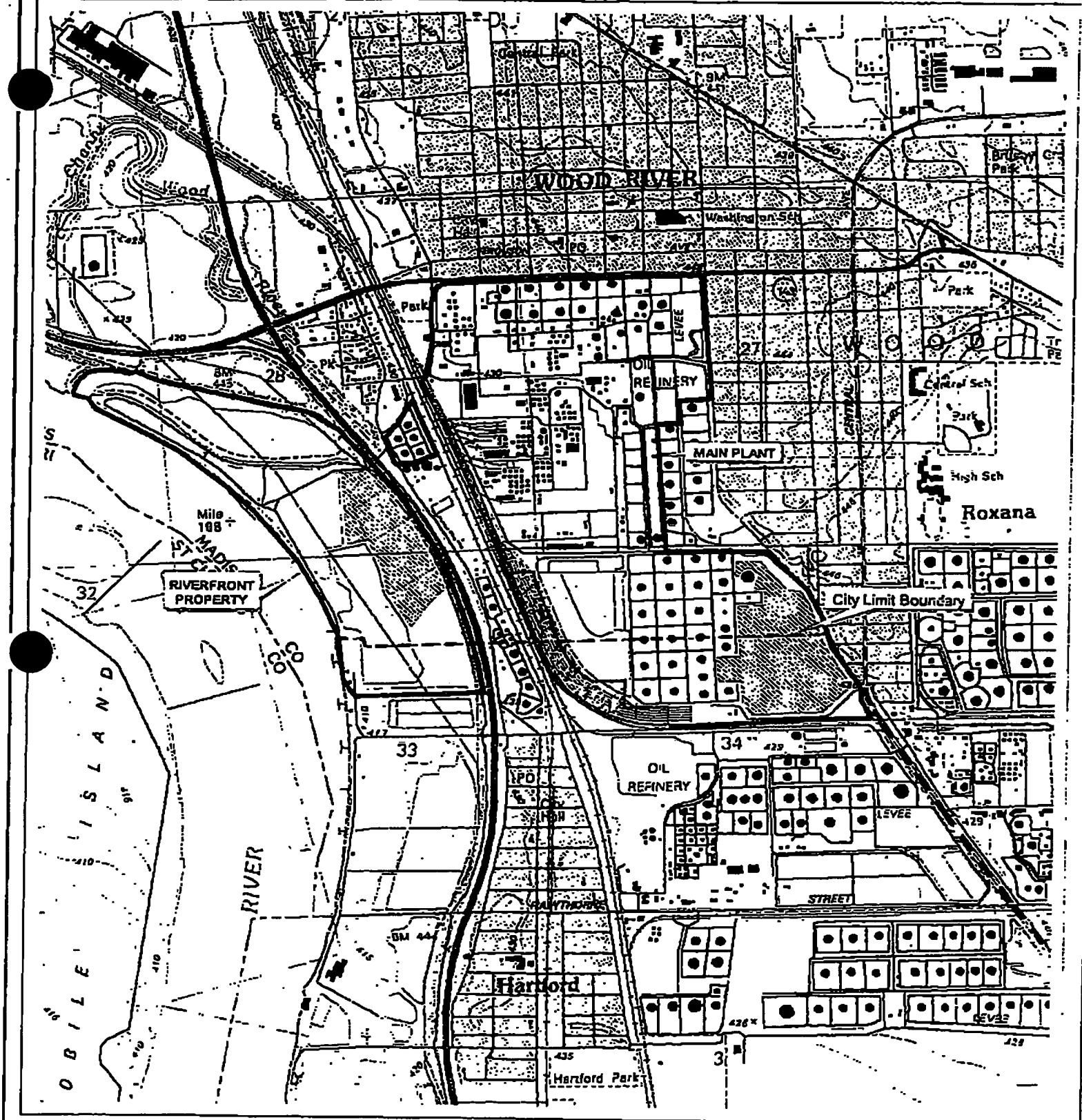
Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at 217/558-2150. Questions about any other aspects of this letter should be directed to Munib Ahmad, P.E., at 217/524-3263.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\031402s.doc
JLM RKD JLM

Attachments:
1. Topographic Map/Site Layout Map
2. Area 4 Site Map
3. Legal Description of Area 4
4. Portions of Overflow Basin Subarea Requiring an Engineered Barrier
5. Portions of SWMU 13 Subarea Requiring an Engineered Barrier
6. IEPA RCRA Corrective Action Certification Form



Legend

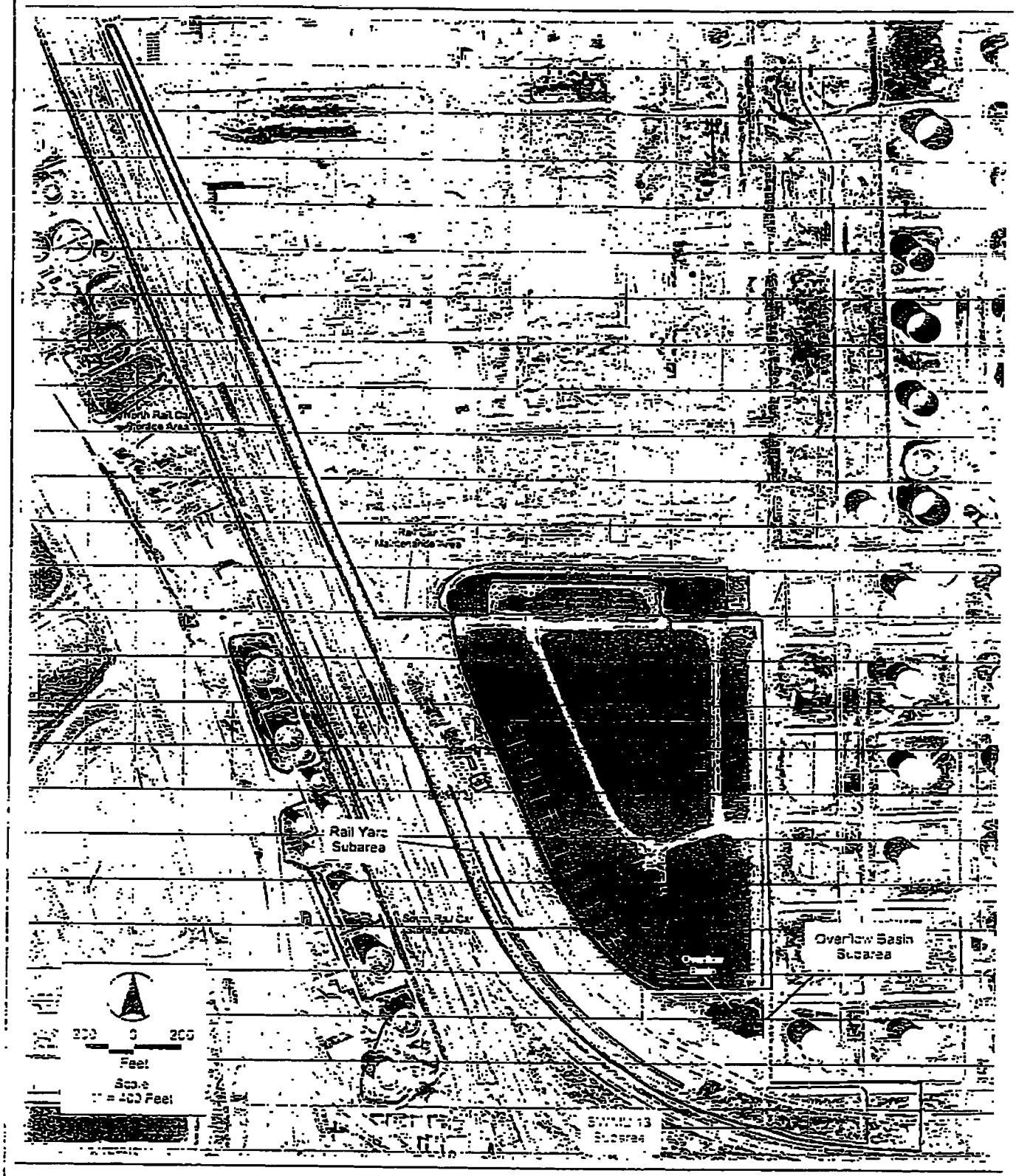
- Boundary Between Wood River and Hartford
- BP Property
- Rail Yard Area (Area 4)

1000 0 1000 Feet

Scale
1" = 2000 Feet

Source: U.S.G.S. 7.5 Minute Series Topographic Map Wood River, ILL.-MO., 1954

Attachment 1
Topographic Map/Site Layout Map
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30



Legend

Attachment 2
Area 4 Site Map
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

CMT 50 years of service

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
707 NORTH MAIN STREET
P.O. BOX 597
EDWARDSVILLE, ILLINOIS 62025
(618) 656-0470 FAX (618) 656-0922

Attachment 3
Legal Description of Area 4
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

Description For
URS Corporation

Area 4
29.44 Acre Tract

August 21, 2002

Part of Sections 28, 33, and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northeast corner of said Section 33; thence South 89 degrees 38 minutes 16 seconds West, along the north line of said Section 33, a distance of 467.91 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad, the POINT OF BEGINNING of the tract herein described; thence South 89 degrees 38 minutes 16 seconds West, continuing along the north line of said Section 33 and the existing right of way line of said Illinois Terminal Railroad, a distance of 37.56 feet; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1)North 21 degrees 37 minutes 36 seconds West a distance of 1496.26 feet, (2)South 88 degrees 38 minutes 39 seconds West a distance of 26.65 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 910.72 feet; thence North 68 degrees 22 minutes 24 seconds East a distance of 54.44 feet; thence South 22 degrees 47 minutes 50 seconds East a distance of 2805.23 feet; thence North 88 degrees 52 minutes 55 seconds East a distance of 322.34 feet; thence South 02 degrees 44 minutes 50 seconds West a distance of 101.28 feet to Point "A"; thence South 21 degrees 18 minutes 43 seconds East a distance of 958.52 feet; thence southeasterly 857.73 feet along a curve to the left, having a radius of 1475.56 feet, the chord of said curve bears South 36 degrees 37 minutes 56 seconds East 845.71 feet; thence North 88 degrees 10 minutes 13 East a distance of 487.08 feet; thence South 00 degrees 25 minutes 03 seconds East a distance of 411.69 feet; thence North 89 degrees 14 minutes 37 seconds East a distance of 614.23 feet; thence South 00 degrees 14 minutes 50 seconds West a distance of 308.09 feet to the existing northerly right of way line of Illinois Terminal Railroad; thence along the existing northerly and northeasterly right of way line for the following 3 courses: (1)South 89 degrees 47 minutes 17 seconds West a distance of 87.44 feet, (2)northwesterly 2286.36 feet along a curve to the right, having a radius of 1910.00 feet, the chord of said curve bears North 55 degrees 55 minutes 11 seconds West

2152.28 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 1598.81 feet to the point of beginning.

EXCEPT, part of Sections 33 and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at Point "A", as described above; thence South 21 degrees 18 minutes 43 seconds East a distance of 491.38 feet; thence South 73 degrees 19 minutes 36 seconds West a distance of 81.06 feet to the POINT OF BEGINNING of the exception herein described; thence South 23 degrees 19 minutes 21 seconds East a distance of 152.91 feet; thence South 60 degrees 46 minutes 50 seconds West a distance of 96.85 feet; thence North 30 degrees 21 minutes 05 seconds West a distance of 177.97 feet; thence North 73 degrees 19 minutes 36 seconds East a distance of 118.92 feet to the point of beginning.

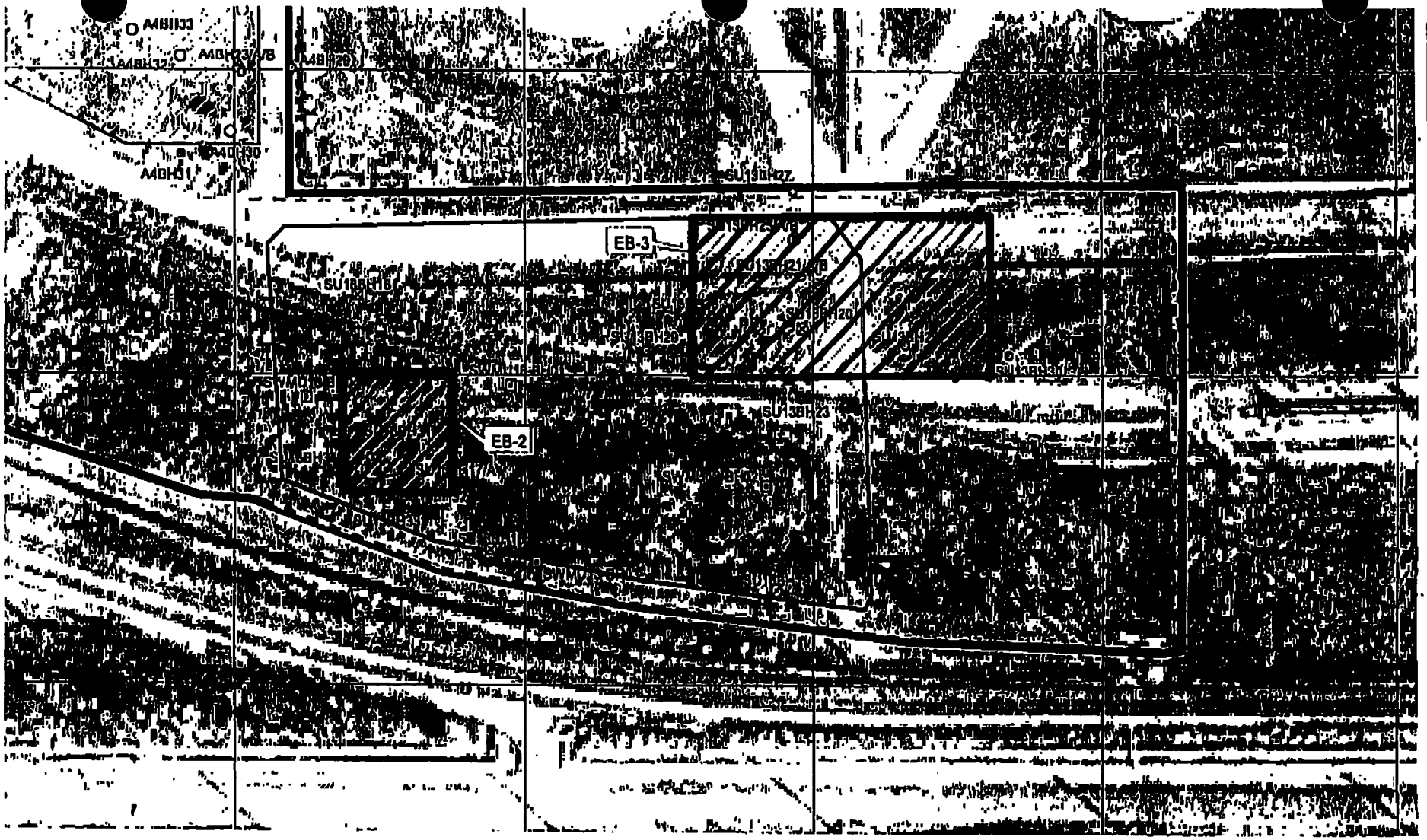
The above described tract contains a total of 29.44 acres (1,282,202 sq.ft.)

SUBJECT TO covenants, conditions, restrictions, and easements of record.



Attachment 4
Portions of Overflow Basin Subarea Requiring an Engineered Barrier
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

R001052



Legend

Soil Boring Locations

- Systematic Soil Boring (Sample(s) Analyzed)
- Systematic Soil Boring (Sample(s) Not Analyzed)
- Biased Soil Boring (Sample(s) Analyzed)
- Delineation Boring (Sample(s) Analyzed)
- Delineation Boring (Sample(s) Not Analyzed)
- Phase III Soil Boring Location (Sample(s) Analyzed)
- Extent of Soil Tracks
- SWMU 13 Subarea
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary
- Areas that Require Engineered Barriers

Engineered Barriers Boundary Survey Locations

EB-2

Location	Easting	Northing
NW Corner	2,318,275.18	791,999.84
NE Corner	2,318,347.25	791,999.84
SE Corner	2,318,347.25	791,924.68
SW Corner	2,318,275.18	791,924.68

EB-3

Location	Easting	Northing
NW Corner	2,318,516.00	792,102.92
NE Corner	2,318,721.58	792,102.92
SE Corner	2,318,721.58	791,999.88
SW Corner	2,318,516.00	791,999.88

* Illinois State Plane Coordinates (NAD83)

50 0 50 Feet

Scale
1" = 100 Feet

Notes:
1. The proposed engineered barrier areas are represented as polygons to facilitate georeferencing of area boundaries.
2. Orthophotograph taken on February 27, 2000.
   - Source: Surdex Corporation.
3. The 200-foot grid interval is based on the Illinois State Plane Coordinate System (NAD83).

Attachment 5
Portions of SWMU 13 Subarea Requiring an Engineered Barrier
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

DESIGN: KC	CHKD: LV	PROJECT NO.	FIG. NO.
DRAWN: MBC	DATE: 02/ 02/	83C054	6-3

R001053

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: _____ County: _____

Street Address: _____ Site No. (IEPA): _____

City: _____ Site No. (USEPA): _____

2.0 OWNER INFORMATION

Name: _____

Mailing
Address: _____

_____

_____

Contact Name: _____

Contact Title: _____

Phone No.: _____

3.0 OPERATOR INFORMATION

_____

_____

_____

_____

_____

_____

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

___ RFI Phase I Workplan/Report
___ RFI Phase II Workplan/Report
___ CMP Report; Phase _____
___ Other (describe): _____
_____
Date of Submittal _____

IEPA Permit Log No. _____
Date of Last IEPA Letter on Project _____
Log No. of Last IEPA Letter on Project _____
Does this submittal include groundwater information: _ Yes _ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

_____

_____

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

_____

_____

7.0 CERTIFICATION STATEMENT - ***(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below).*** The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

November 19, 2003

CERTIFIED MAIL
7002 3150 0000 1219 9473

Mr. Gregory S. Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc./Main Plant
ILD980700967
Log Nos. B-147-CA-31, 36 and 37
Received: October 21, 2002 and July 24, 2003
RCRA Permit

Dear Mr. Jevyak:

This is in response to a document entitled Administration Building Area (Area 15) Land Reuse Investigation Report and Closure Plan, dated October 18, 2002, which was prepared and submitted on your behalf by Mr. Dennis A. Kasner and Frederick W. Johnson, P.E., of URS. Two addendums to this submittal were submitted on July 23, 2003 that contained additional information requested by Illinois EPA. These submittals contained information regarding investigative activities performed as part of RCRA corrective action at an area referred to as "Area 15" or the "Administration Building Parcel" at the above-referenced facility. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 15 on March 20, 2002 (soil aspects) and April 9, 2002 (groundwater aspects). Minor modifications to this plan were approved by Illinois EPA on September 27, 2002. A site layout map showing this area within the facility and the parcel's legal description are provided as Attachments 1 and 2, respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 15 provided the following requirements are met:

1. Four areas within Area 15 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the

soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these four areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 15 delineating the four areas where an engineered barrier must be established is presented in Attachment 3 to this letter.

2. Any excavation and subsurface construction work in Area 15 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 15 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 15 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 15 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 15 must remain industrial/commercial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4 and 5 will be met in the future. A draft institutional control to establish the required restrictions on the property must be submitted to Illinois EPA for review and approval.

7. High lead levels (above 5 mg/l TCLP) detected in the vicinity of sample location A15BH22 shall be addressed by removal/off-site disposal of contaminated soil followed by collection of verification samples. A report documenting the results of this soil removal effort must be submitted to Illinois EPA for review and approval along with the draft ELUC required by Condition 6 above.

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications; and

b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and the Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the parcel except as required by Condition 8.a above.

9. Prior to completion of a corrective action associated with the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility, the groundwater quality standards (Class I or Class II) are not applicable to the uppermost aquifer while the GMZ is being monitored and maintained. In addition, as stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of

groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code Part 742, Subpart J.

10. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

11. A completed RCRA Corrective Action Certification form must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at 217/558-2150. Questions about any other aspects of this letter should be directed to Munib Ahmad, P.E. at 217/524-3263.

Sincerely,

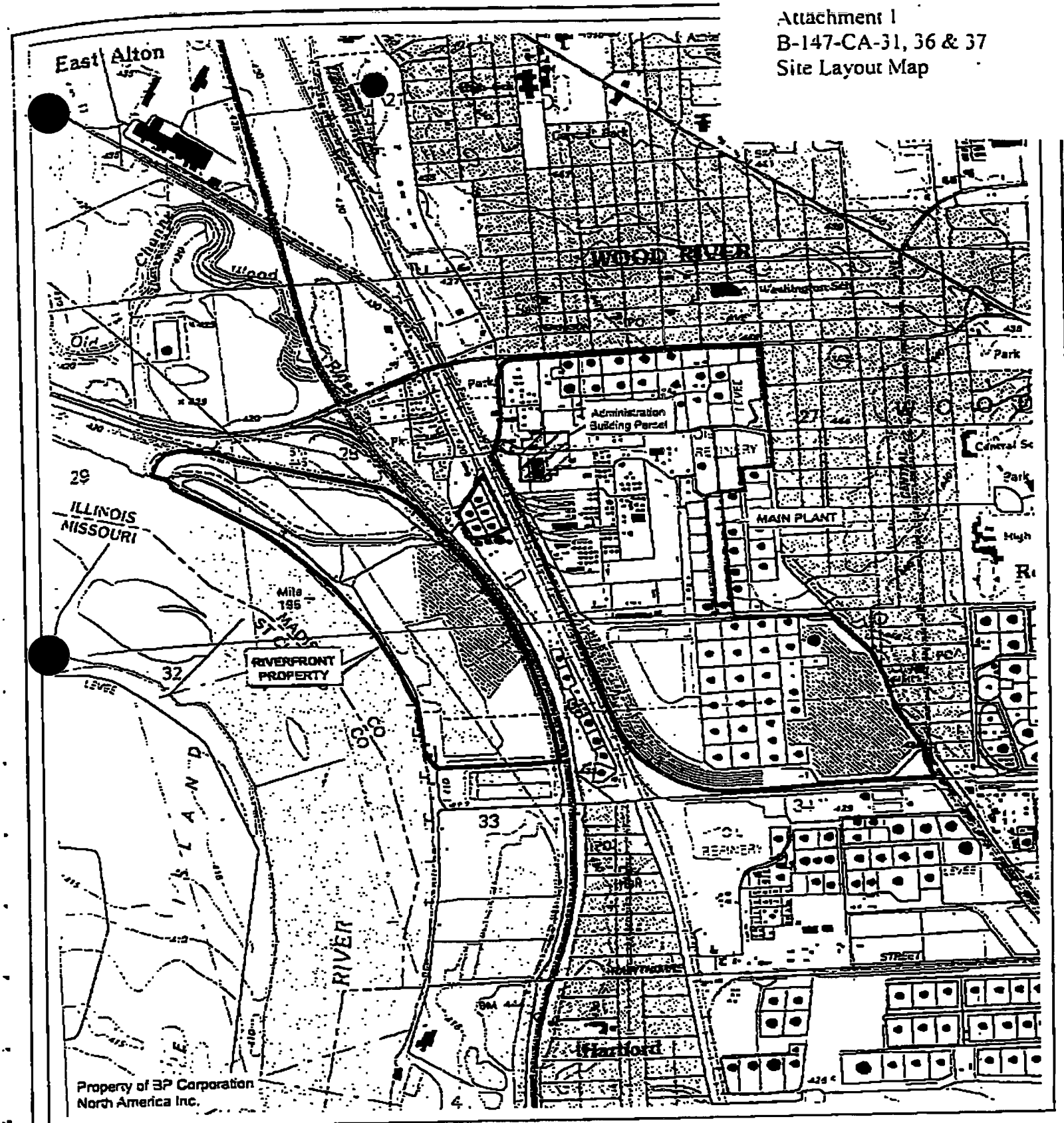
Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\035111s.doc

Attachments: 1. Site Layout Map
2. Legal Description of Area 15
3. Portions of Area 15 Requiring an Engineered Barrier

cc: Dennis Kasner, URS Corporation
Frederick Johnson, URS Corporation

Attachment 1
B-147-CA-31, 36 & 37
Site Layout Map



Legend

- BP Property
- Administration Building Parcel (Area 15)

- Source: U.S.G.S. 7.5 Minute Series Topographic Map Wood River, ILL.-MO., 1994

1000 0 1000 Feet

Scale
1" = 2000 Feet

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: JTD	CHECK: GW	PROJECT NO. 83C054	FIG. NO. 1-1
DRAWN: MDC	DATE: 5/13/03		

Attachment 2
B-147-CA-31, 36 & 37
Legal Description of Area 15

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
707 NORTH MAIN STREET
PO BOX 597
EDWARDSVILLE ILLINOIS 62025
(618) 656-0470 FAX (618) 656-0922

Description For
URS Corporation

Area 15
11.73 Acre Tract

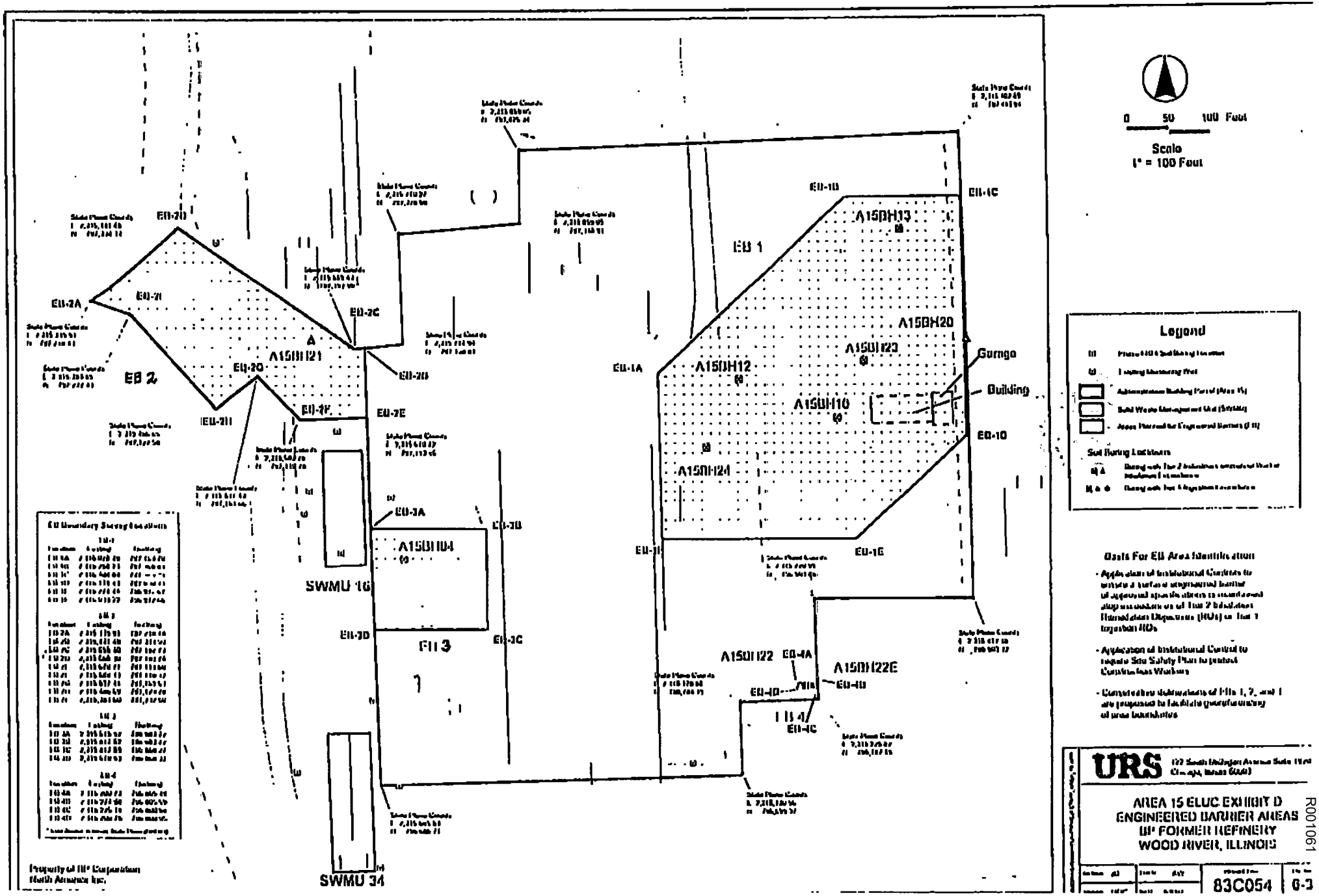
August 21, 2002

Part of Section 28, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Section 28; thence South 89 degrees 38 minutes 16 seconds West, along the south line of said Section 28, a distance of 505.47 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1)North 21 degrees 37 minutes 36 seconds West a distance of 1496.26 feet, (2)South 88 degrees 38 minutes 39 seconds West a distance of 26.65 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 1397.11 feet to the existing southeasterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 49 degrees 41 minutes 05 seconds East, along said existing right of way line, a distance of 82.55 feet to the POINT OF BEGINNING; thence North 49 degrees 41 minutes 05 seconds East, continuing along said right of way line, a distance of 138.11 feet; thence South 56 degrees 35 minutes 11 seconds East a distance of 267.57 feet; thence North 84 degrees 24 minutes 57 seconds East a distance of 59.79 feet; thence North 2 degrees 05 minutes 12 seconds West a distance of 128.27 feet; thence North 85 degrees 25 minutes 10 seconds East a distance of 149.26 feet; thence North a distance of 86.43 feet; thence North 88 degrees 02 minutes 30 seconds East a distance of 544.16 feet; thence South 1 degree 32 minutes 36 seconds East a distance of 540.81 feet; thence North 89 degrees 54 minutes 02 seconds West a distance of 196.51 feet; thence South 2 degrees 23 minutes 35 seconds East a distance of 116.61 feet; thence South 88 degrees 13 minutes 39 seconds West a distance of 96.99 feet; thence South 1 degree 24 minutes 27 seconds East a distance of 84.80 feet; thence South 88 degrees 22 minutes 16 seconds West a distance of 445.52 feet; thence North 2 degrees 00 minutes 01 second West a distance of 427.01 feet; thence South 87 degrees 46 minutes 10 seconds West a distance of 81.52 feet; thence North 45 degrees 35 minutes 29 seconds West a distance of 72.57 feet; thence South 53 degrees 07 minutes 46 seconds West a distance of 63.47 feet; thence North 43 degrees 17 minutes 19 seconds West a distance of 150.36 feet; thence North 71 degrees 54 minutes 11 seconds West a distance of 59.71 feet to the point of beginning, containing 11.73 acres (510,804 sq.ft.)

SUBJECT TO covenants, conditions, restrictions, and easements of record.

Attachment 3
B-147-CA-31, 36 & 37
Portions of Area 15 Requiring an Engineered Barrier



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601 - (312) 814-6026

DOUGLAS P. SCOTT, DIRECTOR

217/524-3300

April 13, 2009

Certified Mail
7007 0220 0000 0040 6080

Mr. Thomas G. Tunnicliff
Environmental Business Manager
BP Products North America, Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc./Main Plant
ILD980700967
Log No. B-147-CA- 78
Received: May 5, 2008
RCRA Permit

Dear Mr. Tunnicliff:

This is in response to a May 2, 2008 submittal made on behalf of BP by Laurence Verkoulen and Ryan P. Hartley, P.E. of URS Corporation regarding certain aspects of the RCRA corrective action program being carried out at the above referenced facility. As you know, BP is currently conducting corrective action at this facility in accordance with its RCRA permit. One of the portions of the facility being addressed is referred to as "Area 19" (also known as Spray Pond 3). A drawing showing the location of Area 19 within the subject facility is attached.

On December 6, 2007, Illinois EPA approved, with conditions and modifications, a Land Reuse Investigation Report and Closure Plan for Area 19. As part of this approval, Illinois EPA determined that no further action was necessary to complete corrective action of the soils within Area 19, provided certain conditions were met. The main conditions imposed in the letter were: (1) establishment of engineered barriers over three sub-areas within Area 19; (2) a soil removal effort within a fourth sub-area of Area 19; (3) proper management of the soils remaining in Area 19; and (4) establishment of institutional controls to ensure the proper restrictions are in place within Area 19 to ensure no one is improperly exposed to the soils and groundwater remaining in the area.

Mr. Verkoulen's and Mr. Hartley's submittal contained comments and requested changes to the conditions contained in Illinois EPA's December 6, 2007 letter. Specifically, Mr. Verkoulen and Mr. Hartley pointed out that BP desired some flexibility in addressing the four areas mentioned above and more flexibility regarding proper management of the soils remaining in Area 19.

Based on a review of Area 19 Land Reuse Investigation Report and Closure Plan, dated June 12, 2007, the May 2, 2008 submittal mentioned above and subsequent discussions with BP, Illinois EPA has been determined that no further action is necessary for the soils and perched groundwater within Area 19 of the subject facility provided the following requirements are met:

1. Soil within four sub-areas of Area 19 must be further addressed before remediation objectives developed in accordance with 35 Ill. Admin. Code 742 are met in these subareas. The boundaries of these areas are depicted in Attachment 2 to this letter and are referred to as Sub-areas EB1, EB2, EB3, and EB4. Plans for achieving these remediation objectives must be submitted to Illinois EPA for review and approval.

2. All groundwater, including the perched groundwater, under the area shall not be used as a potable supply of water, and any contaminated groundwater that is removed from the subsurface must be handled in accordance with all applicable laws and regulations.

3. The area shall be used solely and exclusively as "industrial/commercial property" as defined in 35 Ill. Admin. Code 742;

4. The soil within the area shall remain in place, except when necessary to remove it for construction and/or remediation purposes.

5. Any excavation and/or subsurface construction work where workers will be exposed to the soils in the area shall be conducted in accordance with a site health and safety plan meeting the requirements of 29 CFR 1910 and 1926. This plan must be designed to monitor for and restrict direct worker exposure to impacted soil which may be present in the area. All construction workers shall be equipped with appropriate personal protective equipment as required and specific in the plan.

6. Soil removed during a construction project within Area 19 may be moved to another portion of Area 19 or other property within the footprint of the facility shown in the attached facility layout map that is owned by the same entity owning Area 19 provided: (1) there is no visual discoloring indicative of petroleum contamination; and (2) the results of a field screening test for volatile organic compounds is less than 100 units.

   a. The field screening test for volatile organic compounds shall consist of: (a) placement of a soil sample directly into a plastic bag that can be closed; (b) closure of the plastic bag; (c) allowing the sample to sit at 25 C for at least fifteen minutes; (d) inserting a properly calibrated PID or FID into the head space of the bag (the bag must be held tightly around the instrument once the tip of the instrument has been inserted into the bag); and (e) obtaining a reading of the amount of VOC vapors in the headspace.

b. The volatile organic compound screening level is based upon the results of the actual laboratory analysis of many soil samples in comparison to the results of field screening tests on the samples and Tier 1 soil remediation objectives set forth in 35 Ill. Admin. Code 742..

7. If the soil removed during a construction project fails the screening in Item 6 above, then the soil may be analyzed for the following contaminants of concern: lead, benzene, toluene, ethylbenzene, xylene, and polynuclear aromatic hydrocarbons. If the results of these analysis meet the Tier 1 commercial/industrial soil remediation objectives for the soil ingestion and inhalation set forth in 35 Ill. Admin. Code 742, then the soil may be managed in accordance with Item 7 above.

8. Soil removed during a construction project which does not meet the criteria set forth in Items 6 or 7 above must be transported and managed off-site in accordance with the applicable regulations of the Illinois Environmental Protection Act and 35 Ill. Admin. Code, Subtitle G: Waste Disposal.

9. Illinois EPA has filed proposed regulations with the Illinois Pollution Control Board regarding soil and groundwater remediation objectives for the indoor inhalation exposure route. As this exposure route was not specifically addressed, no buildings may be constructed in this area unless they have appropriate building control technologies to ensure the indoor inhalation exposure route is adequately addressed in the future.

10. As there was no measurable perched groundwater or water within fill encountered, no further action regarding groundwater in this area shall be required. Restrictions associated with groundwater will be addressed by institutional controls required by Condition 14 below.

11. The groundwater within Area 19 must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications.

12. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

13. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

14. An institutional control meeting the requirements of 35 Ill. Admin Code 742 must eventually be established which places the following restrictions on Area 19 and/or which contains the following information:

a. All groundwater, including the perched groundwater, under the area may not be used as a potable supply of water, and any contaminated groundwater that is removed from the subsurface must be handled in accordance with all applicable laws and regulations.

b. The area may only be used solely and exclusively as "industrial/commercial property" as defined in 35 Ill. Admin. Code 742;

c. The soil within the area must remain in place, except when necessary to remove it for construction purposes.

d. Any excavation and/or subsurface construction work where workers will be exposed to the soils in the area must be conducted in accordance with a site health and safety plan meeting the requirements of 29 CFR 1910 and 1926. This plan must be designed to monitor for and restrict direct worker exposure to impacted soil which may be present in the area. All construction workers shall be equipped with appropriate personal protective equipment as required and specified in the plan.

e. Soil removed during a construction project within the area must be managed in the following manner:

(1) It may be moved to another portion of Area 19 or other property within the footprint of the original BP Main Plant facility that is owned by the same entity owning Area 19 provided: (1) there is no visual discoloring indicative of petroleum contamination; and (2) the results of a field screening test for volatile organic compounds is less than 100 units.

(a) The field screening test for volatile organic compounds shall consist of: (a) placement of a soil sample directly into a plastic bag that can be closed; (b) closure of the plastic bag; (c) allowing the sample to sit at 25 C for at least fifteen minutes; (d) inserted of a properly calibrated PID or FID into the head space of the bag (the bag must be held tightly around the instrument once the tip of the instrument has been inserted into the bag); and (e) obtaining a reading of the amount of VOC vapors in the headspace.

(b) The volatile organic compound screening level is based upon the results of actual laboratory analysis of many soil samples in comparison to: (1) the results of field screening tests on the samples; and (2) Tier 1 soil remediation objectives set forth in 35 Ill. Admin. Code 742.

(2) If the soil removed during a construction project fails the screening above, then the soil may be analyzed for the following contaminants of concern: lead, benzene, toluene, ethylbenzene, xylene, and polynuclear aromatic hydrocarbons. If the results of these analysis meet the Tier 1 commercial/industrial soil remediation objectives set forth in 35 Ill. Admin. Code 742 for the soil ingestion and inhalation exposure routes, then the soil may be managed in accordance with Item ii above.

(3) Soil removed during a construction project which does not meet the criteria set forth in Items i or ii above must be transported and managed off-site in accordance with the applicable regulations of the Illinois Environmental Protection Act and 35 Ill. Admin. Code, Subtitle G: Waste Disposal.

f. No buildings may be constructed in this area unless they have appropriate building control technologies to ensure the indoor inhalation exposure route is adequately addressed in the future.

g. Regarding any required engineered barrier, the ELUC must contain:

(1) A scaled drawing showing the boundaries of the required engineered barrier placed over the contaminated soil, relative to the property boundaries at the site;

(2) A description of the construction details of the required engineered barrier placed over the contaminated soil;

(3) A requirement that the engineered barrier in place over the contaminated soil of concern be properly maintained in a future;

15. Before a draft institutional control is submitted for review and approval, the soil mentioned in Item 1 above must be properly addressed. This requires submittal of a plan to achieve the required soil remediation objectives and a subsequent report demonstrating

achievement of the objectives. These documents must be reviewed and approved by Illinois EPA before the required institutional control is established for this area.

16. 35 Ill. Adm. Code 742.1010(d)(8) requires that an ELUC contain scaled maps which show information about the facility, any remaining contamination at the facility and any physical features at the facility to which the ELUC applies.

a. The required scaled site maps must specifically show:

(1) The legal boundary of the property to which the ELUC applies;

(2) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;

(3) Any physical features to which the ELUC applies (e.g., engineered barriers, monitoring wells, caps); and

(4) The nature, location of the source, and direction of movement of the contaminants of concern.

b. Exhibit B of the ELUC in 35 Ill. Admin. Code 742 is comprised of the maps necessary to meet the requirements of 35 Ill. Adm. Code 742.1010(d)(8). In developing such an exhibit for an ELUC associated with an engineered barrier or industrial/commercial land use restrictions:

(1) If only one drawing is used to present all the required information, then it must be clearly labeled as Exhibit B to the ELUC in question. Many times however, it will be necessary to include more than one drawing in Exhibit B to meet the requirements of the requirements of 35 Ill. Adm. Code 742.1010(d)(8). In such cases, each map shall be given a unique Exhibit number (i.e., Exhibit B-1, B-2, B-3, etc.) and labeled as such.

(2) A cover sheet must be provided for the exhibit which: (a) lists the types of scaled maps that must be provided in the ELUC as required in 35 Ill. Adm. Code 1010(d)(8); (b) identifies the map within the exhibit which addresses the individual requirements of 35 Ill. Adm. Code 742.1010(d)(8)(A), (B), (C) and (D); and (c) lists the maps which comprise the exhibit by name and number.

(3) The Real Estate Tax Index/Parcel Index Number (PIN) of the property in question must be contained on each map in Exhibit B.

17. This letter supersedes Illinois EPA's December 6, 2007 letter regarding Area 19.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Amy Boley at 217/558-4716. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3273.

Sincerely,

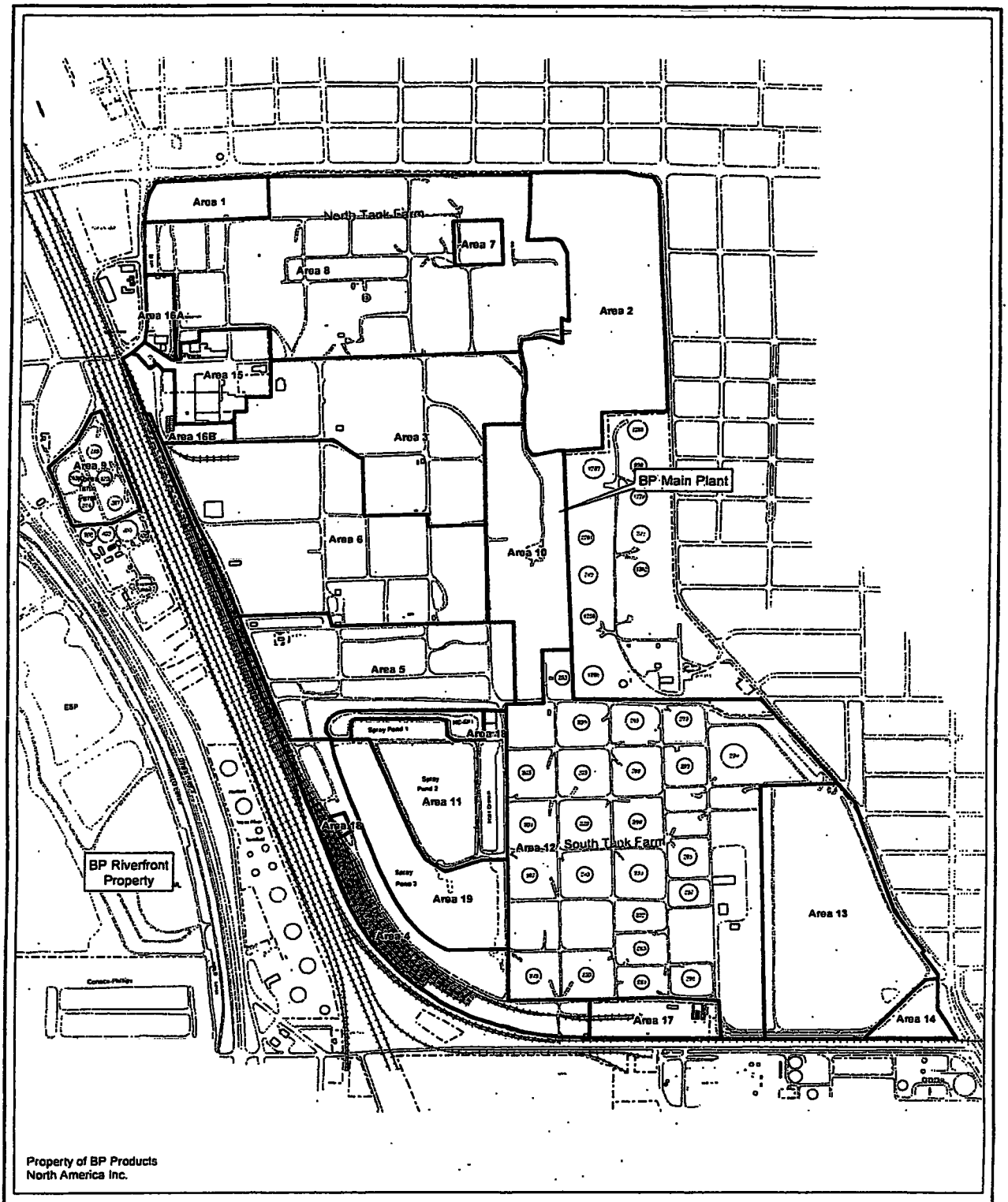
Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:KEN/mls/093172s.doc

Enclosure: IEPA RCRA Corrective Action Certification Form

Attachments: 1. Facility Map
2. Portions of Area 19 Requiring an Engineered Barrier

cc: Ryan Hartley, URS



Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*	Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 2 - Northeast Parcel*	Area 12 - South Tank Farm
Area 3 - North Central Parcel	Area 13 - Wildlife Enhancement Area
Area 4 - Rail Yard Area	Area 14 - Southeast Corner
Area 5 - South Central Parcel	Area 15 - Administration Building Parcel
Area 6 - Former APAC	Area 16 - Marketing Operation Area
Area 7 - Alky Plant	Area 17 - LPG Caverns Area
Area 8 - North Tank Farm	Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 9 - Korea Tank Farm	
Area 10 - East Tank Farm	Area 19 - Spray Pond 3 Area

N

325 0 325

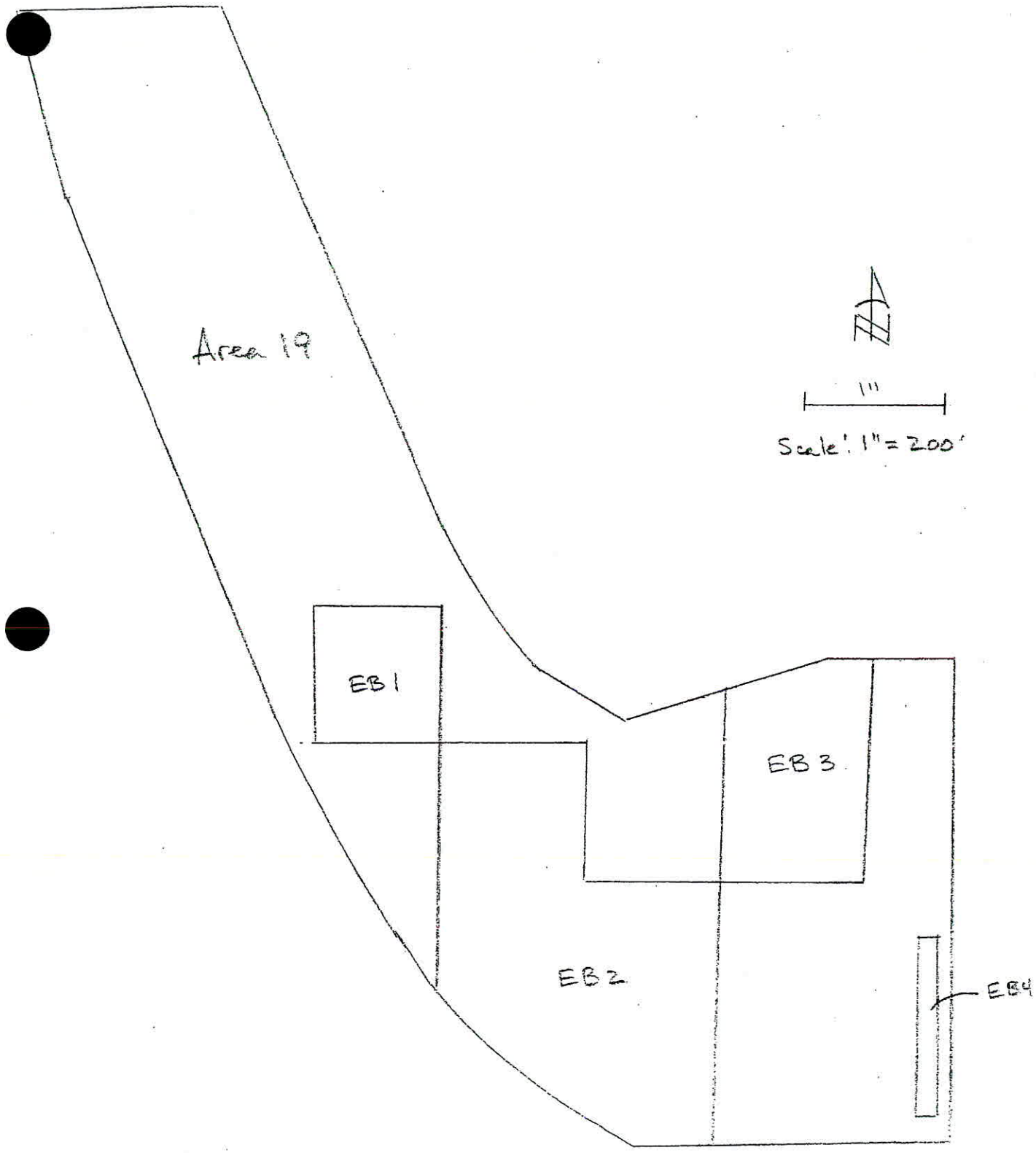
Feet

1 inch equals 750 feet

URS 400 South Wacker Drive Suite 500 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

DESIGN: CV	CHKD: LV	PROJECT NO.	FIG NO.
DRAWN: MDC	DATE: 4/2009	25366764	–



Source: "Areas Requiring Remediation, Clay Pond 3 (Area 19)," URS, 6/8/07

Layout of Area 19

EXHIBIT F-5

Land Reuse Area Recorded ELUCs

URS

January 27, 2003

Ms. Joyce L. Munie, P.E.
Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Springfield, Illinois 62702

Subject: 1191150001 – Madison County
BP Products North America Inc., Former Wood River Refinery Main Plant
ILD980700967
Log No. B-147-CA-11

Dear Ms. Munie:

URS Corporation (URS) has enclosed on behalf of BP Products North America Inc. (BP) three (3) copies of the Environmental Land Use Control (ELUC) as recorded by Madison County for Area 1 (PIN No. 19-1-08-28-12-201-001.001) at the BP former Wood River Refinery Main Plant.

Please note the original Recorder's Certificate of Photocopy (Certificate) as the final page of one of the copies. This Certificate certifies that the document attached to it is a true and correct photocopy of the filed document. The Certificate also confirms that conditions 3 and 4 of the January 10, 2003 Illinois EPA letter approving the ELUC have been satisfied.

If you have any questions, please contact Janice McLain of BP at 312-856-4138, Greg Jevyak of Group Environmental Management Company (GEM Co.) at 618-254-9866, or me at 312-697-7225.

Sincerely,

John Dennison

John Dennison
Project Scientist

Enclosure

cc: Greg Jevyak, GEM Co.
Janice McLain, BP
Jim Carris, BP
Jody Jung, Jung & Associates, P.C.

URS Corporation
122 South Michigan Avenue, Suite 1920
Chicago, IL 60603
Tel: 312.939.1000
Fax: 312.939.4198

PREPARED BY:

4544 4872

Name: Greg S. Jevyak
Environmental Business Manager
Group Environment Management Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

2003R05241

STATE OF ILLINOIS
MADISON COUNTY
FILED FOR RECORD IN
THE RECORDERS OFFICE

01-23-2003 11:15:53 A

DANIEL R. DONOHOO
RECORDER

DOC. FEE: 35.00
PAGES: 21

RETURN TO:

Name: Greg S. Jevyak
Environmental Business Mana
Group Environment Manager
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

COPY

$35.00 CASH

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 8th day of November, 2002, by BP Products North America Inc. f/k/a Amoco Oil Company, a Maryland corporation, ("Property Owner"), Property Owner of the real property located at 301 Evans Avenue, Wood River, Illinois.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained on December 5, 2001 and is attached hereto as Exhibit C. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against exposure to contaminated soil or groundwater or both that may be present on the property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure of the site, identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

4544 4873

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibit B is a site map and table that shows the legal boundary of the Property, any physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of movement of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742.

Section Two. Property Owner represents and warrants it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof or interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Contaminated soil removed from the Property shall be sent off-site for disposal as a special waste. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e., PH) readings> 100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property then the soils will be considered to be not contaminated for reuse on the former BP Refinery Main Plant Facility, which is shown on Exhibit C. If the soils are less than the site specific ROs but greater than residential standards

they will be considered contaminated if transported off-site. 4544 4874

(i) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(ii) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former BP Refinery Main Plant Facility. However, procedures must be in place to ensure that this material remains on the former BP Refinery Main Plant Facility and is not to be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(iii) Documentation of all these activities must be placed in the facility's operating records.

f. The two areas of the Property which are identified on Exhibit B require an engineered barrier to restrict exposure to the soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. This barrier must be properly maintained as an engineered barrier to restrict exposure to the soils beneath the barrier. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address possible worker exposure if any future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barriers must be handled in accordance with all applicable laws and regulations.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be release until the IEPA determines there is no longer a need for the ELUC as an institutional control; until the IEPA, upon written request, issues a new no further action determination approving modification or removal of the limitation(s) or requirement(s); and until and a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

4544 4875

BP Products North America Inc.

By: Janice McLain

Printed: JANICE McLAIN

Its: ATTORNEY

Date: 11-08-02

Attest: D. A. Dowling

Printed: D. A. Dowling

Its: ASSISTANT SECRETARY

Date: 11-8-02

STATE OF ILLINOIS)
) SS:
COUNTY OF COOK)

I, Debra L. Walls the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Janice McLain and Debra Dowling, personally known to me to be the Attorney and (Assistant) Secretary, respectively, of **BP Products North America Inc. f/k/a Amoco Oil Company**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 8th day of November, 2002.

OFFICIAL SEAL
DEBRA L. WALLS
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES 9/6/05

Debra L. Walls
Notary Public

4544 4876

PIN NO. 19-1-08-28-12-201-001.001

Exhibit A

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

LEGAL DESCRIPTION AND
REAL ESTATE TAX INDEX OR PARCEL #
(PURSUANT TO 742. 1010(D)(2))

Commencing at Northeast corner of the Southeast Quarter of the Northeast Quarter of Section 28, Township 5 North, Range 9 West; thence South 00° 46' 18" East, along the east line of said Quarter Quarter Section, a distance of 60.06 feet to the south right of way line of Illinois Route 143 (F.A. Route 789) (Madison Avenue, 60 feet wide); thence North 88° 13' 21" West, along said south right of way line, a distance of 1.44 feet; thence South 89° 25' 05" West, continuing along said right of way, a distance of 309.27 feet to the POINT OF BEGINNING of the tract herein described; thence South 00° 40' 48" East a distance of 313.19 feet; thence North 89° 23' 04" West a distance of 932.64 feet to the existing easterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 06° 30' 37" East, along said right of way, a distance of 35.04 feet to the easterly line of a tract of land conveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3186 Page 440 of Madison County Records; thence North 13° 21' 11" East, along said east line, a distance of 50.36 feet; thence North 06° 30' 37" East, continuing along said east line, a distance of 102.97 feet to the easterly line of a tract of land surveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3164 Page 272 of Madison County Records; thence North 18° 28' 37" East, along said easterly right of way line, a distance of 72.16 feet; thence North 54° 30' 50" East, continuing along said right of way line, a distance of 48.71 feet; thence North 74° 14' 40" East, continuing along said right of way line, a distance of 45.06 feet to the existing south right of way line of said Illinois Route 143; thence North 89° 25' 05" East, along said south right of way line, a distance of 795.74 feet to the point of beginning, containing 6.29 acres.

PIN NO. 19-1-08-28-12-201-001.001

4544 4877

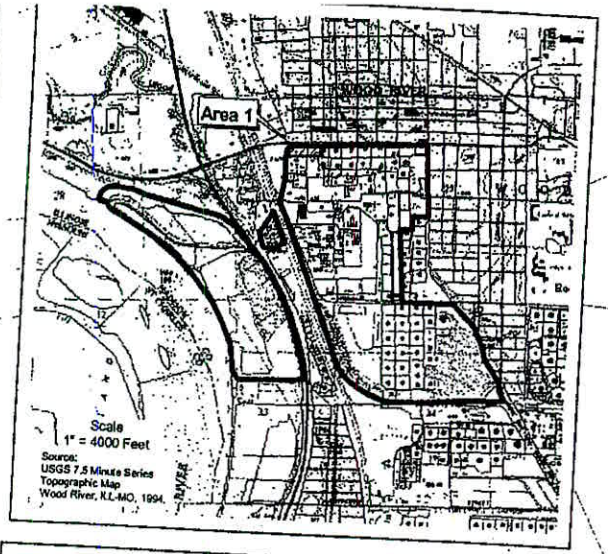
PIN NO. 19-1-08-28-12-201-001.001

Exhibit B

Scaled Maps and tables showing:

A) The legal boundary of the Property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which the ELUC applies (e.g. engineered barriers, monitoring wells, caps)
D) The nature, location of the source, and direction of movement of the contaminants of concern.

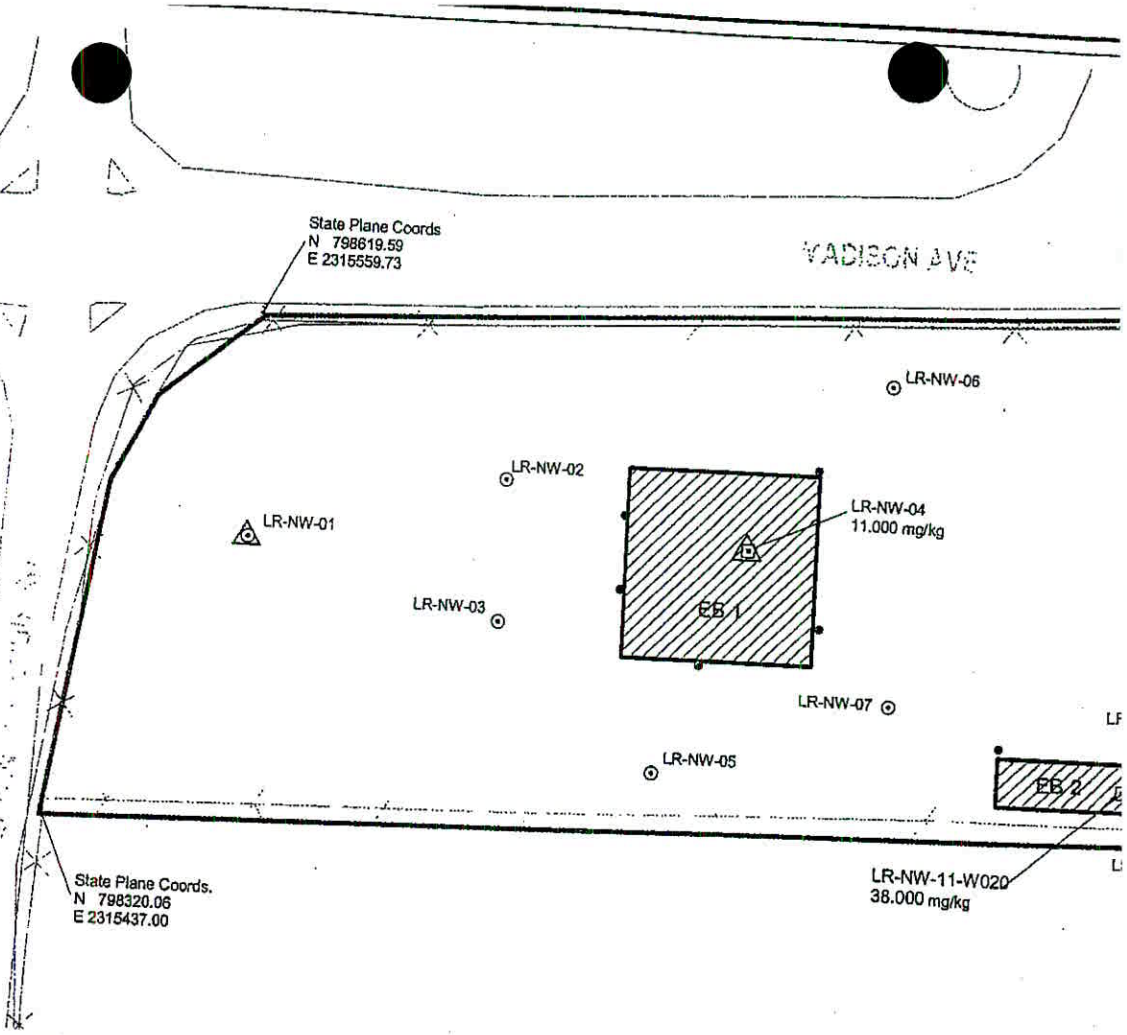
4544 4878



Summary of Perched Water Results
A Comparison with Illinois Class II Groundwater Objectives

Chemicals	Units	Illinois Class II Groundwater Objectives (1)	Sample Locations LR-NW-01	Sample Locations LR-NW-04
Metals:				
Arsenic	mg/l	0.2	0.05 U	0.160
Barium	mg/l	2	0.176	27.4
Cadmium	mg/l	0.05	0.01 U	0.1 U
Chromium	mg/l	1	0.04	2.68
Cobalt	mg/l	1	0.02	0.754
Lead	mg/l	0.1	1.99	52.5
Nickel	mg/l	2	0.044	1.87
Selenium	mg/l	0.05	0.1 U	1 U
Vanadium	mg/l	N/A	0.05 U	3.69
Organics:				
Benzene	mg/l	0.025	0.002 J	0.095
Ethylbenzene	mg/l	1	0.001 J	0.003 J
Toluene	mg/l	2.5	0.003 J	0.004 J
Xylene (Total)	mg/l	10	0.001 J	0.002 J

(1) Illinois Class II Groundwater Objectives were obtained from Appendix B, Table E of TACO.
N/A = Not Available
Shaded values exceed Illinois Class II Groundwater Objectives.



Legend

11,000 mg/kg — Benzene Result from Soil Sample from Depth Greater than 16 feet Below Ground Surface

Sample Locations

- Benzene in Soil Result Below Tier 2 Inhalation Remediation Objective (RO)
- Benzene in Soil Result Exceeding Tier 2 Inhalation RO
- Perched Groundwater Location
- Midpoint Between Samples With and Without Tier 2 Exceedence
- Area of ELUC (Pin No. 19-1-08-28-12-201-001.001)
- Area of Engineered Barrier (EB) / Model of Soil Impact in Excess of Tier 2 Inhalation RO

Basis For EB Area Identification:

- Application of Engineered Barriers to ensure 10 feet of soil is maintained atop exceedences of Tier 2 Inhalation RO.
- The proposed Tier 2 soil inhalation Engineered Barrier areas are represented as polygons to facilitate georeferencing of area boundaries.

EB Boundary Locations:

EB 1

Location	East	North
NW Corner	2,315,800	798,544
NE Corner	2,315,921	798,544
SE Corner	2,315,921	798,428
SW Corner	2,315,800	798,428

The surface elevation of EB 1 must remain over 424 feet MSL (measured elevation of LR-NW-04 is 429.52 ft MSL).

EB 2

Location	East	North
NW Corner	2,316,042	798,378
NE Corner	2,316,159	798,378
SE Corner	2,316,159	798,348
SW Corner	2,316,042	798,348

The surface elevation of EB 2 must remain over 425 feet MSL (measured elevation of LR-NW-11 is 430.60 ft MSL).

* Illinois State Plane Coordinates NAD 83

45 0 45 Feet

Scale
1" = 90 Feet

R001079

PIN NO. 19-1-08-28-12-201-001.001

Exhibit C

Copy of the NFA letter dated December 5, 2001 with attachments

1191150001—Madison County
BP Products North America Inc – Wood River Refinery
ILD980700967
Log No. B-147-CA-11
RCRA Permit

4544 4879

4544 4880

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

December 5, 2001

CERTIFIED MAIL
7099 3400 0001 1279 1827

Gregory S. Jevyak, Environmental Business Manager
BP America
Global Environmental Management Business Unit
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-11
Date Received: June 20, 2001
RCRA Permit

Dear Mr. Jevyak:

This letter responds to the June 19, 2001 revised Land Reuse Investigation Report regarding RCRA corrective action activities at an area known as the "Noithwest Corner Parcel (Area 1)" at the above-referenced facility, submitted on your behalf by Mr. Frederick W. Johnson, P.E. of URS. Mr. Johnson's submittal contained soil investigation effort results and a risk-based evaluation of the subject parcel in accordance with 35 Ill. Adm. Code 742. A site layout map, showing this area within the Main Plant facility, and the parcel's legal description, are enclosed. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The Illinois EPA has completed its review of the revised investigation/risk evaluation report for the Northwest Corner Parcel (the "Parcel") of the above-referenced facility. The IEPA hereby approves no further action at the Parcel subject to the following conditions and modifications:

1. Based upon a comparison of the results in the report to soil remediation objectives developed in accordance with 35 Ill. Adm. Code 742, Illinois EPA has determined that subject to certain conditions: (1) the soils within the Parcel pose no threat via the soil ingestion, inhalation, and migration to groundwater exposure route; and (2) no further action is required for the groundwater ingestion route for perched groundwater only. This no further action determination applies to the soils and perched groundwater within the Parcel as shown and described in the enclosed legal description, subject to the following conditions:

4544 4881

a. Two areas within the Parcel require an engineered barrier and associated institutional control to restrict exposure to the soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of the parcel delineating the two areas identified is presented in Attachment 3.

b. Any excavation and subsurface construction work in the Parcel shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in the Parcel and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

c. The soil within the Parcel shall in place, except where necessary to remove it for construction activities.

d. Contaminated soil removed from the Parcel shall be sent off-site for disposal as a special waste. Soil excavated during construction/demolition/excavation activities within the Parcel must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

(1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former

refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

e. Appropriate institutional controls meeting the requirements of 35 Ill. Admin. Code, Part 742, Subpart J must be established to ensure the requirements in subparagraphs 1(a) through 1(d) immediately above will be met in the future.

f. The parcel's use shall remain commercial/industrial in the future.

g. With respect to perched groundwater, an institutional control must be established in accordance with 35 Ill. Adm. Code Part 742, Subpart J, for the exclusion of the groundwater ingestion exposure route, to meet the criteria found 35 Ill. Adm. Code 742.925. The institutional control shall include either an Environmental Land Use Control (ELUC) prohibiting the use of groundwater at the Parcel in accordance with 35 Ill. Adm. Code 742.1010 or the approval of a City of Wood River ordinance as follows:

(1) The facility may submit to the Illinois EPA for review and approval, a City of Wood River ordinance that will serve as an institutional control restricting groundwater use at the Parcel. In addition to meeting the 35 Ill. Adm. Code, Part 742, Subpart J, institutional control requirements, the ordinance will also address the issue of the possibility of the groundwater ingestion exposure route becoming active in the future, as required by 35 Ill. Adm. Code 742.925(f).

(2) Once the City of Wood River ordinance is approved for use as an institutional control to restrict the use of groundwater at the Parcel, BP must submit the information requirements under Ill. Adm. Code 742.1015 for the Parcel to the Illinois EPA for review and approval. Attached to this letter is Agency guidance entitled "Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects".

2. The groundwater beneath the facility is being addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications; and

b. An approved institutional control to meet the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, shall be established in accordance with 35 Ill. Adm. Code, Part 742, Subpart J. Such institutional control may include the approval of a City of Wood River ordinance as set forth in subparagraph 1(g) above. Once such an institutional control is established, no further remediation will be required with respect to the groundwater at the Parcel, except as required by Condition No. 2a above.

c. The Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility shall be revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following IEPA's receipt and review of the revised GMZ, Illinois EPA will determine whether the proposed changes to the GMZ are adequate and grant approval of the GMZ, if appropriate.

3. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

4. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them.

4544 4884

The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to Kalpesh A. Patel, P.E. at 217/524-3862.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

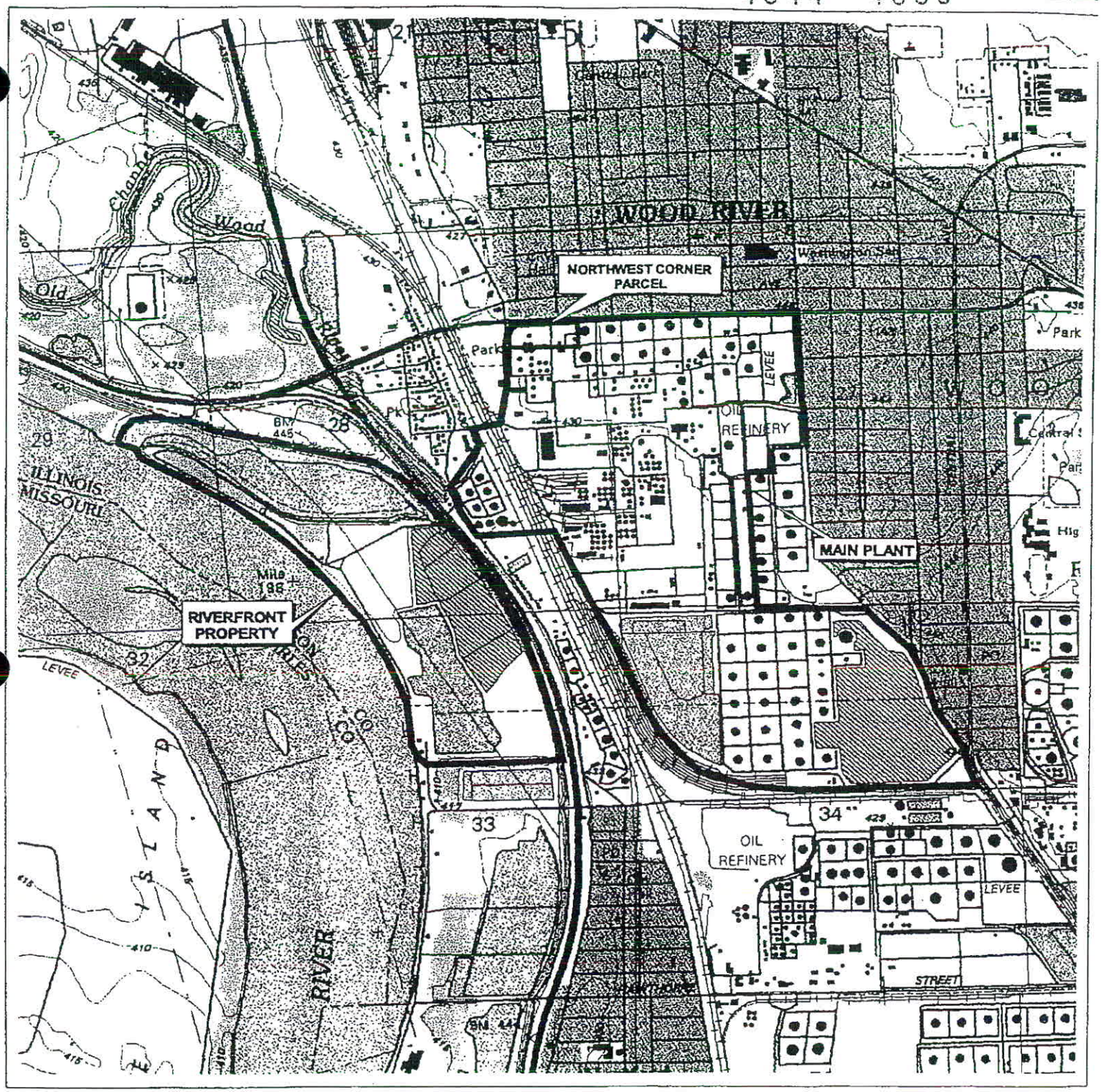
JLM:KAP:bjh\2001261s.doc

Attachments:
1. Topographic Map/Site Layout Map
2. Legal Description of Northwest parcel
3. Institutional Control and Restrictive Covenant Locations Map
4. Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects
5. Corrective Action Certification Form

cc: Frederick W. Johnson, P.E. – URS Corporation (w/attachments)

Attachment 1

4544 4885



Legend

- Northwest Parcel
- BP Property

2000 0 2000 Feet

- Source: U.S.G.S. 7.5 Minute Series, Topographic Map Wood River, ILL.-MO., 1994

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP AMOCO WOOD RIVER
WOOD RIVER, ILLINOIS

DESIGN: JTD	CHK'D: KW	PROJECT NO.	FIG. NO.
DRAWN: MDC	DATE: 6/4/01	83C054	1-1

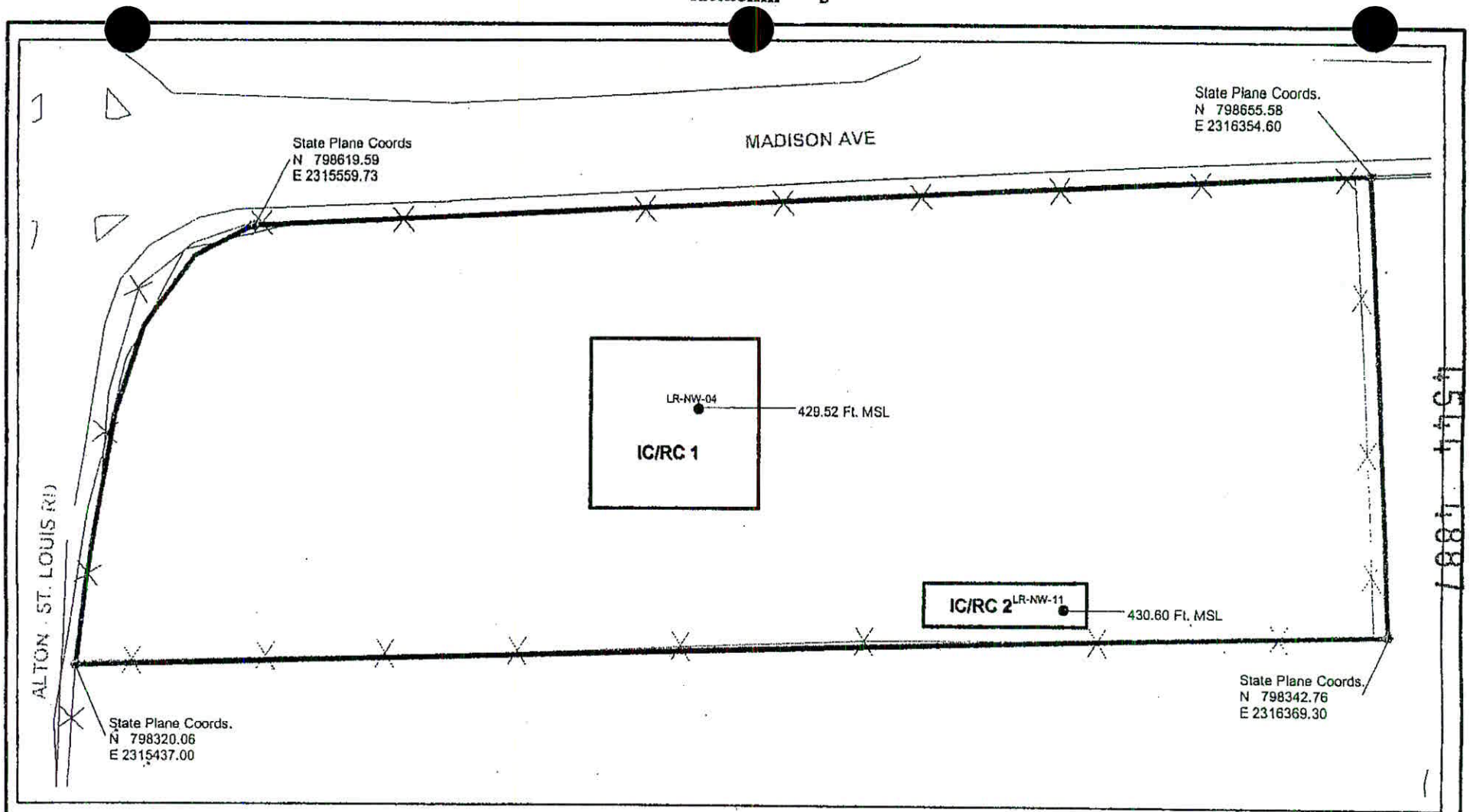
4544 4886

Attachment 2

Legal Description of 6.29 Acres Parcel in the Northwest Corner of Amoco Main Plant Facility, Wood River, Illinois

Commencing at Northeast corner of the Southeast Quarter of the Northeast Quarter if Section 28, Township 5 North, Range 9 West; thence South 00° 46' 18" East, along the east line of said Quarter Quarter Section, a distance of 60.06 feet to the south right of way line of Illinois Route 143 (F.A. Route 789) (Madison Avenue, 60 feet wide); thence North 88° 13' 21" West, along said south right of way line, a distance of 1.44 feet; thence south 89° 25' 05" West, continuing along said right of way, a distance of 309.27 feet to the POINT OF BEGINNING of the tract herein described; thence South 00° 40' 48" East a distance of 313.19 feet; thence North 89° 23' 04" West a distance of 932.64 feet to the existing easterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 06° 30' 37" East, along said right of way, a distance of 35.04 feet to the easterly line of a tract of land conveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3186 Page 440 of Madison County Records; thence North 13° 21' 11" East, along said east line, a distance of 50.36 feet; thence North 06° 30' 37" East, continuing along said east line, a distance of 102,97 feet to the easterly line of a tract of land surveyed by Amoco to Illinois Department of Transportation by deed recorded in Book 3164 Page 272 of Madison County Records; thence north 18° 28' 37" East, along said easterly right of way line, a distance of 72.16 feet; thence north 54° 30' 50" East, continuing along said right of way line, a distance of 48.71 feet; thence North 74° 14' 40' East, continuing along said right of way line, a distance of 45.06 feet to the existing south right of way line of said Illinois Route 143; thence North 89° 25' 05" east, along said south right of way line, a distance of 795.74 feet to the point of beginning, containing 6.29 acres.

Attachm 3



Legend

- Sample Locations
- Locations Planned for Institutional Control/ Restrictive Covenant (IC/RC)
- Northwest Corner Parcel (Area 1)

Note:
- Elevations shown hereon are ground elevations.
- Coordinates in Illinois State Plane Coordinate System (NAD83).

Basis For IC/RC Area Identification:

- Application of Institutional Controls to ensure 10 feet of soil is maintained atop exceedences of Tier 2 Inhalation Remediation Objectives (ROs)
- Application of Restrictive Covenants to require site Safety Plan to protect Construction Workers.
- The proposed Tier 2 soil inhalation institutional control areas are represented as polygons to facilitate georeferencing of area boundaries.

IC/RC Boundary Survey Locations:

IC/RC 1

Location	East	North
NW Corner	2,315,800	798,544
NE Corner	2,315,921	798,544
SE Corner	2,315,921	798,428
SW Corner	2,315,800	798,428

The surface elevation of IC/RC1 must remain over 424 feet MSL.

IC/RC 2

Location	East	North
NW Corner	2,316,042	798,378
NE Corner	2,316,159	798,378
SE Corner	2,316,159	798,348
SW Corner	2,316,042	798,348

The surface elevation of IC/RC1 must remain over 425 feet MSL.

* Illinois State Plane Coordinates NAD 83

50 0 50
Feet
Scale
1" = 100 Feet

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

INSTITUTIONAL CONTROL AND RESTRICTIVE COVENANT LOCATIONS
NW CORNER LAND REUSE PARCEL
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: KW	CHKD: JD	PROJECT NO.	FIG. NO.
DRAWN: MDC	DATE: 11/13/01	83C054	2

R001088

4544 4888

Attachment 4

Use of Ordinance as an Institutional Control for Groundwater for RCRA Closure Projects

35 Ill. Adm. Code 742.1015 sets forth the requirements for using ordinances as institutional controls to restrict groundwater usage in an area. Such an ordinance must effectively prohibit the installation and use of potable water supply wells. 35 Ill. Adm. Code 742.1015(b) and (c) prescribes specific requirements for the information that must be submitted to the Illinois EPA along with a request for approval of an ordinance. The remainder of 35 Ill. Adm. Code 742.1015 includes notification, tracking, and recording requirements that also must be met. All provisions of 35 Ill. Adm. Code 742.1015 must be satisfied to perfect the use of the ordinance as an environmental institutional control. The purpose of this document is to identify the requirements which must be met when using an ordinance as an institutional control to restrict groundwater usage at a RCRA closure site.

The informational requirements under 35 Ill. Adm. Code 742.1015(b) (Items 1.a through f below) must be met and submitted to Illinois EPA for the approval of a local ordinance as an institutional control. The document prepared to address these informational requirements will be incorporated into the Illinois EPA's eventual no further remediation determination to be recorded as required by 35 Ill. Adm. Code 742.1015(f). Additionally, upon Illinois EPA approval of this document, the document shall be submitted to all owners of each affected property and to the unit of local government as required in 35 Ill. Adm. Code 742.1015(b)(6) (Item 1.f below) and 742.1015(e), respectively. A more detailed discussion of these requirements follows:

1. Pursuant to 35 Ill. Adm. Code 742.1015(b), a request submitted to Illinois EPA for approval of a local ordinance as an institutional control shall provide the following:

    a. A copy of the ordinance restricting groundwater use certified by an official of the unit of local government in which the site is located that it is the latest, most current copy of the ordinance. The ordinance must demonstrate that potable use of groundwater from potable water supply wells is prohibited;

    b. A scaled map(s) delineating the areal extent of groundwater contamination (measured or modeled) above the applicable Tier 1, Class I groundwater remediation objectives, including:

        i. map scale (i.e., 1 inch is equal to no more than 200 feet) and date,

        ii. orientation of the map (north arrow),

        iii. legal boundaries of the facility,

iv. buildings and other permanent structures,

c. Information showing the concentration of contaminants of concern in which the applicable Tier 1, Class I groundwater remediation objectives are exceeded. This information would best be presented as a table identifying the contaminant(s) of concern and their respective concentration(s);

d. A scaled map delineating the boundaries of all properties under which groundwater is located which exceeds the applicable Tier 1, Class I groundwater remediation objectives;

e. Information identifying the current owner(s) of each property identified in 1.d. This information would best be presented as a table which identifies the property owner's name(s) and address(es); and

f. A copy of the proposed submission of the information to the current owners identified in 1.d of the information required in 1.a through 1.e and a copy of the written notification document required in 2.

As required by 35 Ill. Adm. Code 742.1015(b)(6) (Item 1.f above), the written notification in 742.1015(c) (Item 2 below) shall be prepared and submitted for Illinois EPA review. This document shall, upon Illinois EPA approval, be submitted, as required by 35 Ill. Adm. Code 742.1015(c) (Item 2 below) to the property owners identified in 35 Ill. Adm. Code 742.1015(b)(5) (Item 1.e above) and the unit of local government. This document shall also be incorporated into the Illinois EPA's no further remediation determination to be recorded as required by 35 Ill. Adm. Code 742.1015(f).

2. Each of the property owners identified in 1.d and the unit of local government must receive written notification from the party desiring to use the institutional control that groundwater remediation objectives have been approved by the Illinois EPA. Written proof of this notification shall be submitted to the Illinois EPA within 45 days from the date of the instrument memorializing the Illinois EPA's no further remediation determination. The notification shall include:

a. The name and address of the unit of local government;

b. The citation to the ordinance;

c. A description of the property being sent notice by adequate legal description or by reference to a plat showing the boundaries;

4544 4890

d. A statement that the ordinance restricting groundwater use has been used by the Illinois EPA in reviewing a request for a groundwater remediation objective;

e. A statement as to the nature of the release and response action with the site name, address, and Illinois EPA site number or Illinois inventory identification number; and

f. A statement that more information may be obtained regarding the ordinance through a written request under the Freedom of Information Act (5 ILCS 140) to:

Illinois Environmental Protection Illinois EPA
Attention: Freedom of Information Act Officer
Bureau of Land -- #24
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

RH\mls\993311S.WPD

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Attachment 5

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: _____ County: _____

Street Address: _____ Site No. (IEPA): _____

City: _____ Site No. (USEPA): _____

2.0 OWNER INFORMATION

Name: _____

Mailing Address: _____

_____

_____

Contact Name: _____

Contact Title: _____

Phone No.: _____

3.0 OPERATOR INFORMATION

_____

_____

_____

_____

_____

_____

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

___ RFI Phase I Workplan/Report
___ RFI Phase II Workplan/Report
___ CMP Report; Phase _____
___ Other (describe): _____
_____
Date of Submittal _____

IEPA Permit Log No. _____
Date of Last IEPA Letter on Project _____
Log No. of Last IEPA Letter on Project _____
Does this submittal include groundwater information: _ Yes _ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

_____

_____

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

_____

_____

7.0 CERTIFICATION STATEMENT - *(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below).* The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

4544 4892

IEPA RCRA Corrective Action Certification
For:_____
Date of Submission:_____
Page 2

7.1 **OWNER/OPERATOR CERTIFICATION** (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ _____ (Date)

Title: _____

Operator Signature: _____ _____ (Date)

Title: _____

7.2 **PROFESSIONAL CERTIFICATION** *(if necessary)* - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: _____ _____ Date:

Professional's Name: _____ Professional's Seal:

Professional's Address: _____

_____

_____

Professional's Phone No.: _____

7.3 **LABORATORY CERTIFICATION** *(if necessary)* - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

_____ _____
Name of Laboratory Signature of Laboratory Responsible Officer Date

Mailing Address of Laboratory _____
Name and Title of Laboratory Responsible Officer

_____

_____

END OF DOCUMENT

_____

JM:bjh\97764S.WPD

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, DANIEL R. DONOHOO, the duly elected RECORDER in and for the County and State aforesaid do hereby certify that the foregoing copy of a certain ENVIRONMENTAL DISCLOSURER is the true and correct photocopy of said ENVIRONMENTAL DISCLOSURER from BP PRODUCTS NORTH AMERICA INC., F/K/A AMOCO OIL COMPNANY to ENVIRONMENTAL DISCLOSURER including the Certificate of Acknowledgement bearing date the 8TH day of NOVEMBER A.D. 2002 as the same appears in the records of my office in Book 4544 Page 4872 recorded on the 23RD day of JANUARY A.D. 2003.

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 23RD day of JANUARY, A.D. 2003.

Daniel R. Donohoo

DANIEL R. DONOHOO
RECORDER
in and for
MADISON COUNTY, ILLINOIS

95

RECORDER MADISON COUNTY ILLINOIS

R001094

LITHO. IN U.S.A.

Atlantic Richfield Company

Greg Jevyak
Environmental Business Manager

301 Evans Avenue
P.O. Box 167
Wood River, IL 62095-0167
Phone: (618) 254-9866
Fax: (618) 254-8718
jevyakgs@bp.com

October 6, 2004

Ms. Joyce L. Munie, P.E.
Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Springfield, IL 62702

Subject: 1191150001 – Madison County
BP Products North America Inc., Former Wood River Refinery Main Plant
ILD980700967
Log Nos. B-147-CA-31, 36, 37, 42 and 43

Dear Ms. Munie:

Enclosed on behalf of BP Products North America Inc. (BP) are three (3) copies of the Environmental Land Use Control (ELUC) as recorded by Madison County for Area 15 (PIN No. 19-1-08-28-00-000-010.001) at the BP former Wood River Refinery Main Plant.

Please note the original Recorder's Certificate of Photocopy (Certificate) is the final page of the copies. This Certificate certifies that the document attached to it is a true and correct photocopy of the filed document. The Certificate also confirms that conditions outlined in paragraph #4 and #5 of the August 23, 2004 Illinois EPA letter approving the ELUC have been satisfied. Also, the required changes mentioned in paragraphs #3A and #3B were made to the final ELUC.

If you have any questions, please contact Janice McLain of BP at 312-856-4138 or me at 618-254-9866.

Sincerely,

Greg S. Jevyak
Environmental Business Manager

Enclosure

cc: Ryan Hartley, URS
Janice McLain, BP

2004R59615

STATE OF ILLINOIS
MADISON COUNTY
FILED FOR RECORD IN
THE RECORDERS OFFICE

10/01/2004 04:06PM

DANIEL R. DONOHOO
RECORDER

DOC FEE: $37.00
PAGES: 23

PREPARED BY:

Name: Greg S. Jevyak
Environmental Business Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

RETURN TO:

Name: Greg S. Jevyak
Environmental Business Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

37.00 pd cash (C)

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 24th day of September, 2004, by BP Products North America Inc. f/k/a Amoco Oil Company, a Maryland corporation, ("Property Owner"), Property Owner of the real property located at 301 Evans Avenue, Wood River, Illinois.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained on November 19, 2003 and is attached hereto as Exhibit C. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against exposure to contaminated soil or groundwater or both that may be present on the property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure of the site, identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibit B is a site map and table that shows the legal boundary of the Property, any physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of movement of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742.

Section Two. Property Owner represents and warrants it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e., PID readings > 100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property then the soils will be considered to be not contaminated for reuse on the former BP Refinery

Main Plant Facility, which is shown on Exhibit B. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported off-site.

(i) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(ii) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former BP Refinery Main Plant Facility. However, procedures must be in place to ensure that this material remains on the former BP Refinery Main Plant Facility and is not to be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(iii) Documentation of all these activities must be placed in the facility's operating records.

f. The four areas of the Property, which are identified on Exhibit B, require an engineered barrier to restrict exposure to the soils beneath the barrier. This barrier must be properly maintained as an engineered barrier to restrict exposure to the soils beneath the barrier. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address possible worker exposure if any future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barriers must be handled in accordance with all applicable laws and regulations.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until the IEPA determines there is no longer a need for the ELUC as an institutional control; until the IEPA, upon written request, issues a new no further action determination approving modification or removal of the limitation(s) or requirement(s); and until a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

BP Products North America Inc.

By: Janice McLain — Attest: Dorothy Toth

Printed: JANICE McLAIN — Printed: DOROTHY TOTH

Its: Attorney — Its: ADMINISTRATIVE ASSISTANT

Date: 9-24-04 — Date: 9-24-04

STATE OF ILLINOIS)
) SS:
COUNTY OF COOK)

I, Debra Walls the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Janice McLain and Dorothy Toth personally known to me to be the Attorney and Adm. Asst., respectively, of **BP Products North America Inc. f/k/a Amoco Oil Company**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 24th day of September, 2004.

OFFICIAL SEAL
DEBRA L. WALLS
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES 9/6/05

Debra L. Walls
Notary Public

PIN NO. 19-1-08-28-00-000-010.001

Exhibit A

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

LEGAL DESCRIPTION AND
REAL ESTATE TAX INDEX OR PARCEL #
(PURSUANT TO 742. 1010(D)(2))

Part of Section 28, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Section 28; thence South 89° 38' 16" West, along the south line of said Section 28, a distance of 505.47 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1) North 21° 37' 36" West a distance of 1496.26 feet, (2) South 88° 38' 39" West a distance of 26.65 feet, (3) North 21° 37' 36" West a distance of 1397.11 feet to the existing southeasterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 49° 41' 05" East, along said existing right of way line, a distance of 82.55 feet to the POINT OF BEGINNING; thence North 49° 41' 05" East, continuing along said right of way line, a distance of 138.11 feet; thence South 56° 35' 11" East a distance of 267.57 feet; thence North 84° 24' 57" East a distance of 59.79 feet; thence North 2° 05' 12" West a distance of 128.27 feet; thence North 85° 25' 10" East a distance of 149.26 feet; thence North a distance of 86.43 feet; thence North 88° 02' 30" East a distance of 544.16 feet; thence South 1° 32' 36" East a distance of 540.81 feet; thence North 89° 54' 02" West a distance of 196.51 feet; thence South 2° 23' 35" East a distance of 116.61 feet; thence South 88° 13' 39" West a distance of 96.99 feet; thence South 1° 24' 27" East a distance of 84.80 feet; thence South 88° 22' 16" West a distance of 445.52 feet; thence North 2° 00' 01" West a distance of 427.01 feet; thence South 87° 46' 10" West a distance of 81.52 feet; thence North 45° 35' 29" West a distance of 72.57 feet; thence South 53° 07' 46" West a distance of 63.47 feet; thence North 43° 17' 19" West a distance of 150.36 feet; thence North 71° 54' 11" West a distance of 59.71 feet to the point of beginning, containing 11.73 acres (510,804 sq. ft.).

PIN NO. 19-1-08-28-00-000-010.001

PIN NO. 19-1-08-28-00-000-010.001

Exhibit B

Scaled Maps and tables showing:

A) The legal boundary of the Property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which the ELUC applies (e.g. engineered barriers, monitoring wells, caps)
D) The nature, location of the source, and direction of movement of the contaminants of concern.

A15BH21	2 ft	2 ft (DUP)
Benzo(a)pyrene	1.9	1
Dibenzo(a,h)anthracene	2.2	1

A15BH12	0-1 ft
Benzo(a,h)anthracene	12
Benzo(a)pyrene	17
Benzo(b)fluoranthene	20
Dibenzo(a,h)anthracene	1.7
Indeno(1,2,3-cd)pyrene	9.5

A15BH24	12-13 ft
Benzo(a)pyrene	2.9

A15BH04	1-2 ft	1-2 ft (DUP)
Benzo(a)pyrene	1.8	1.4

A15BH22	1 ft
Lead	17000

EB Boundary Survey Locations

EB-1

Location	Easting	Northing
EB-1A	2,316,028.49	797,163.70
EB-1B	2,316,258.23	797,368.83
EB-1C	2,316,404.84	797,369.24
EB-1D	2,316,411.43	797,090.44
EB-1E	2,316,271.41	796,972.67
EB-1F	2,316,033.22	796,972.66

EB-2

Location	Easting	Northing
EB-2A	2,315,335.91	797,248.18
EB-2B	2,315,441.49	797,333.99
EB-2C	2,315,655.40	797,192.73
EB-2D	2,315,668.30	797,193.74
EB-2E	2,315,670.71	797,113.60
EB-2F	2,315,589.33	797,110.42
EB-2G	2,315,537.41	797,161.53
EB-2H	2,315,486.69	797,123.28
EB-2I	2,315,383.60	797,232.50

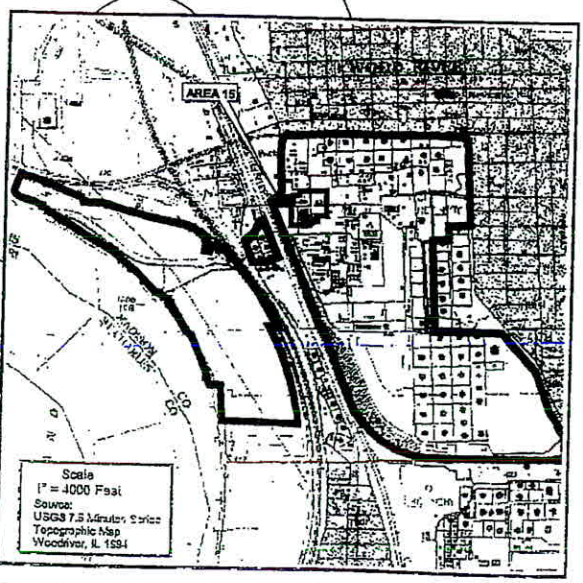
EB-3

Location	Easting	Northing
EB-3A	2,315,675.52	796,983.72
EB-3B	2,315,817.62	796,983.72
EB-3C	2,315,817.89	796,868.27
EB-3D	2,315,679.53	796,868.32

EB-4

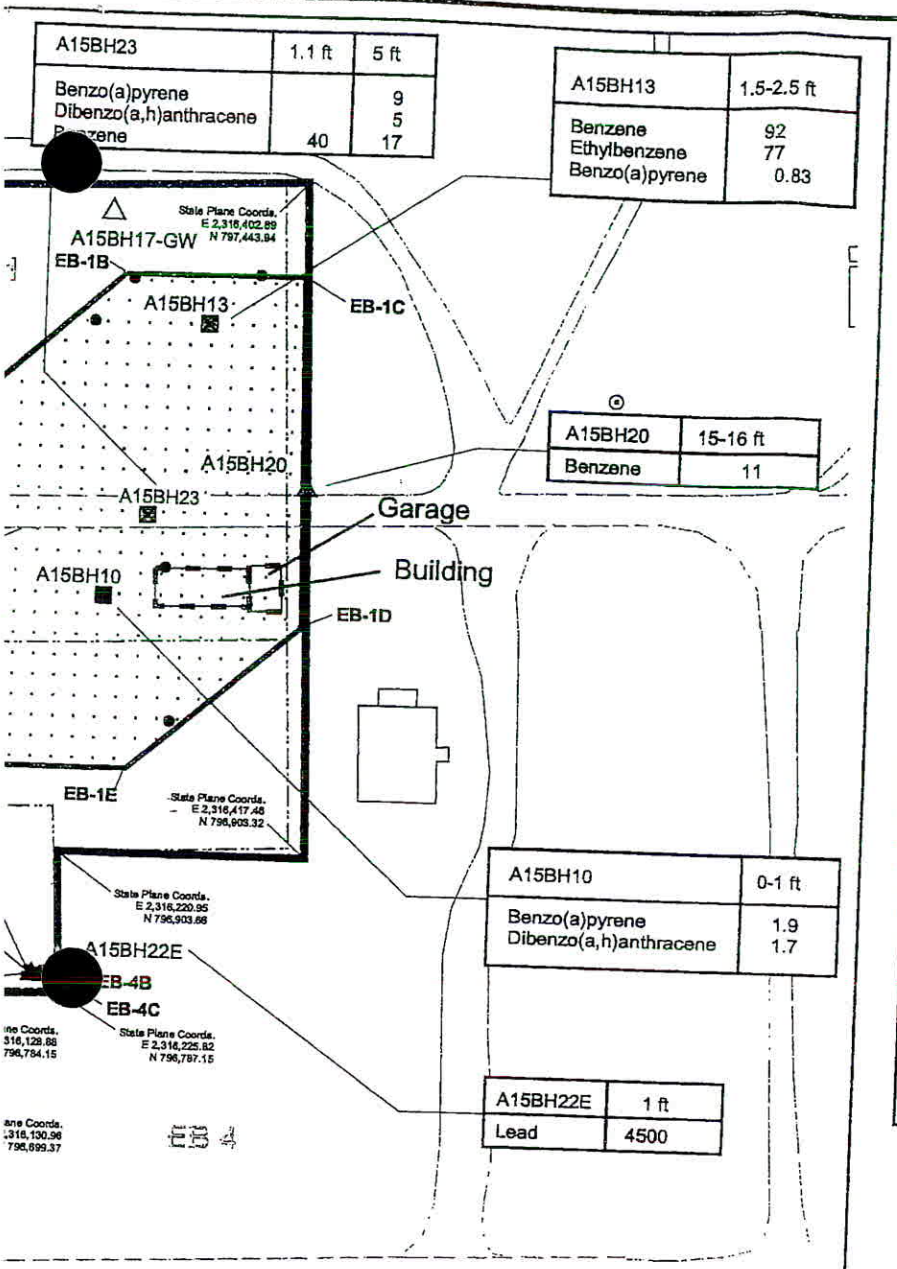
Location	Easting	Northing
EB-4A	2,316,200.73	796,805.49
EB-4B	2,316,224.98	796,805.59
EB-4C	2,316,225.11	796,800.98
EB-4D	2,316,200.75	796,800.95

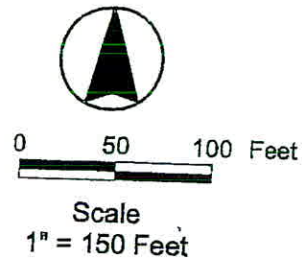
* Coordinates in Illinois State Plane (NAD83)



Summary of Perched Water Results
A Comparison with Illinois Class II Groundwater Objectives

Chemicals	Units	Illinois Class II Groundwater Objectives (1)	Sample Locatic BH06-GW	BH06A-GW	BH1
Metals					
Arsenic	mg/l	0.2	0.057	–	0.0
Barium	mg/l	2	2.66	–	1.8
Lead	mg/l	0.1	0.983	–	0.1
VOCs					
Benzene		0.025	–	0.031	
SVOCs					
Benzo(a)anthracene	mg/l	0.00065	0.0001 U	–	
Benzo(b)pyrene	mg/l	0.002	0.0001	–	
Benzo(b)fluoranthene	mg/l	0.0009	0.0001 U		
Chrysene	mg/l	0.0075	0.0003 J	–	





Legend

- Administration Building Parcel (Area 15)
- Solid Waste Management Unit (SWMU)
- Area of Engineered Barrier (EB)

Sample Locations

- Midpoint between samples with and without Tier 1 Ingestion or Tier 2 Inhalation Exceedences
- Phase I RFI Soil Boring Location
- Boring with Tier 2 Industrial/Commercial Worker Inhalation Exceedence
- Existing Monitoring Well
- Boring with Tier 1 Ingestion Exceedence
- Perched Groundwater Location

(All results are presented in mg/Kg)

Basis For EB Area Identification

- Application of Institutional Controls to ensure a surface engineered barrier of approved specifications is maintained atop exceedances of Tier 2 Inhalation Remedation Objectives (ROs) or Tier 1 Ingestion ROs.
- Application of Institutional Control to require Site Safety Plan to protect Construction Workers.

Notes:

1. No specific source areas were identified
2. The occurence of perched water is sporadic and not vertically or laterally continuous; therefore it is not possible to determine the extent of impacted perched water or direction of flow.
3. Figure is based on Attachment 3 of IEPA No Further Action Letter, dated 11/19/03.

17-GW

8 J
3 J
2 J
2 J

(1) - Illinois Class II Groundwater Objectives were obtained from Appendix B, Table E of TACO.
– - Not analyzed
U - The analyte was analyzed for, but not detected. Value shown is the reporting limit.
J - Estimated concentration because the results were below the sample reporting limit, or quality control criteria were not met.

Shaded values exceed Illinois Class II Groundwater Objectives

Property of BP Corporation North America Inc.

O:\Deliverables_Library\BP\Wood_River\MainPlant\Area15\area15_figureB-1.pdf

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

AREA 15 ELUC EXHIBIT B PARTS A/B/C/D
INSTITUTIONAL CONTROL/ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: SF	CHK'D: JTD	PROJECT NO.	FIG. NO
DRAWN: DC/KH	DATE: 4/8/04	83C054	B-1

PIN NO. 19-1-08-28-00-000-010.001

Exhibit C

Copy of the NFA letter dated November 19, 2003 with attachments
1191150001 – Madison County
BP Products North America Inc. – Wood River Refinery
ILD980700967
Log Nos. B-147-CA-31, 36, and 37
RCRA Permit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

November 19, 2003

CERTIFIED MAIL
7002 3150 0000 1219 9473

Mr. Gregory S. Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc./Main Plant
ILD980700967
Log Nos. B-147-CA-31, 36 and 37
Received: October 21, 2002 and July 24, 2003
RCRA Permit

Dear Mr. Jevyak:

This is in response to a document entitled Administration Building Area (Area 15) Land Reuse Investigation Report and Closure Plan, dated October 18, 2002, which was prepared and submitted on your behalf by Mr. Dennis A. Kasner and Frederick W. Johnson, P.E., of URS. Two addendums to this submittal were submitted on July 23, 2003 that contained additional information requested by Illinois EPA. These submittals contained information regarding investigative activities performed as part of RCRA corrective action at an area referred to as "Area 15" or the "Administration Building Parcel" at the above-referenced facility. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 15 on March 20, 2002 (soil aspects) and April 9, 2002 (groundwater aspects). Minor modifications to this plan were approved by Illinois EPA on September 27, 2002. A site layout map showing this area within the facility and the parcel's legal description are provided as Attachments 1 and 2, respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 15 provided the following requirements are met:

1. Four areas within Area 15 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the

soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these four areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 15 delineating the four areas where an engineered barrier must be established is presented in Attachment 3 to this letter.

2. Any excavation and subsurface construction work in Area 15 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 15 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 15 shall remain in place, except where necessary to remove it for construction activities.

Soil excavated during construction/demolition/excavation activities within Area 15 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

(1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 15 must remain industrial/commercial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4 and 5 will be met in the future. A draft institutional control to establish the required restrictions on the property must be submitted to Illinois EPA for review and approval.

7. High lead levels (above 5 mg/l TCLP) detected in the vicinity of sample location A15BH22 shall be addressed by removal/off-site disposal of contaminated soil followed by collection of verification samples. A report documenting the results of this soil removal effort must be submitted to Illinois EPA for review and approval along with the draft ELUC required by Condition 6 above.

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications; and

b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and the Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the parcel except as required by Condition 8.a above.

9. Prior to completion of a corrective action associated with the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility, the groundwater quality standards (Class I or Class II) are not applicable to the uppermost aquifer while the GMZ is being monitored and maintained. In addition, as stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of

groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code Part 742, Subpart J.

10. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

11. A completed RCRA Corrective Action Certification form must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at 217/558-2150. Questions about any other aspects of this letter should be directed to Munib Ahmad, P.E. at 217/524-3263.

Sincerely,

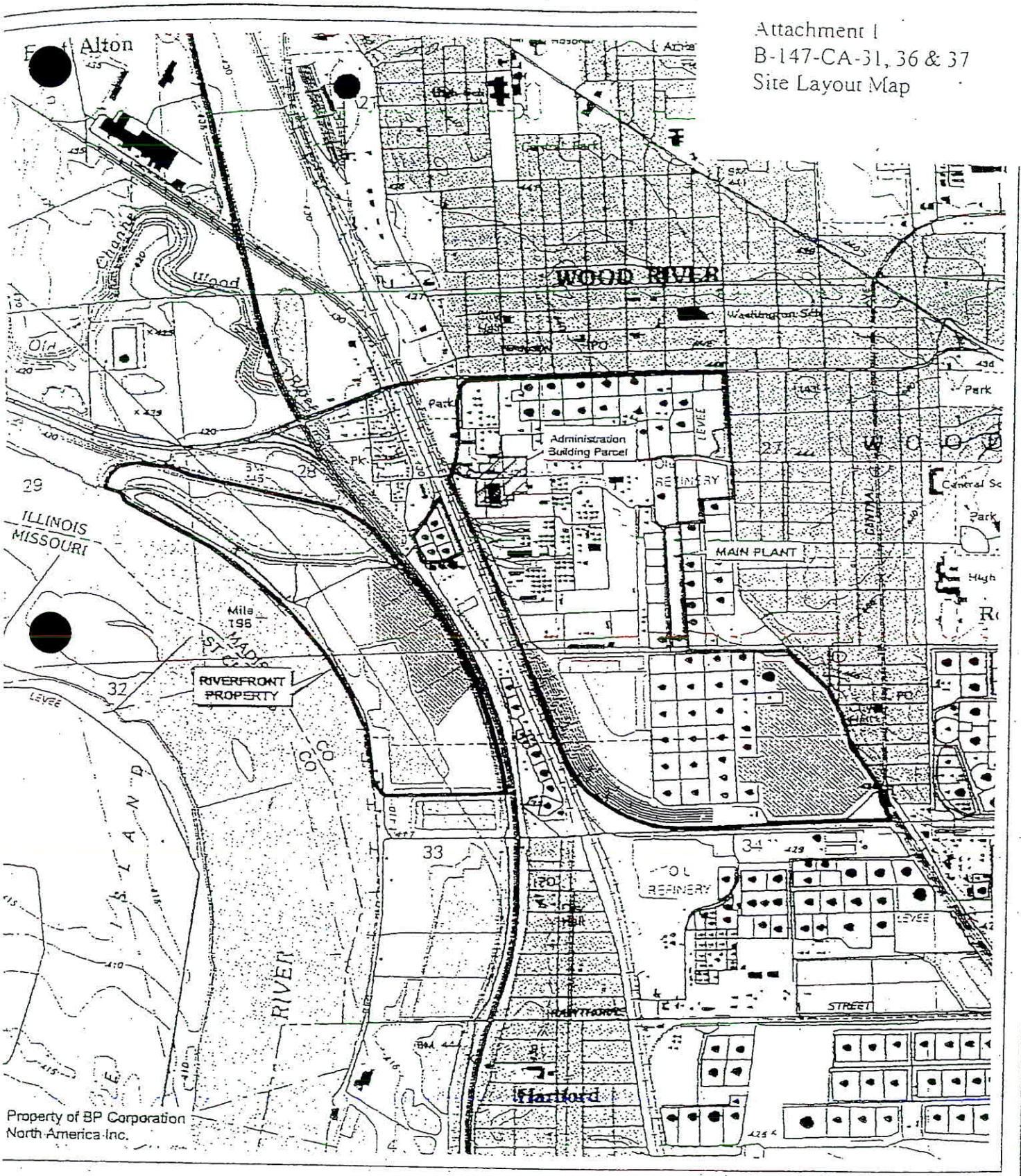
Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\03511s.doc

Attachments: 1. Site Layout Map
2. Legal Description of Area 15
3. Portions of Area 15 Requiring an Engineered Barrier

cc: Dennis Kasner, URS Corporation
Frederick Johnson, URS Corporation

Attachment 1
B-147-CA-31, 36 & 37
Site Layout Map



Legend

- BP Progerty
- Administration Building Parcel (Area 15)

Source: U.S.G.S. 7.5 Minute Series

1000 0 1000 Feet

Scale

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

CMT 50 years of service

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
707 NORTH MAIN STREET
P.O. BOX 597
EDWARDSVILLE, ILLINOIS 62025
(618) 656-0470 FAX (618) 656-0922

Attachment 2
B-147-CA-31, 36 & 37
Legal Description of Area 15

Description For
URS Corporation

Area 15
11.73 Acre Tract

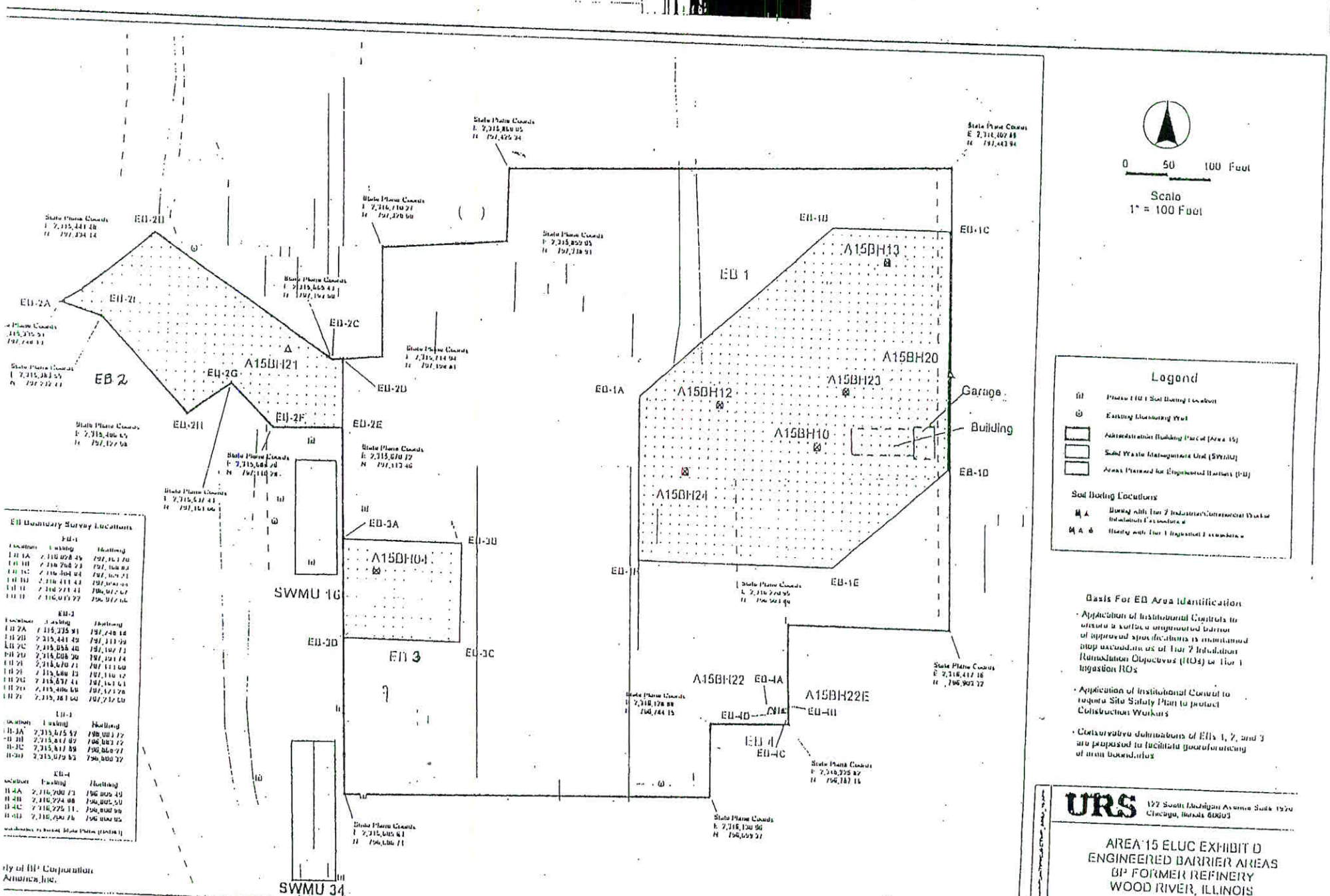
August 21, 2002

Part of Section 28, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Section 28; thence South 89 degrees 38 minutes 16 seconds West, along the south line of said Section 28, a distance of 505.47 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1)North 21 degrees 37 minutes 36 seconds West a distance of 1496.26 feet, (2)South 88 degrees 38 minutes 39 seconds West a distance of 26.65 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 1397.11 feet to the existing southeasterly right of way line of Alton-St. Louis Road (60 feet wide); thence North 49 degrees 41 minutes 05 seconds East, along said existing right of way line, a distance of 82.55 feet to the POINT OF BEGINNING; thence North 49 degrees 41 minutes 05 seconds East, continuing along said right of way line, a distance of 138.11 feet; thence South 56 degrees 35 minutes 11 seconds East a distance of 267.57 feet; thence North 84 degrees 24 minutes 57 seconds East a distance of 59.79 feet; thence North 2 degrees 05 minutes 12 seconds West a distance of 128.27 feet; thence North 85 degrees 25 minutes 10 seconds East a distance of 149.26 feet; thence North a distance of 86.43 feet; thence North 88 degrees 02 minutes 30 seconds East a distance of 544.16 feet; thence South 1 degree 32 minutes 36 seconds East a distance of 540.81 feet; thence North 89 degrees 54 minutes 02 seconds West a distance of 196.51 feet; thence South 2 degrees 23 minutes 35 seconds East a distance of 116.61 feet; thence South 88 degrees 13 minutes 39 seconds West a distance of 96.99 feet; thence South 1 degree 24 minutes 27 seconds East a distance of 84.80 feet; thence South 88 degrees 22 minutes 16 seconds West a distance of 445.52 feet; thence North 2 degrees 00 minutes 01 second West a distance of 427.01 feet; thence South 87 degrees 46 minutes 10 seconds West a distance of 81.52 feet; thence North 45 degrees 35 minutes 29 seconds West a distance of 72.57 feet; thence South 53 degrees 07 minutes 46 seconds West a distance of 63.47 feet; thence North 43 degrees 17 minutes 19 seconds West a distance of 150.36 feet; thence North 71 degrees 54 minutes 11 seconds West a distance of 59.71 feet to the point of beginning, containing 11.73 acres (510,804 sq.ft.)

SUBJECT TO covenants, conditions, restrictions, and easements of record.

Attachment 3
B-147-CA-31, 36 & 37
Portions of Area 15 Requiring an Engineered Barrier



R001111

PIN NO. 19-1-08-28-00-000-010.001

Supplementary Exhibit

Letter approving the completion of Condition 7 of the Area 15 NFA

1191150001 – Madison County

BP Products North America Inc. – Wood River Refinery

ILD980700967

Log No. B-147-CA-42

RCRA Permit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

June 16, 2004

Certified Mail
7002 3150 0000 1228 6708

Mr. Greg Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Area 15

Re: 1191150001 -- Madison County
BP Products North America, Inc/Main Plant
ILD980700967
Log No. B-147-CA-42
Received: April 30, 2004
RCRA Permit

Dear Mr. Jevyak:

This is in response to an April 27, 2004 letter report submitted on your behalf by Mr. Ryan P. Hartley, P.E., and Frederick W. Johnson, P.E. of URS regarding certain activities performed within a parcel referred to as "Area 15" at the above-referenced facility (a drawing showing the location of Area 15 within the facility is attached). The subject facility is carrying out a corrective action program in accordance with Sections IV and VII of its RCRA permit (Log No. B-147 and associated modifications). Illinois EPA issued a No Further Action (NFA) letter for Area 15, subject to several conditions, on November 19, 2003 (Log No. B-147-CA-31, 36 and 37).

Condition 7 of Illinois EPA's November 19, 2003 No Further Action letter for Area 15 required that soil containing high lead levels (greater than 5 mg/l TCLP lead) detected in the vicinity of sample location A15BH22 be addressed by removal/off-site disposal of contaminated soil followed by collection of soil verification samples. The subject submittal describes the soil removal activities required by Condition 7 of the November 19, 2003 letter. The completed activities included: (1) soil excavation and off-site disposal; and (2) collection of soil confirmation samples.

The subject submittal is hereby approved as a modification to the RCRA corrective action program required by the RCRA permit for the above-referenced facility, subject to the following conditions and modifications:

1. It appears that contaminated soil containing high lead levels present in the vicinity of sample location A15BH22 within Area 15 has been adequately removed. As required by the NFA letter, an engineered barrier must be maintained over the contaminated soil present in the vicinity of sample location A15BH22.

2. The facility must continue to comply with the requirements of the November 19, 2003 NFA letter for Area 15. A draft institutional control as required by Condition 6 of the November 19, 2003 letter must be submitted for Illinois EPA's review and approval. This institutional control must contain the following restrictions (required by Conditions 1 through 5 of the November 19, 2003 NFA letter): (1) maintenance of engineered barriers over four areas; (2) implementation of a health and safety plan during any excavation/construction work; (3) proper management of any soil removed during construction activities; and (4) industrial/commercial use for Area 15.

3. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724.201, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Munib Ahmad, P.E., at 217/524-3300.

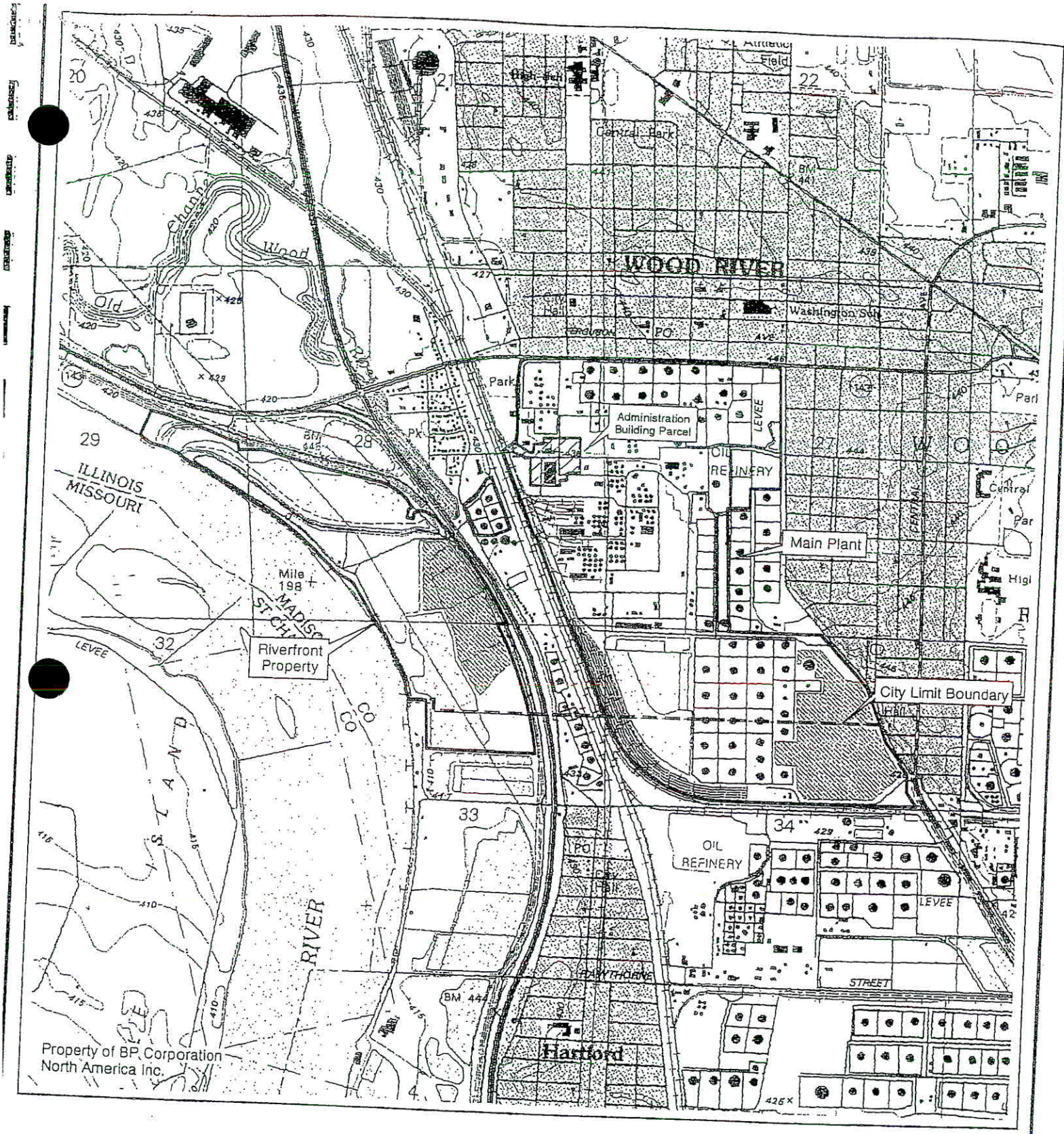
Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\042113s.doc
JLM

Attachment: Site Map

cc: Ryan P. Hartley, URS
Frederick W. Johnson, URS



Legend

- Boundary Between Wood River and Hartford
- BP Property
- Administration Building Parcel (Area 15)

1,000 500 0 1,000
Feet

1 inch equals 2,000 feet

Source: USGS 7.5 Minutes Series
Topographic Map
Wood River, ILL.-MO., 1994.

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TABLES_LIBRARY\DP\WOOD_RIVER\DP_USGSTOPO_AREA15.PDF

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River

County: Madison

Site No. (IEPA): 1191150001

Site No. (USEPA): ILD980700967

2.0 OWNER INFORMATION

Name: BP Products North America Inc.

Mailing Address: 301 Evans Avenue

P.O. Box 167

Wood River, Illinois 62095

Contact Name: Greg Jevyak

Contact Title: Environmental Business Manager

Phone No.: (618) 254-9866

3.0 OPERATOR INFORMATION

BP Products North America Inc.

301 Evans Avenue

P.O. Box 167

Wood River, Illinois 62095

Greg Jevyak

Environmental Business Manager

(618) 254-9866

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

☐ RFI Phase I Workplan/Report
☐ RFI Phase II Workplan/Report
☐ CMP Report; Phase _____
☒ Other (describe):
Area 15 Environmental Land Use Control
Date of Submittal July 2004

IEPA Permit Log No. B-147
Date of Last IEPA Letter on Project June 16, 2004
Log No. of Last IEPA Letter on Project B-147-CA-42
Does this submittal include groundwater information: ☒ Yes ☐ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

Area 15 Environmental Land Use Control

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

Area 15 Environmental Land Use Control, July 2004

7.0 CERTIFICATION STATEMENT - *(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below).*

The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

IEPA RCRA Corrective Action Certification
For: Area 15
Date of Submission: July 2004

7.1 **OWNER/OPERATOR CERTIFICATION** (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ 7-6-04 (Date)

Title: Environmental Business Manager

Operator Signature: _____ 7-6-04 (Date)

Title: Environmental Business Manager

7.2 **PROFESSIONAL CERTIFICATION** *(if necessary)* - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: _____ 7-01-04 Date:

Professional's Name: Frederick W. Johnson

Professional's Address: 122 S. Michigan Avenue
Suite 1920
Chicago, Illinois 60603

Professional's Phone No.: (312) 697-7200

Professional's Seal:

FREDERICK W. JOHNSON
062 - 042444
REGISTERED PROFESSIONAL ENGINEER OF ILLINOIS

Expires 11-30-05

7.3 **LABORATORY CERTIFICATION** *(if necessary)* - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory _____

Signature of Laboratory Responsible Officer _____ Date

Mailing Address of Laboratory

Name and Title of Laboratory Responsible Officer

JM:bjh\RCRA-CORRECTIVE-ACTION-CERTIFICATION-FORM

END OF DOCUMENT

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, DANIEL R. DONOHOO, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain ENVIRONMENTAL LAND USE CONTROL is a true and correct photocopy of said ENVIRONMENTAL LAND USE CONTROL from BP PRODUCTS NORTH AMERICA, INC. & ILLINOIS ENVIRONMENTAL PROTECTION AGENCY TO: NOTICE OF ENVIRONMENTAL DISCLOSURE including the Certificate of Acknowledgment bearing date the 24TH day of SEPTEMBER A.D. 2004 as the same appears in the records of my office in Document # 2004R59615 recorded on the 1ST day of OCTOBER A.D. 2004.

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 4TH day of OCTOBER, A.D. 2004.

RECORDER MADISON COUNTY, ILLINOIS

Daniel R. Donohoo

DANIEL R. DONOHOO
RECORDER
in and for
MADISON COUNTY, ILLINOIS

1

©1998 GOES 34605
All Rights Reserved

LITHO. IN U.S.A.

R001119

Atlantic Richfield Company

Greg Jevyak
Environmental Business Manager

301 Evans Avenue
P.O. Box 167
Wood River, IL 62095-0167
Phone: (618) 254-9866
Fax: (618) 254-8718
jevyakgs@bp.com

July 29, 2005

Ms. Joyce L. Munie, P.E.
Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Springfield, Illinois 62702

Subject: 1191150001 – Madison County
BP Products North America Inc., Former Wood River Refinery Main Plant
ILD980700967
Log No. B-147-CA-47

Dear Ms. Munie:

Enclosed on behalf of BP Products North America Inc. (BP) are three (3) copies of the Environmental Land Use Control (ELUC) as recorded by Madison County for Area 4 (Parcel Index Numbers 19-1-08-28-00-000-010; 19-1-08-33-00-000-013; 19-1-08-34-00-000-001; and 19-1-08-34-00-000-001.001) at the BP former Wood River Refinery Main Plant.

Please note the original Recorder's Certificate of Photocopy (Certificate) is the final page of the copies. This Certificate certifies that the document attached to it is a true and correct photocopy of the filed document. The Certificate also confirms that conditions outlined in paragraph #5 and #6 of the June 1, 2005 Illinois EPA letter approving the ELUC have been satisfied.

If you have any questions, please contact Janice McLain of BP at 312-856-4138 or me at 618-254-9866.

Sincerely,

Ryan Hartley FOR

Greg S. Jevyak
Environmental Business Manager

Enclosure

cc: Ryan Hartley, URS
Janice McLain, BP

R001121

2005R38583

STATE OF ILLINOIS
MADISON COUNTY
FILED FOR RECORD IN
THE RECORDERS OFFICE

07/13/2005 03:57PM

DANIEL R. DONOHOO
RECORDER

REC FEE: 66.00
PAGES: 52

PREPARED BY:

Name: Greg S. Jevyak
Environmental Business Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

RETURN TO:

Name; Greg S. Jevyak
Environmental Business Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

$66.00 CASH

THE ABOVE SPACE FOR RECORDER'S OFFICE

ENVIRONMENTAL LAND USE CONTROL FOR FORMER RAIL YARD AREA (AREA 4)

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 11th day of July, 2005 by BP Products North America Inc. f/k/a Amoco Oil Company, a Maryland corporation, ("Property Owner"), Property Owner of the real property located at 301 Evans Avenue, Wood River, Illinois.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained on August 22, 2003 and is attached hereto as Exhibit A. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against exposure to contaminated soil or groundwater or both that may be present on the property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure of the site, identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit B attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibit C are site maps and a table that show the legal boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of movement of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742.

Section Two. Property Owner represents and warrants it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property shall be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by a site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soils excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if the soils are contaminated. This determination shall be made by visual inspection and by subjecting the soils to field screening tests for volatile organic compounds ("VOCs") and lead. Lead screening will be conducted at the Former Rail Yard Area (Area 4) due to previous exceedances in Area 4 of the hazardous lead limit and of the site-specific lead remediation objective (RO). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings > 100 units) of

VOCs in soil; or (3) the field screening test for lead detects a level > 300 mg/kg. The approved site specific RO for lead through laboratory analysis is 400 mg/kg. The conservative field screening action level for lead of 300 mg/kg was selected based on the precision of the field analysis as compared to laboratory analysis.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing. Soils exhibiting potential contamination based on a field screening test for lead will either be sampled for lead laboratory analysis, or considered contaminated.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific industrial/commercial ROs developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory results, may be reused as clean fill in other areas of the former BP Refinery Main Plant Facility that have not been investigated for redevelopment. A map of the Main Plant Facility is provided in Attachment 1 of Exhibit A. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off-site for disposal in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

f. Three areas of the Property, which are identified in Exhibit C (Figures C-2 and C-3), require an engineered barrier to restrict exposure to the soils beneath the barrier via ingestion by industrial/commercial workers. The engineered barriers will be constructed as part of redevelopment of the Property. These barriers must be properly maintained as engineered barriers to restrict exposure to the soils beneath the barriers. Prior to commencement of future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address possible worker exposure if future excavation and construction activities occur within the contaminated soil and associated perched groundwater. Any contaminated soil or perched groundwater removed, or excavated from, or disturbed at the areas

containing the engineered barriers must be handled in accordance with all applicable laws and regulations.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: 1) the IEPA determines there is no longer a need for the ELUC as an institutional control; 2) the IEPA, upon written request, issues a new no further action determination approving modification or removal of the limitation(s) or requirement(s); and 3) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

BP Products North America Inc.

By: Janice McLain

Printed: JANICE McLAIN

Its: Attorney

Date: 7-11-05

Attest: Sarah W. Pedersen

Printed: Sarah W. Pedersen

Its: Sr. Paralegal

Date: 7-11-05

STATE OF ILLINOIS)
) SS:
COUNTY OF COOK)

I, Debra L. Walls the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Janice McLain and Sarah Pedersen personally known to me to be the Attorney and Sr. Paralegal respectively, of **BP Products North America Inc. f/k/a Amoco Oil Company**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 11 day of July, 2005

Debra L. Walls
Notary Public

OFFICIAL SEAL
DEBRA L WALLS
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:09/08/09

PIN NOS. 19-1-08-28-00-000-010
19-1-08-33-00-000-013
19-1-08-34-00-000-001
19-1-08-34-00-000-001.001

Area 4 ELUC
Exhibit A

Copy of the NFA letter dated August 22, 2003 with attachments
1191150001 – Madison County
BP Products North America Inc. – Wood River Refinery
ILD980700967
Log Nos. B-147-CA-30
RCRA Permit

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

August 22, 2003

CERTIFIED MAIL
7002 3150 0000 1219 8124

Mr. Gregory S. Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

AREA 4 - NFA

RECEIVED AUG 2 5 2003

Re: 1191150001 -- Madison County
BP Products North America Inc./Main Plant
ILD980700967
Log No. B-147-CA-30
Received: October 7, 2002 and June 2, 2003
RCRA Permit

Dear Mr. Jevyak:

This is in response to a document entitled Area 4 Land Reuse Investigation Report and Closure Plan, dated October 4, 2002, which was prepared and submitted on your behalf by Mr. Dennis A. Kasner and Frederick W. Johnson, P.E., of URS. An addendum to this submittal was submitted on May 30, 2003 that contained additional information requested by Illinois EPA. These submittals contained information regarding investigative activities performed as part of RCRA corrective action at an area referred to as "Area 4" at the above-referenced facility. Illinois EPA had previously approved to conduct these activities for all recognized environmental conditions in Area 4 on January 10, 2002 (Log No. B147-CA-17). Minor modifications to this plan were approved by Illinois EPA on September 5, 2002. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

Area 4 has been divided into three subareas referred to as "the Rail Yard Subarea", "the Overflow Basin Subarea", and "the SWMU 13 Subarea". A site layout map showing the location of Area 4 within the facility and the location of the three subareas within Area 4 are provided as Attachments 1 and 2, respectively. A legal description of Area 4 parcel is provided in Attachment 3.

Based on a review of the information, Illinois EPA has determined that no further action is necessary for Area 4 provided the requirements set forth in Conditions 1 through 8, 10 and 11 are met:

1. Soils within three areas within the Overflow Basin Subarea and the SWMU 13 Subarea require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier.

   a. The boundaries of the engineered barriers proposed for the Overflow Basin Subarea and SWMU 13 Subarea within Area 4 are depicted in Attachments 4 and 5, respectively.

   b. The engineered barrier in these areas must meet the requirements of Illinois EPA's August 3, 2001 letter.

   c. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these areas, and proper management of any soil removed from beneath the engineered barrier.

   d. Plans/reports depicting construction of the required engineered barriers must be submitted along with the draft institutional control required by Condition 6 below.

2. Any excavation and subsurface construction work within Area 4 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 4 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 4 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

(1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

(3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 4 must remain industrial/commercial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5 and 10 will be met in the future. A draft institutional control to establish the required restrictions on the property must be submitted to Illinois EPA for review and approval.

7. High lead levels (above 1.5 mg/l TCLP) detected in the vicinity of sample location A4BH53 in the Overflow Basin Subarea shall be addressed by removal/off-site disposal of contaminated soil followed by collection of verification samples. A report documenting the results of this soil removal effort must be submitted to Illinois EPA for review and approval along with the draft ELUC required by Condition 6 above.

8. Figure 6-2 of the subject submittal indicates that limit of the engineered barrier proposed for the Overflow Basin Subarea extends over the Overflow Basin. The facility must provide a detailed design of the proposed engineer barrier for the Overflow Basin Subarea including an explanation how an engineered barrier will be placed over the Overflow Basin.

9. At this time, the Illinois EPA can approve the exclusion of the groundwater ingestion exposure route from consideration, for perched groundwater only, in accordance with 35 Ill. Adm. Code 742.925.

10. The facility must now submit details associated with the institutional control required by Condition 6, to restrict the use of groundwater for the subject Area, to the Illinois EPA for

review and approval prior to completing the recording requirements found in 35 Ill. Adm. Code Part 742, Subpart J. Such institutional controls may include an ordinance restricting the use of groundwater for the City of Wood River. Once such an institutional control is approved for the subject Area, no further action will be required with respect to the groundwater, except as required by Condition 11 below.

11. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications.

12. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

13. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

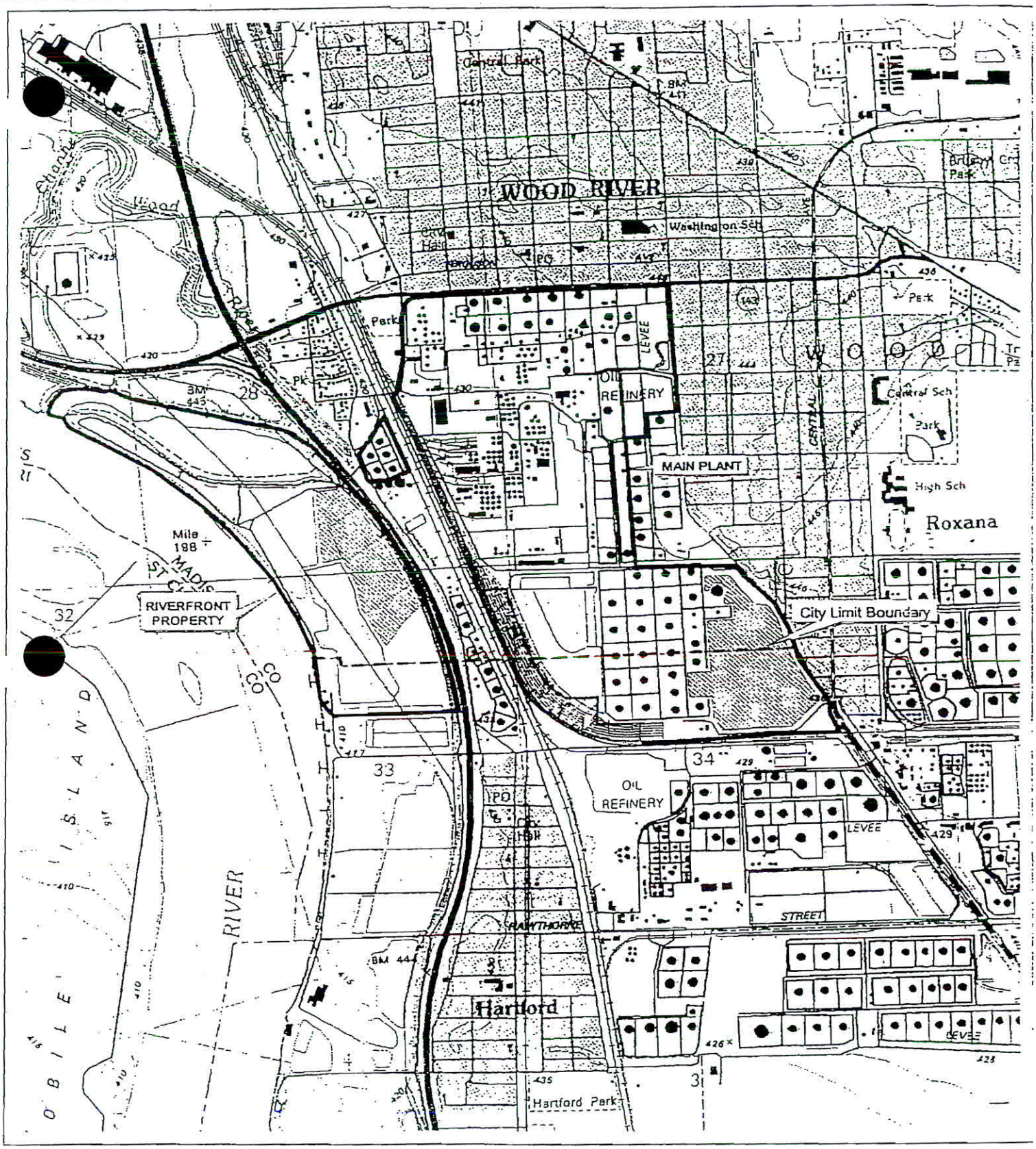
Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at 217/558-2150. Questions about any other aspects of this letter should be directed to Munib Ahmad, P.E., at 217/524-3263.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\031402s.doc

Attachments:
1. Topographic Map/Site Layout Map
2. Area 4 Site Map
3. Legal Description of Area 4
4. Portions of Overflow Basin Subarea Requiring an Engineered Barrier
5. Portions of SWMU 13 Subarea Requiring an Engineered Barrier
6. IEPA RCRA Corrective Action Certification Form



Legend

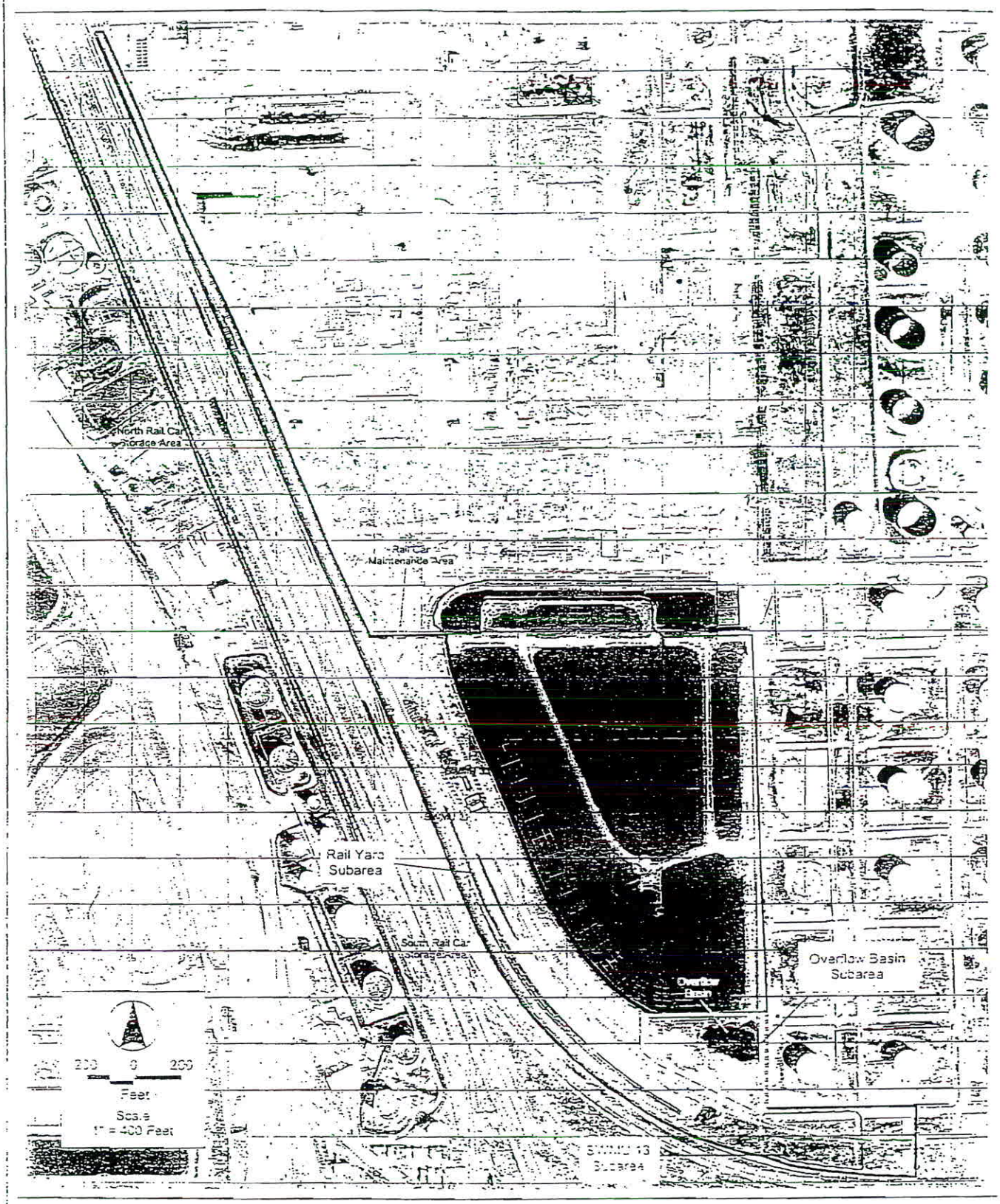
- Boundary Between Wood River and Hartford
- BP Property
- Rail Yard Area (Area 4)

1000 0 1000 Feet

Scale
1" = 2000 Feet

- Source: U.S.G.S. 7.5 Minute Series Topographic Map Wood River, ILL.-MO., 1994

Attachment 1
Topographic Map/Site Layout Map
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30



Legend

Attachment 2
Area 4 Site Map
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

Attachment 3
Legal Description of Area 4
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS
707 NORTH MAIN STREET
P.O. BOX 597
EDWARDSVILLE, ILLINOIS 62025
(618) 656-0470 FAX (618) 656-0922

Description For
URS Corporation

Area 4
29.44 Acre Tract

August 21, 2002

Part of Sections 28, 33, and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northeast corner of said Section 33; thence South 89 degrees 38 minutes 16 seconds West, along the north line of said Section 33, a distance of 467.91 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad, the POINT OF BEGINNING of the tract herein described; thence South 89 degrees 38 minutes 16 seconds West, continuing along the north line of said Section 33 and the existing right of way line of said Illinois Terminal Railroad, a distance of 37.56 feet; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1)North 21 degrees 37 minutes 36 seconds West a distance of 1496.26 feet, (2)South 88 degrees 38 minutes 39 seconds West a distance of 26.65 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 910.72 feet; thence North 68 degrees 22 minutes 24 seconds East a distance of 54.44 feet; thence South 22 degrees 47 minutes 50 seconds East a distance of 2805.23 feet; thence North 88 degrees 52 minutes 55 seconds East a distance of 322.34 feet; thence South 02 degrees 44 minutes 50 seconds West a distance of 101.28 feet to Point "A"; thence South 21 degrees 18 minutes 43 seconds East a distance of 958.52 feet; thence southeasterly 857.73 feet along a curve to the left, having a radius of 1475.56 feet, the chord of said curve bears South 36 degrees 37 minutes 56 seconds East 845.71 feet; thence North 88 degrees 10 minutes 13 East a distance of 487.08 feet; thence South 00 degrees 25 minutes 03 seconds East a distance of 411.69 feet; thence North 89 degrees 14 minutes 37 seconds East a distance of 614.23 feet; thence South 00 degrees 14 minutes 50 seconds West a distance of 308.09 feet to the existing northerly right of way line of Illinois Terminal Railroad; thence along the existing northerly and northeasterly right of way line for the following 3 courses: (1)South 89 degrees 47 minutes 17 seconds West a distance of 87.44 feet, (2)northwesterly 2286.36 feet along a curve to the right, having a radius of 1910.00 feet, the chord of said curve bears North 55 degrees 55 minutes 11 seconds West

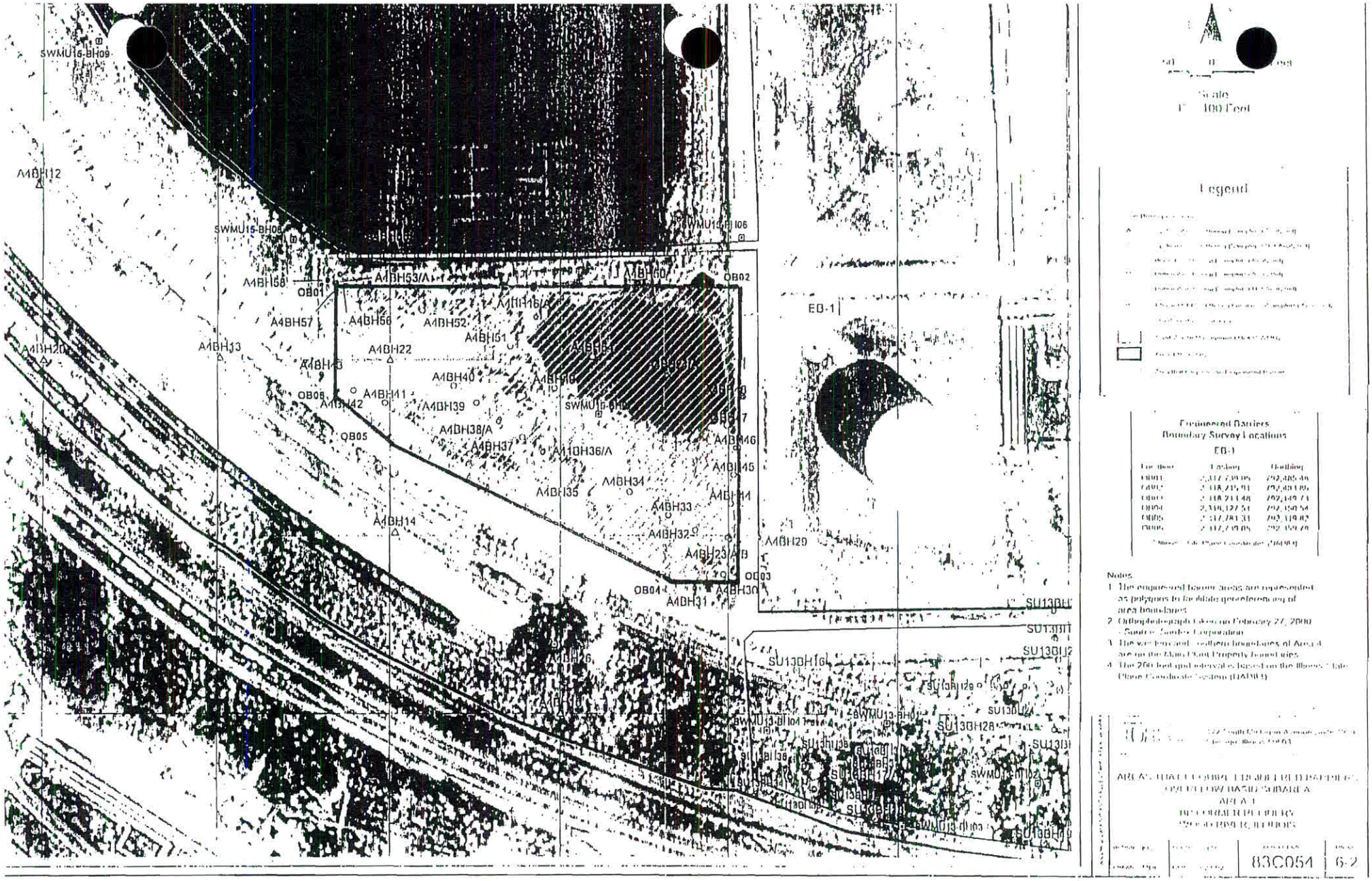
2152.28 feet, (3)North 21 degrees 37 minutes 36 seconds West a distance of 1598.81 feet to the point of beginning.

EXCEPT, part of Sections 33 and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at Point "A", as described above; thence South 21 degrees 18 minutes 43 seconds East a distance of 491.38 feet; thence South 73 degrees 19 minutes 36 seconds West a distance of 81.06 feet to the POINT OF BEGINNING of the exception herein described; thence South 23 degrees 19 minutes 21 seconds East a distance of 152.91 feet; thence South 60 degrees 46 minutes 50 seconds West a distance of 96.85 feet; thence North 30 degrees 21 minutes 05 seconds West a distance of 177.97 feet; thence North 73 degrees 19 minutes 36 seconds East a distance of 118.92 feet to the point of beginning.

The above described tract contains a total of 29.44 acres (1,282,202 sq.ft.)

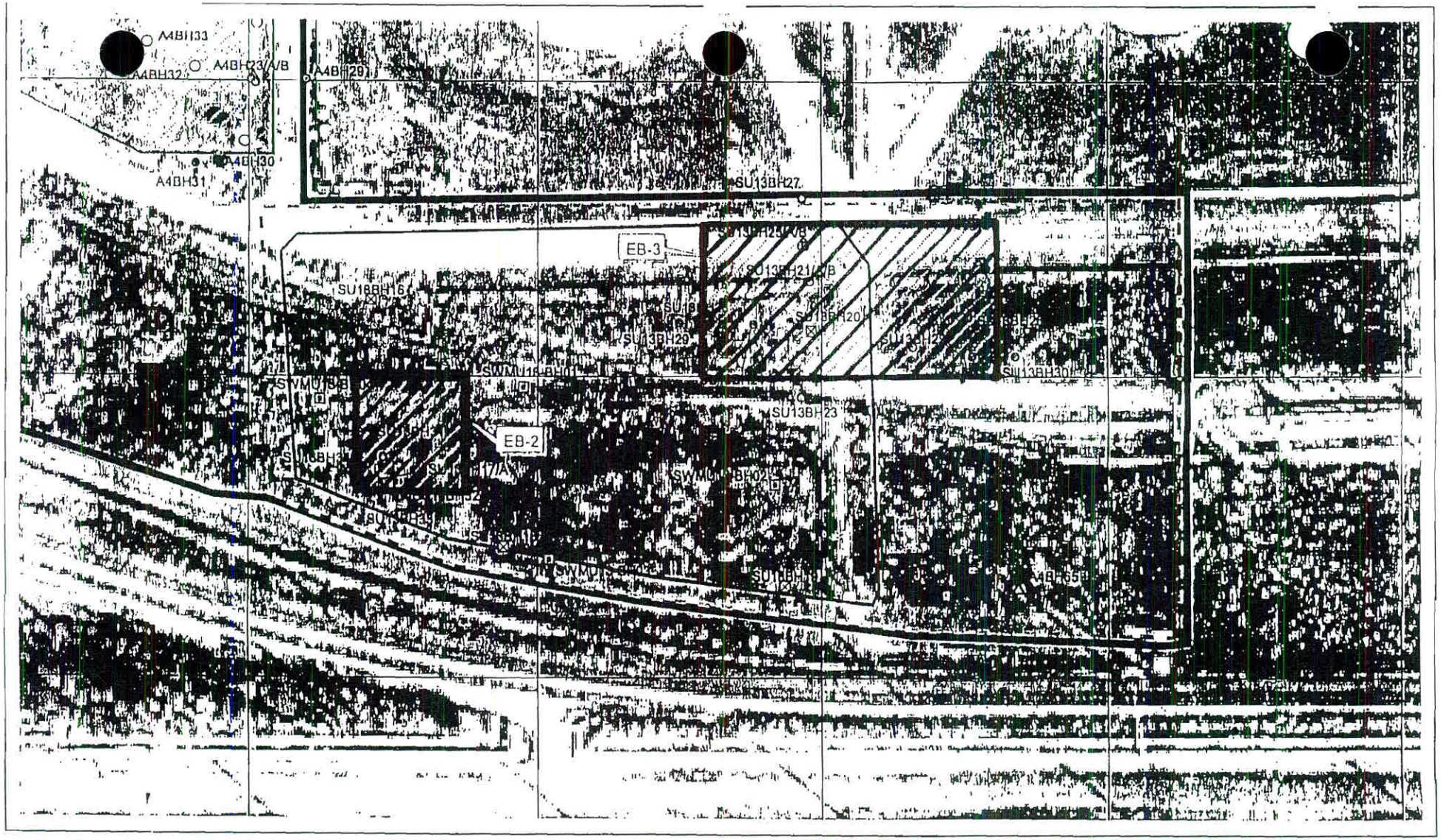
SUBJECT TO covenants, conditions, restrictions, and easements of record.



ILLEGIBLE WHEN PRESENTED

ILLEGIBLE WHEN PRESENTED

Attachment 4
Portions of Overflow Basin Subarea Requiring an Engineered Barrier
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30



Legend

Soil Boring Locations

- Systematic Soil Boring [Sample(s) Analyzed]
- Systematic Soil Boring [Sample(s) Not Analyzed]
- Biased Soil Boring [Sample(s) Analyzed]
- Delineation Boring [Sample(s) Analyzed]
- Delineation Boring [Sample(s) Not Analyzed]
- Phase III RFI Soil Boring Locations [Sample(s) Analyzed]
- Extent of Rail Tracks
- SWMU 13 Subarea
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary
- Areas Not Requiring Engineered Barrier

Engineered Barriers
Boundary Survey Locations

EB-2

Location	Easting	Northing
NW Corner	2,318,275.18	791,999.84
NE Corner	2,318,347.25	791,999.84
SE Corner	2,318,347.25	791,924.68
SW Corner	2,318,275.18	791,924.68

EB-3

Location	Easting	Northing
NW Corner	2,318,516.00	792,102.92
NE Corner	2,318,721.58	792,102.92
SE Corner	2,318,721.58	791,999.88
SW Corner	2,318,516.00	791,999.88

* Illinois State Plane Coordinates (NAD83)

50 0 50 Feet

Scale
1" = 100 Feet

Notes:
1. The proposed engineered barrier areas are represented as polygons to facilitate georeferencing of area boundaries.
2. Orthophotograph taken on February 27, 2000. - Source: Surdex Corporation.
3. The 200-foot grid interval is based on the Illinois State Plane Coordinate System (NAD83).

Attachment 5
Portions of SWMU 13 Subarea Requiring an Engineered Barrier
BP Amoco/Main Plant
Wood River, Illinois
Log No. B-75-CA-30

DESIGN: KC	CHKD: LV	PROJECT NO	FIG NO
DRAWN: MRC	DATE: 07/2002	83C054	6-3

R001137

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 FACILITY IDENTIFICATION

Name: _____ County: _____

Street Address: _____ Site No. (IEPA): _____

City: _____ Site No. (USEPA): _____

2.0 OWNER INFORMATION **3.0 OPERATOR INFORMATION**

Name: _____ _____

Mailing
Address: _____ _____

_____ _____

_____ _____

Contact Name: _____ _____

Contact Title: _____ _____

Phone No.: _____ _____

4.0 TYPE OF SUBMISSION (check applicable item and provide requested information, as applicable)

___ RFI Phase I Workplan/Report
___ RFI Phase II Workplan/Report
___ CMP Report; Phase _____
___ Other (describe): _____
_____
Date of Submittal _____

IEPA Permit Log No. _____
Date of Last IEPA Letter
on Project _____
Log No. of Last IEPA
Letter on Project _____
Does this submittal include groundwater information: _ Yes _ No

5.0 DESCRIPTION OF SUBMITTAL: (briefly describe what is being submitted and its purpose)

_____

_____

6.0 DOCUMENTS SUBMITTED (identify all documents in submittal, including cover letter; give dates of all documents)

_____

_____

7.0 CERTIFICATION STATEMENT - ***(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below).*** The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.1 **OWNER/OPERATOR CERTIFICATION** (Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice-president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ _____ (Date)

Title: _____

Operator Signature: _____ _____ (Date)

Title: _____

7.2 **PROFESSIONAL CERTIFICATION** *(if necessary)* - Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Professional's Signature: _____ _____ Date:

Professional's Name: _____ Professional's Seal:

Professional's Address: _____

_____

_____

Professional's Phone No.: _____

7.3 **LABORATORY CERTIFICATION** *(if necessary)* - The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

_____ _____
Name of Laboratory Signature of Laboratory Responsible Officer Date

Mailing Address of Laboratory

_____
Name and Title of Laboratory Responsible Officer

_____

_____

_____

PIN NOS. 19-1-08-28-00-000-010
19-1-08-33-00-000-013
19-1-08-34-00-000-001
19-1-08-34-00-000-001.001

Area 4 ELUC
Exhibit B

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

LEGAL DESCRIPTION AND
REAL ESTATE TAX INDEX OR PARCEL #
(PURSUANT TO 742. 1010(D)(2))

Part of Section 28, 33, and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northeast corner of said Section 33; thence South 89° 38' 16" West, along the north line of said Section 33, a distance of 467.91 feet to the existing northeasterly right of way line of the Illinois Terminal Railroad, the POINT OF BEGINNING of the tract herein described; thence South 89° 38' 16" West, continuing along the north line of said Section 33 and the existing right of way line of said Illinois Terminal Railroad, a distance of 37.56 feet; thence along the existing northeasterly right of way line of said Illinois Terminal Railroad for the following 3 courses: (1) North 21° 37' 36" West a distance of 1496.26 feet, (2) South 88° 38' 39" West a distance of 26.65 feet, (3) North 21° 37' 36" West a distance of 910.72 feet; thence North 68° 22' 24" East a distance of 54.44 feet; thence South 22° 47' 50" East a distance of 2805.23 feet; thence North 88° 52' 55" East a distance of 322.34 feet; thence South 02° 44' 50" West a distance of 101.28 feet to Point "A"; thence South 21° 18' 43" East a distance of 958.52 feet; thence southeasterly 857.73 feet along a curve to the left, having a radius of 1475.56 feet, the chord of said curve bears South 36° 37' 56" East 845.71 feet; thence North 88° 10' 13" East a distance of 487.08 feet; thence South 00° 25' 03" East a distance of 41.69 feet; thence North 89° 14' 37" East a distance of 614.23 feet; thence South 00° 14' 50" West a distance of 308.09 feet to the existing northerly right of way line of Illinois Terminal Railroad; thence along the existing northerly and northeasterly right of way line for the following 3 courses: (1) South 89° 47' 17" West a distance of 87.44 feet, (2) northwesterly 2286.36 feet along a curve to the right, having radius of 1910.00 feet, the chord of said curve bears North 55° 55' 11" West 2152.28 feet, (3) North 21° 37' 36" West a distance of 1598.81 feet to the point of beginning.

Except, part of Sections 33 and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at Point "A", as described above; thence South 21° 18' 43" East a distance of 491.38 feet; thence South 73° 19' 36" West a distance of 81.06 feet to the POINT OF BEGINNING of the exception herein described; thence South 23° 19' 21" East a distance of 152.91 feet; thence South 60° 46' 50" West a distance of 96.85 feet; thence North 30° 21' 05" West a distance of 177.97 feet; thence North 73° 19' 36" East a distance of 118.92 feet to the point of beginning.

The above described tract contains a total of 29.44 acres (1,282,202 sq. ft.)

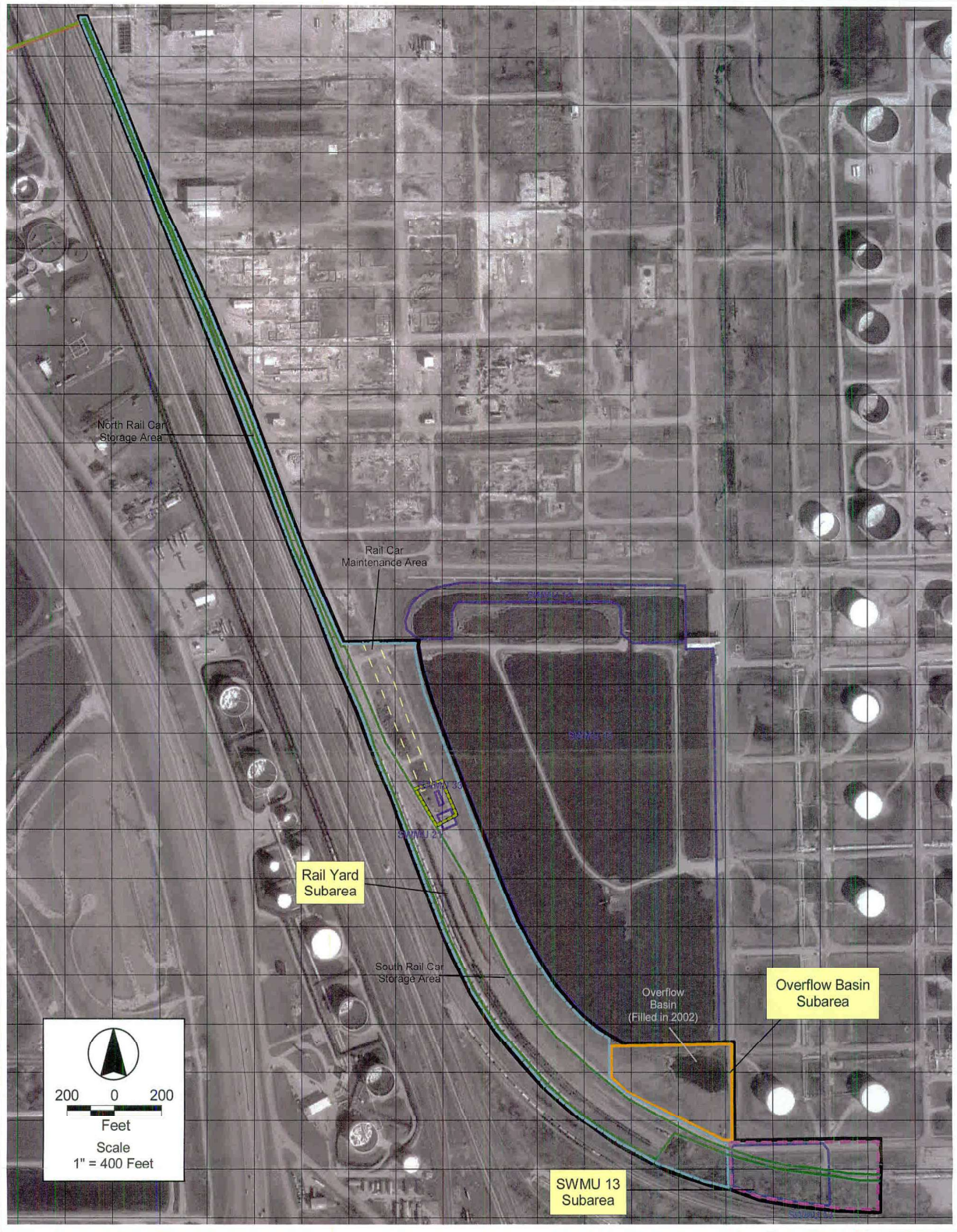
PIN NOS. 19-1-08-28-00-000-010
19-1-08-33-00-000-013
19-1-08-34-00-000-001
19-1-08-34-00-000-001.001

PIN NOS. 19-1-08-28-00-000-010
19-1-08-33-00-000-013
19-1-08-34-00-000-001
19-1-08-34-00-000-001.001

Area 4 ELUC
Exhibit C

Scaled Maps and tables showing:

A) The legal boundary of the Property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which the ELUC applies (e.g. engineered barriers, monitoring wells, caps)
D) The nature, location of the source, and direction of movement of the contaminants of concern.



Legend

- Rail Yard Subarea
- Overflow Basin Subarea
- SWMU 13 Subarea
- Extent of Rail Tracks
- Area 18 (South Flare Pit and Surrounding Area)
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary

SWMU Descriptions

SWMU 13 Former API Separator Sludge Landfarm
SWMU 14 North Cell of Spray Pond 1
SWMU 15 Spray Ponds
SWMU 21 Former APAC Waste Transfer Area
SWMU 33 South Flare Pit

Notes:
1. Orthophotograph taken on February 27, 2000.
   - Source: Surdex Corporation
2. The western and southern boundaries of Area 4 are on the Main Plant Property boundaries.
3. The 200-foot grid interval is based on the Illinois State Plane Coordinate System (NAD83).

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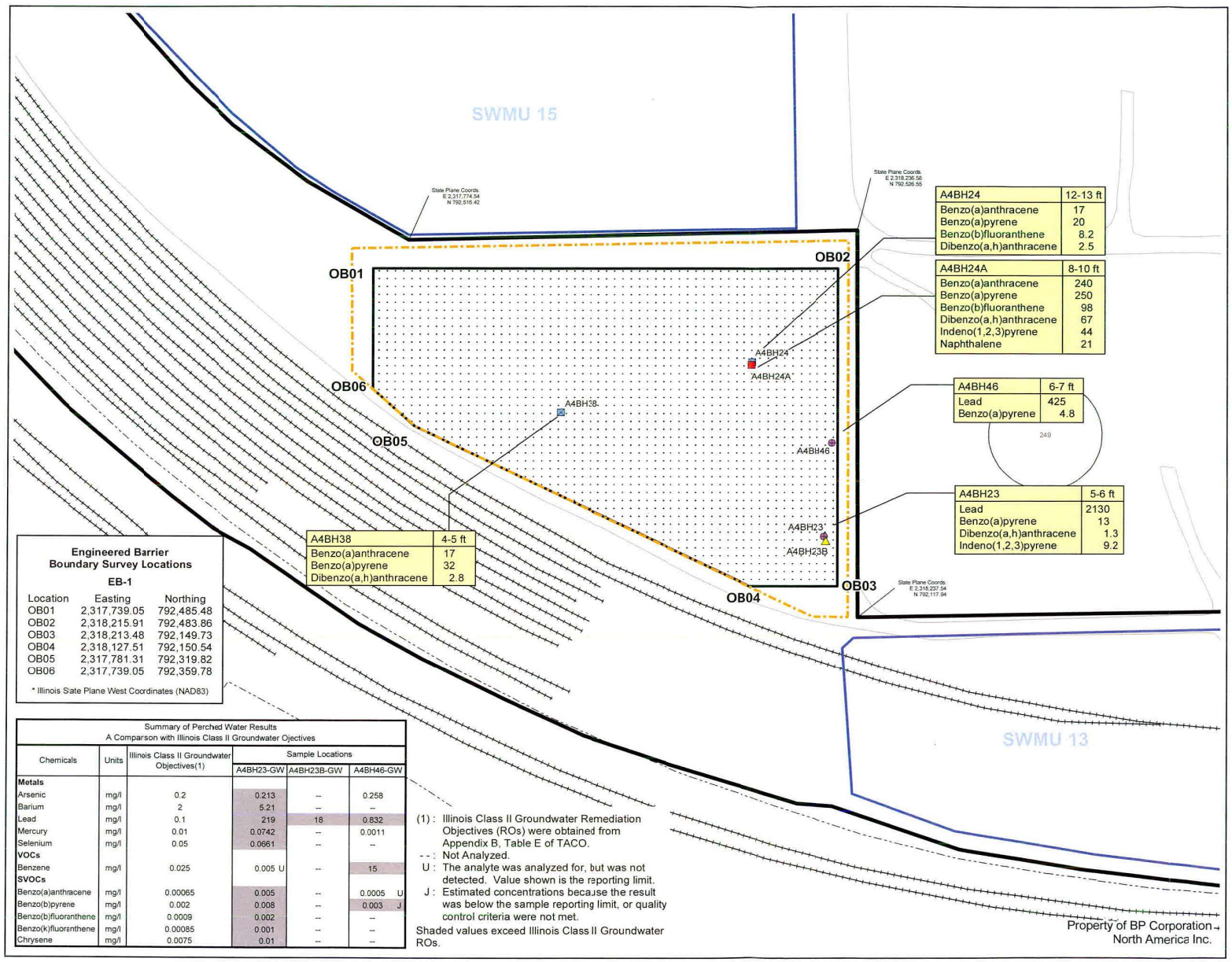
AREA 4 PROPERTY BOUNDARY
ELUC EXHIBIT C
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO.	FIG. NO.
DRAWN: MDC	DATE: 10/13/04	25365025	C-1

O:\DELIVERABLES_LIBRARY\BP\WOOD_RIVER\MAINPLANT AREA4\ELUC\RSC-1_PROPERTY_BOUNDARY.PDF



A4BH24	12-13 ft
Benzo(a)anthracene	17
Benzo(a)pyrene	20
Benzo(b)fluoranthene	8.2
Dibenzo(a,h)anthracene	2.5

A4BH24A	8-10 ft
Benzo(a)anthracene	240
Benzo(a)pyrene	250
Benzo(b)fluoranthene	98
Dibenzo(a,h)anthracene	67
Indeno(1,2,3)pyrene	44
Naphthalene	21

A4BH46	6-7 ft
Lead	425
Benzo(a)pyrene	4.8

A4BH23	5-6 ft
Lead	2130
Benzo(a)pyrene	13
Dibenzo(a,h)anthracene	1.3
Indeno(1,2,3)pyrene	9.2

A4BH38	4-5 ft
Benzo(a)anthracene	17
Benzo(a)pyrene	32
Dibenzo(a,h)anthracene	2.8

Engineered Barrier Boundary Survey Locations

EB-1

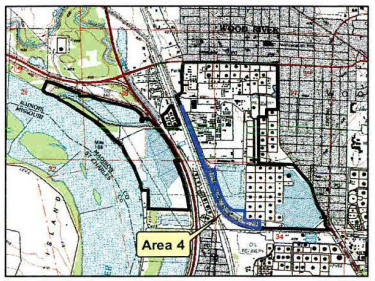
Location	Easting	Northing
OB01	2,317,739.05	792,485.48
OB02	2,318,215.91	792,483.86
OB03	2,318,213.48	792,149.73
OB04	2,318,127.51	792,150.54
OB05	2,317,781.31	792,319.82
OB06	2,317,739.05	792,359.78

* Illinois State Plane West Coordinates (NAD83)

Summary of Perched Water Results
A Comparson with Illinois Class II Groundwater Ojectives

Chemicals	Units	Illinois Class II Groundwater Objectives(1)	Sample Locations		
			A4BH23-GW	A4BH23B-GW	A4BH46-GW
Metals					
Arsenic	mg/l	0.2	0.213	--	0.258
Barium	mg/l	2	5.21	--	--
Lead	mg/l	0.1	219	18	0.832
Mercury	mg/l	0.01	0.0742	--	0.0011
Selenium	mg/l	0.05	0.0661	--	--
VOCs					
Benzene	mg/l	0.025	0.005 U	--	15
SVOCs					
Benzo(a)anthracene	mg/l	0.00065	0.005	--	0.0005 U
Benzo(b)pyrene	mg/l	0.002	0.008	--	0.003 J
Benzo(b)fluoranthene	mg/l	0.0009	0.002	--	--
Benzo(k)fluoranthene	mg/l	0.00065	0.001	--	--
Chrysene	mg/l	0.0075	0.01	--	--

(1) : Illinois Class II Groundwater Remediation Objectives (ROs) were obtained from Appendix B, Table E of TACO.
- - : Not Analyzed.
U : The analyte was analyzed for, but was not detected. Value shown is the reporting limit.
J : Estimated concentrations because the result was below the sample reporting limit, or quality control criteria were not met.
Shaded values exceed Illinois Class II Groundwater ROs.



50 25 0 50 100
Feet
1 inch equals 100 feet

Legend

- Boring with Tier 1 Soil Ingestion Exceedance
- Boring with Tier 1 Soil Ingestion and Tier 2 Soil Inhalation Exceedance
- Boring with Tier 1 Soil Ingestion and Class II Groundwater Exceedance
- Boring with Class II Groundwater Exceedance
- Overflow Basin Subarea
- Area of Engineered Barrier (EB-1)
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary

Soil Boring	Depth (ft)
Chemical	Concentration (mg/kg)

Basis for Institutional Controls
- An engineered barrier of approved specifications is required to be constructed and maintained in the Overflow Basin Subarea due to exceedances of TACO Tier 1 Ingestion Remediation Objectives (ROs) for Industrial/Commercial workers.
- A Health and Safety Plan is required to protect construction workers during excavation/construction activities due to: exceedances of Tier 1 Ingestion ROs; one exceedance of the Tier 2 Inhalation RO for naphthalene; and perched water exceedances of Class II groundwater ROs at two locations.

Notes:
1. All results are presented in mg/kg.
2. Naphthalene is the only constituent that exceeds a Tier 2 Inhalation RO and it exceeds only for Construction Workers.
3. No specific source areas were identified.
4. The occurence of perched water is sporadic and not vertically or laterally continuous; therefore, it is not possible to determine the extent of impacted perched water or direction of flow.
5. Figure is based on Attachment 4 of IEPA No Further Action letter, dated 8/22/03.

O:\DELIVERABLES_LIBRARY\WOOD_RIVER\MAINPLANT\AREA4\ELUC\FIG-2_OVERFLOW_ELICEB.PSF

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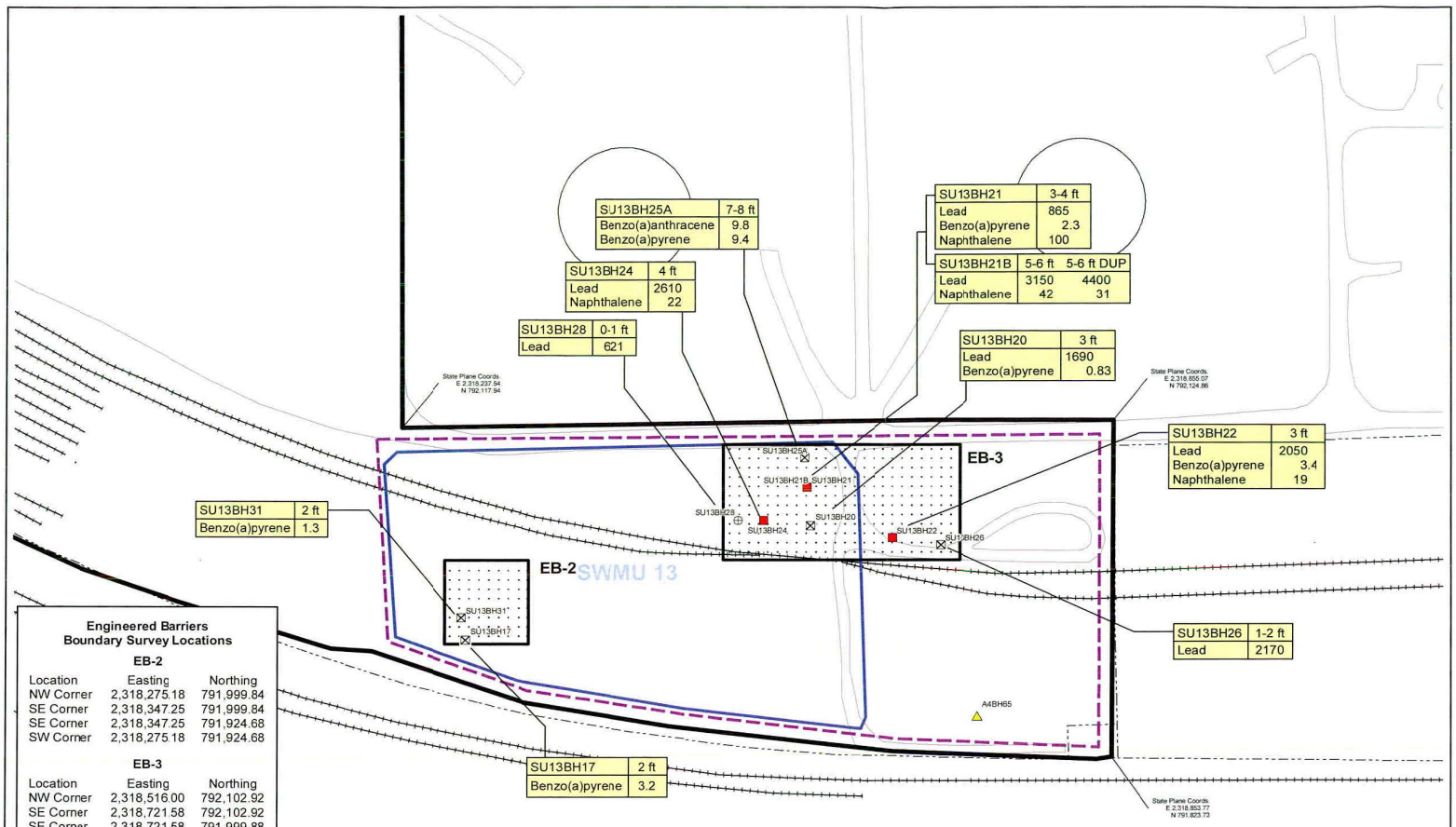
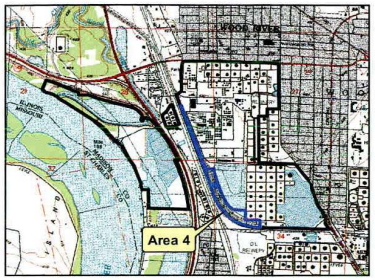
AREA 4 OVERFLOW BASIN SUBAREA
ELUC EXHIBIT C
INSTITUTIONAL CONTROL/ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO.	FIG NO.
DRAWN: MDC/KH	DATE: 10/13/04	25365025	C-2

O:_PROJECTS_(APR-MXD)\BP\WOOD_RIVER\MAINPLANT\AREA4\MP_AREA4_ELUC_BASIN.MXD

R001144





50 25 0 50 100
Feet
1 inch equals 100 feet

Legend

- Boring with Tier 1 Soil Ingestion Exceedance
- Boring with Tier 1 Soil Ingestion Exceedance and Tier 2 Soil Inhalation Exceedance
- Boring with Tier 1 Soil Ingestion and Class II Groundwater Exceedance
- Boring with Class II Groundwater Exceedance
- Overflow Basin Subarea
- Areas of Engineered Barriers
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary

Soil Boring	Depth (ft)
Chemical	Concentration (mg/kg)

Engineered Barriers
Boundary Survey Locations

EB-2

Location	Easting	Northing
NW Corner	2,318,275.18	791,999.84
SE Corner	2,318,347.25	791,999.84
SE Corner	2,318,347.25	791,924.68
SW Corner	2,318,275.18	791,924.68

EB-3

Location	Easting	Northing
NW Corner	2,318,516.00	792,102.92
SE Corner	2,318,721.58	792,102.92
SE Corner	2,318,721.58	791,999.88
SW Corner	2,318,516.00	791,999.88

* Illinois State Plane West Coordinates (NAD83)

Basis for Institutional Controls
- An engineered barrier of approved specifications is requirec to be constructed and maintained in the SWMU13 Subarea due to exceedances of TACO Tier 1 Ingestion Remediation Objectves (ROs) for Industrial/Commercial workers.
- A Health and Safety Plan is required to protect construction workers during excavation/construction activities due to: exceedances of Tier 1 Ingestion ROs; exceedances of the Tier 2 Inhalation RO for naphthalene for construction workers; and perched water exceedances of Class II groundwater ROs at two locations.

Notes:
1. All results are presented in mg/kg.
2. Naphthalene is the only constituent that exceeds a Tier 2 Inhalation RO and it exceeds only for Construction Workers.
3. No specific source areas were identified.
4. The occurence of perched water is sporadic and not vertically or laterally continuous; therefore, it is not possible to determine the extent of impacted perched water or direction of flow.
5. Figure is based on Attachment 5 of IEPA No Further Actios letter, dated 8/22/03.

Summary of Perched Water Results
A Comparison with Illinois Tier I Class II Groundwater Remediation Ojectives

Chemicals	Units	Illinois Class II Groundwater Objectives(1)	Sample Locations	
			SU13BH28-GW	A4BH65-GW
Metals				
Lead	mg/l	0.1	0.314	0.86
SVOCs				
Benzo(a)anthracene	mg/l	0.00065	--	0.0033 J
Benzo(b)pyrene	mg/l	0.002	--	0.0041 J
Benzo(b)fluo·anthene	mg/l	0.0009	--	0.0017 J
Benzo(k)fluo·anthene	mg/l	0.00085	--	0.0009 J
Dibenzo(a,h)anthracene	mg/l	0.0015	--	0.0016 J
Indeno (1,2,3-cd)pyrene	mg/l	0.00215	--	0.0025 J

(1) : Illinois Class II Groundwater Remediation Objectives (ROs) were obtained from Appendix B, Table E of TACO.
- - : Not Analyzed.
J : Estimated concentrations because the result was below the sample reporting limit, or quality control criteria were not met.
Shaded values exceed Illinois Class II Groundwater ROs.

Property of BP Corporation North America Inc.

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AREA 4 SWMU13 SUBAREA
ELUC EXHIBIT C
INSTITUTIONAL CONTROL/ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO. 25365025	FIG NO. C-3
DRAWN: MDC	DATE: 10/13/04		

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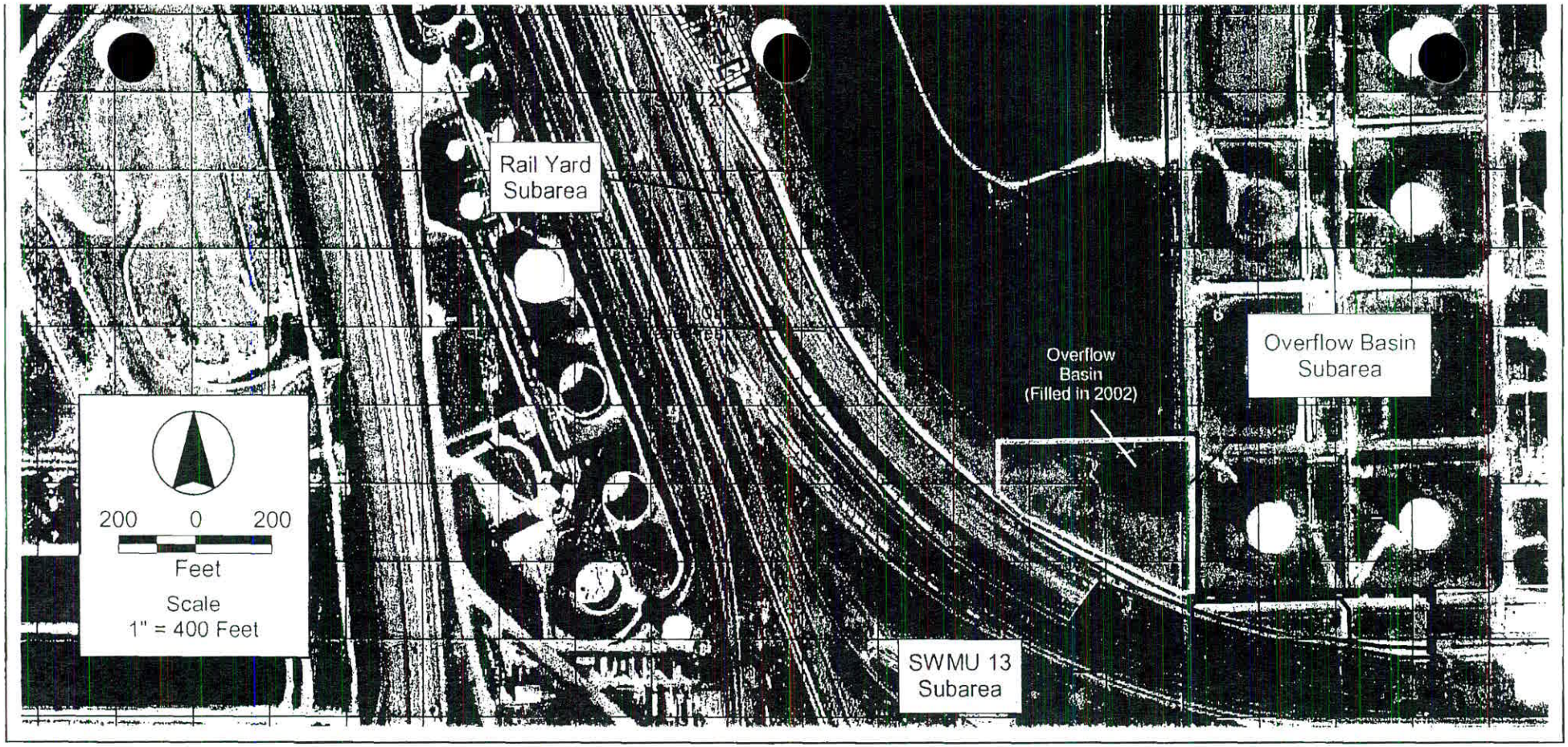
R001145



Legend

- Rail Yard Subarea
- Overflow Basin Subarea
- SWMU 13 Subarea
- Extent of Rail Tracks
- Area 18 (South Flare Pit and Surrounding Area)
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary

SWMU Descriptions

SWMU 13 Former API Separator Sludge Landfarm
SWMU 14 North Cell of Spray Pond 1
SWMU 15 Spray Ponds
SWMU 21 Former APAC Waste Transfer Area
SWMU 33 South Flare Pit

Notes:
1. Orthophotograph taken on February 27, 2000.
   - Source: Surdex Corporation
2. The western and southern boundaries of Area 4 are on the Main Plant Property boundaries.
3. The 200-foot grid interval is based on the Illinois State Plane Coordinate System (NAD83).

O:\DELIVERABLES_LIBRARY\BP\WOOD_RIVER\MAINPLANT AREA04\ELUC\FIGC-1_PROPERTY_BOUNDARY.PDF

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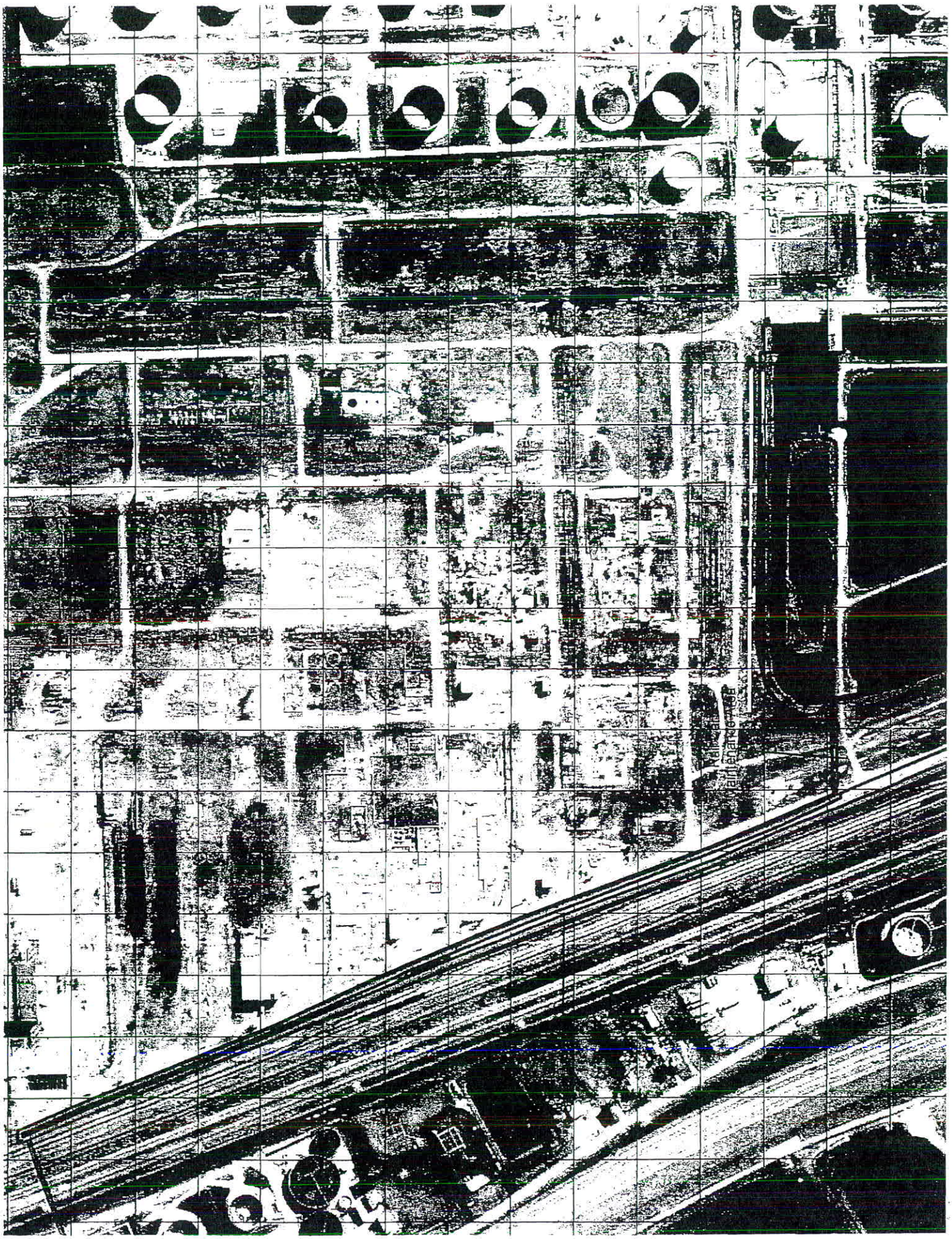
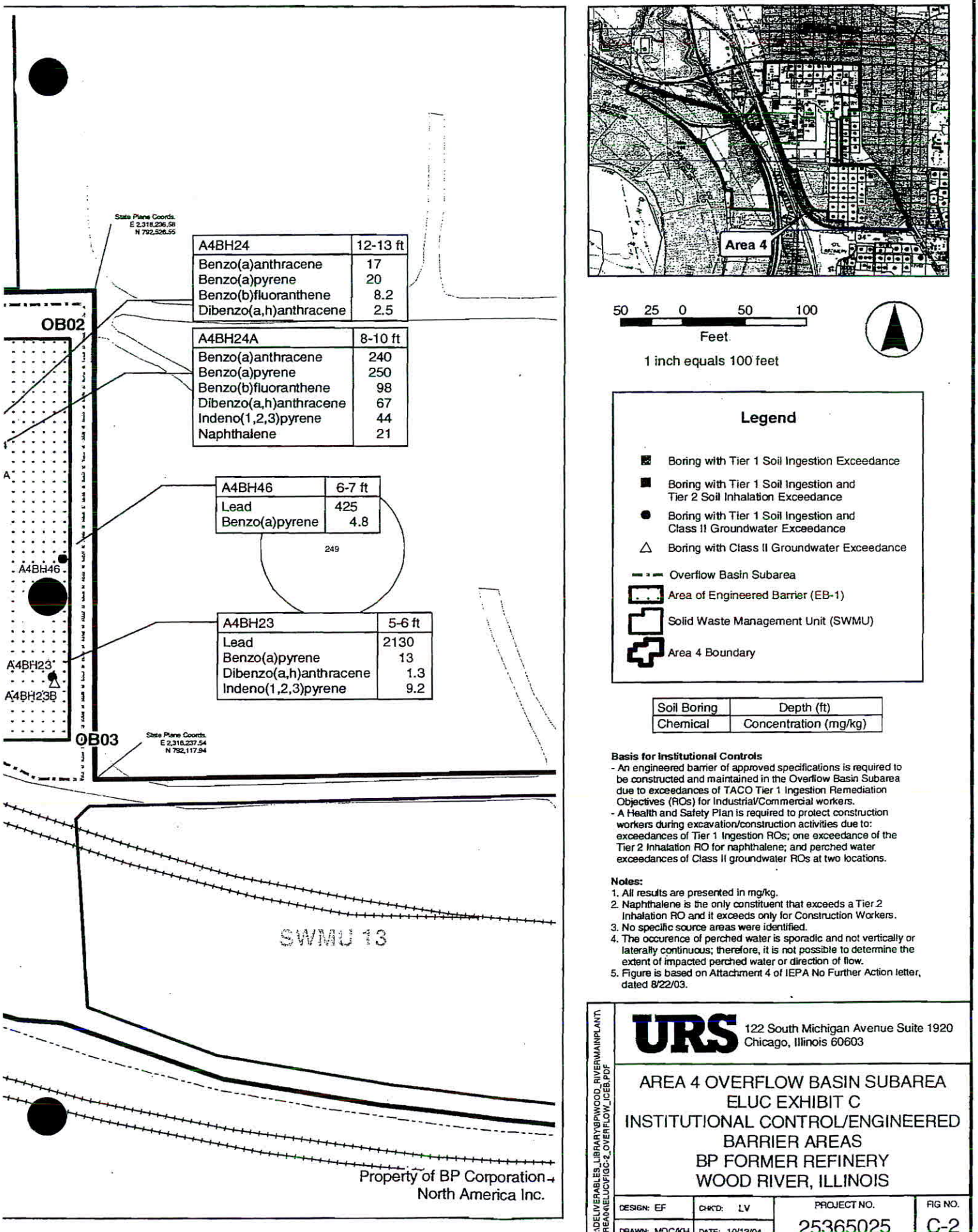
AREA 4 PROPERTY BOUNDARY
ELUC EXHIBIT C
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO.	FIG. NO.
DRAWN: MDC	DATE: 10/13/04	25365025	C-1

R001146





Basis for Institutional Controls

- An engineered barrier of approved specifications is required to be constructed and maintained in the Overflow Basin Subarea due to exceedances of TACO Tier 1 Ingestion Remediation Objectives (ROs) for Industrial/Commercial workers.
- A Health and Safety Plan is required to protect construction workers during excavation/construction activities due to: exceedances of Tier 1 Ingestion ROs; one exceedance of the Tier 2 Inhalation RO for naphthalene; and perched water exceedances of Class II groundwater ROs at two locations.

Notes:

1. All results are presented in mg/kg.
2. Naphthalene is the only constituent that exceeds a Tier 2 Inhalation RO and it exceeds only for Construction Workers.
3. No specific source areas were identified.
4. The occurence of perched water is sporadic and not vertically or laterally continuous; therefore, it is not possible to determine the extent of impacted perched water or direction of flow.
5. Figure is based on Attachment 4 of IEPA No Further Action letter, dated 8/22/03.

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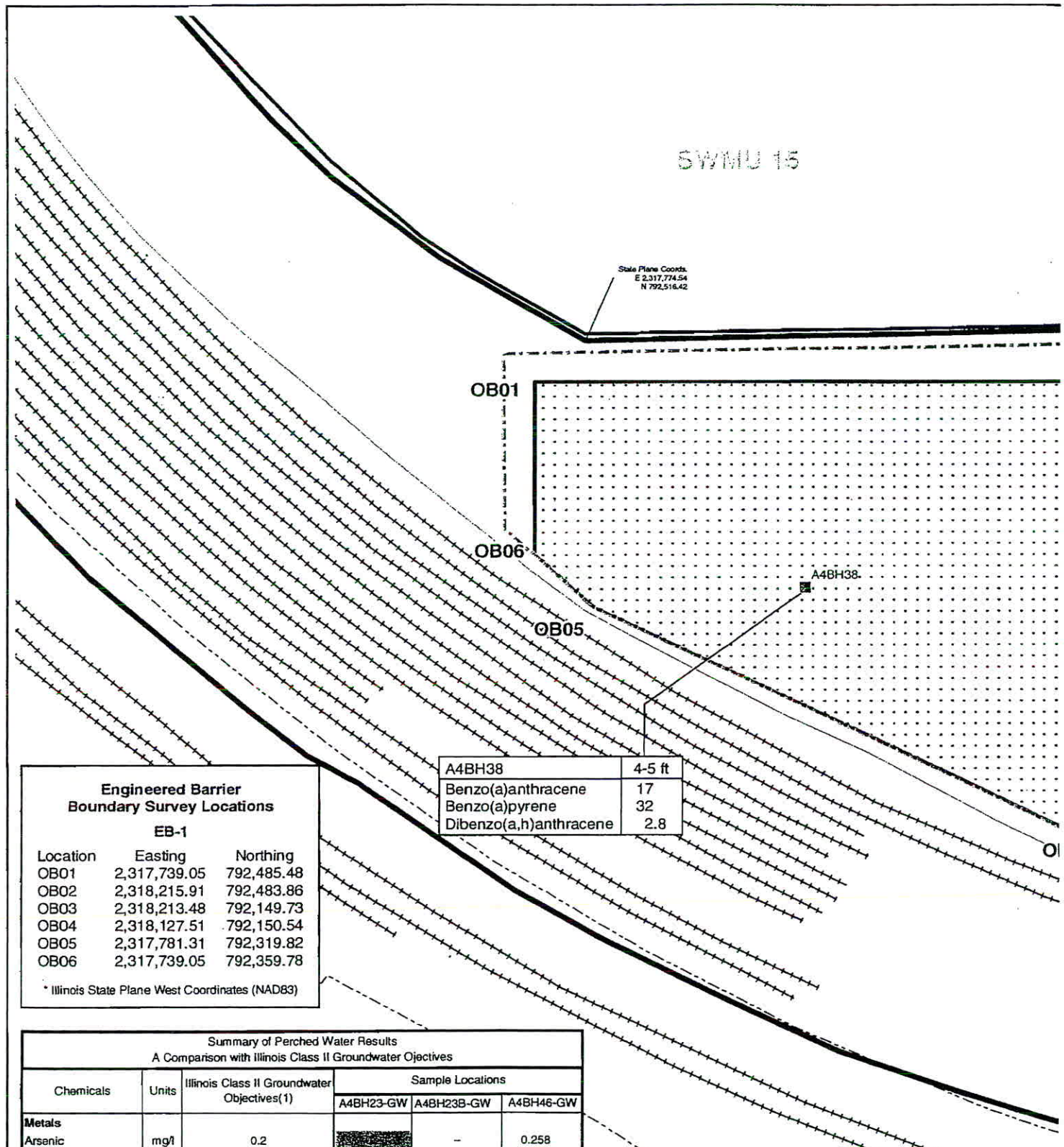
AREA 4 OVERFLOW BASIN SUBAREA ELUC EXHIBIT C INSTITUTIONAL CONTROL/ENGINEERED BARRIER AREAS BP FORMER REFINERY WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO.	FIG NO.
DRAWN: MDC/KH	DATE: 10/13/04	25365025	C-2

O:\DELIVERABLES_LIBRARY\BPWOOD_RIVERMAINPLANT\AREA4\ELUC\FIGC-2_OVERFLOW_ICEB.PDF



A4BH38	4-5 ft
Benzo(a)anthracene	17
Benzo(a)pyrene	32
Dibenzo(a,h)anthracene	2.8

Engineered Barrier Boundary Survey Locations

EB-1

Location	Easting	Northing
OB01	2,317,739.05	792,485.48
OB02	2,318,215.91	792,483.86
OB03	2,318,213.48	792,149.73
OB04	2,318,127.51	792,150.54
OB05	2,317,781.31	792,319.82
OB06	2,317,739.05	792,359.78

* Illinois State Plane West Coordinates (NAD83)

Summary of Perched Water Results
A Comparison with Illinois Class II Groundwater Ojectives

Chemicals	Units	Illinois Class II Groundwater Objectives(1)	Sample Locations		
			A4BH23-GW	A4BH23B-GW	A4BH46-GW
Metals					
Arsenic	mg/l	0.2		--	0.258
Barium	mg/l	2		--	--
Lead	mg/l	0.1			
Mercury	mg/l	0.01		--	0.0011
Selenium	mg/l	0.05		--	--
VOCs					
Benzene	mg/l	0.025	0.005 U	--	
SVOCs					
Benzo(a)anthracene	mg/l	0.00065		--	0.0005 U
Benzo(b)pyrene	mg/l	0.002		--	
Benzo(b)fluoranthene	mg/l	0.0009		--	--
Benzo(k)fluoranthene	mg/l	0.00085		--	--
Chrysene	mg/l	0.0075		--	--

(1) : Illinois Class II Groundwater Remediation Objectives (ROs) were obtained from Appendix B, Table E of TACO.

--: Not Analyzed.

U : The analyte was analyzed for, but was not detected. Value shown is the reporting limit.

J : Estimated concentrations because the result was below the sample reporting limit, or quality control criteria were not met.

Shaded values exceed Illinois Class II Groundwater ROs.

SU13BH21	3-4 ft
Lead	865
Benzo(a)pyrene	2.3
Naphthalene	100

SU13BH21B	5-6 ft	5-6 ft DUP
Lead	3150	4400
Naphthalene	42	31

SU13BH20	3 ft
Lead	1690
Benzo(a)pyrene	0.83

State Plane Coords.
E 2,318,855.07
N 792,124.86

SU13BH22	3 ft
Lead	2050
Benzo(a)pyrene	3.4
Naphthalene	19

EB-3

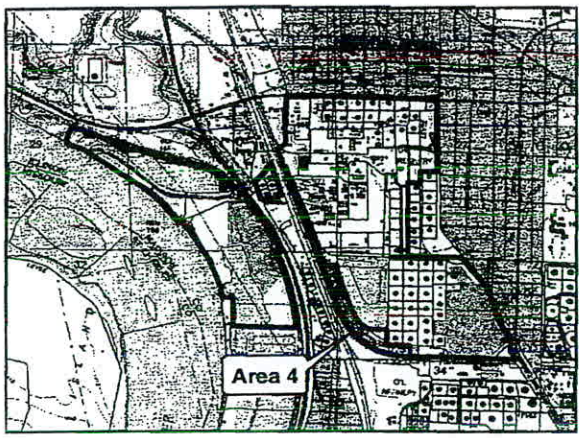
SU13BH26

SU13BH26	1-2 ft
Lead	2170

A4BH65

State Plane Coords.
E 2,318,853.77
N 791,822.73

Property of BP Corporation
North America Inc.



50 25 0 50 100
Feet
1 inch equals 100 feet

Legend

- Boring with Tier 1 Soil Ingestion Exceedance
- Boring with Tier 1 Soil Ingestion Exceedance and Tier 2 Soil Inhalation Exceedance
- Boring with Tier 1 Soil Ingestion and Class II Groundwater Exceedance
- Boring with Class II Groundwater Exceedance
- Overflow Basin Subarea
- Areas of Engineered Barriers
- Solid Waste Management Unit (SWMU)
- Area 4 Boundary

Soil Boring	Depth (ft)
Chemical	Concentration (mg/kg)

Basis for Institutional Controls

- An engineered barrier of approved specifications is required to be constructed and maintained in the SWMU13 Subarea due to exceedances of TACO Tier 1 Ingestion Remediation Objectives (ROs) for Industrial/Commercial workers.
- A Health and Safety Plan is required to protect construction workers during excavation/construction activities due to: exceedances of Tier 1 Ingestion ROs; exceedances of the Tier 2 Inhalation RO for naphthalene for construction workers; and perched water exceedances of Class II groundwater ROs at two locations.

Notes:

1. All results are presented in mg/kg.
2. Naphthalene is the only constituent that exceeds a Tier 2 Inhalation RO and it exceeds only for Construction Workers.
3. No specific source areas were identified.
4. The occurence of perched water is sporadic and not vertically or laterally continuous; therefore, it is not possible to determine the extent of impacted perched water or direction of flow.
5. Figure is based on Attachment 5 of IEPA No Further Action letter, dated 8/22/03.

O:\DELIVERABLES_LIBRARY\BPWOOD_RIVER\MAINPLANT\AREA4\ELUC\FIGC-3_SWMU13_ICEB.PDF

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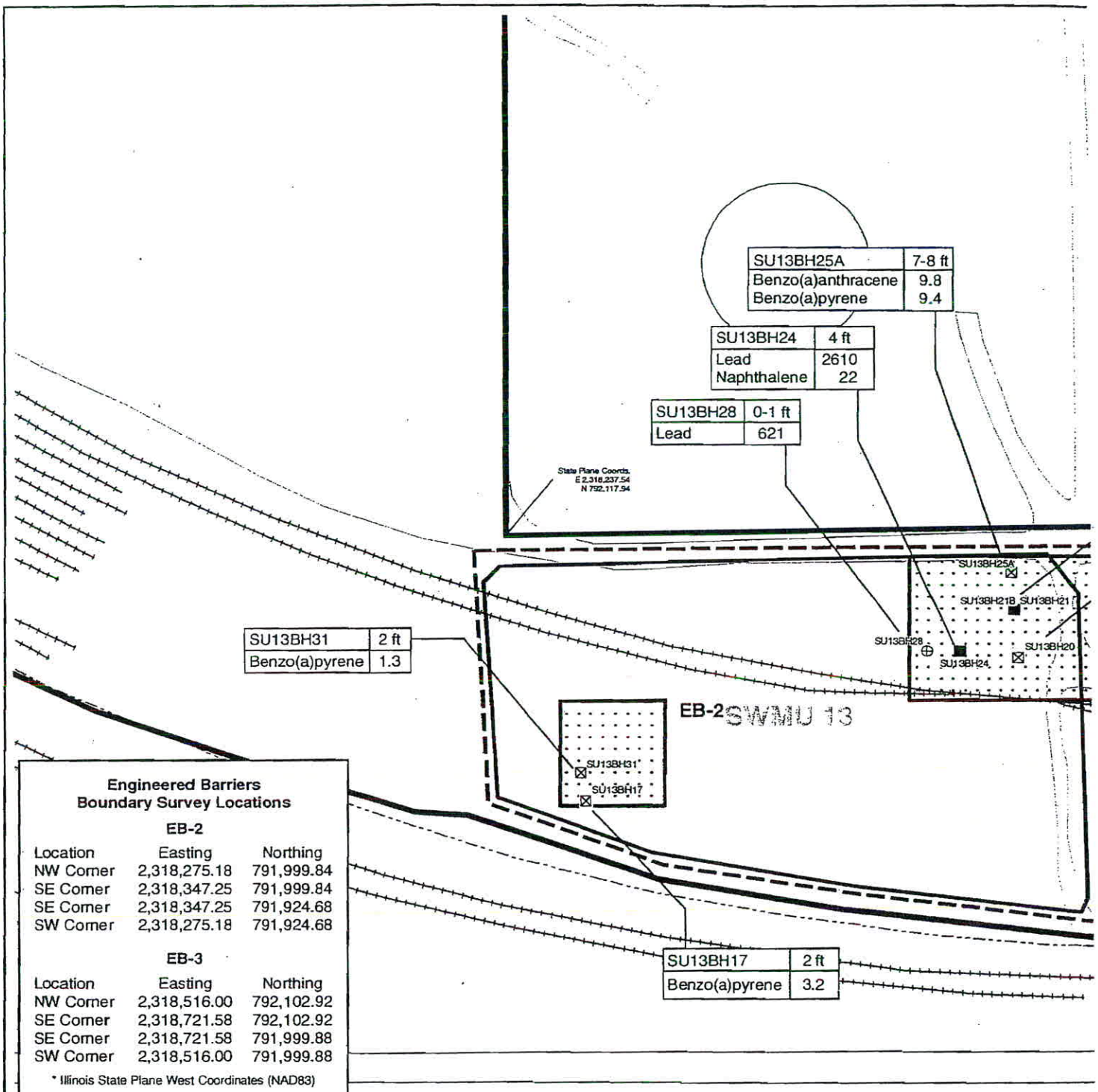
AREA 4 SWMU13 SUBAREA
ELUC EXHIBIT C
INSTITUTIONAL CONTROL/ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: EF	CHK'D: LV	PROJECT NO.	FIG NO.
DRAWN: MDC	DATE: 10/13/04	25365025	C-3



Engineered Barriers
Boundary Survey Locations

EB-2

Location	Easting	Northing
NW Corner	2,318,275.18	791,999.84
SE Corner	2,318,347.25	791,999.84
SE Corner	2,318,347.25	791,924.68
SW Corner	2,318,275.18	791,924.68

EB-3

Location	Easting	Northing
NW Corner	2,318,516.00	792,102.92
SE Corner	2,318,721.58	792,102.92
SE Corner	2,318,721.58	791,999.88
SW Corner	2,318,516.00	791,999.88

* Illinois State Plane West Coordinates (NAD83)

Summary of Perched Water Results
A Comparison with Illinois Tier I Class II Groundwater Remediation Objectives

Chemicals	Units	Illinois Class II Groundwater Objectives(1)	Sample Locations	
			SU13BH28-GW	A4BH65-GW
Metals				
Lead	mg/l	0.1		
SVOCs				
Benzo(a)anthracene	mg/l	0.00065	--	
Benzo(b)pyrene	mg/l	0.002	--	
Benzo(b)fluoranthene	mg/l	0.0009	--	
Benzo(k)fluoranthene	mg/l	0.00085	--	
Dibenzo(a,h)anthracene	mg/l	0.0015	--	
Indeno (1,2,3-cd)pyrene	mg/l	0.00215	--	

(1) : Illinois Class II Groundwater Remediation Objectives (ROs) were obtained from Appendix B, Table E of TACO.
-- : Not Analyzed.
J : Estimated concentrations because the result was below the sample reporting limit, or quality control criteria were not met.
Shaded values exceed Illinois Class II Groundwater ROs.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276, 217-782-3397
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, IL 60601, 312-814-6026

ROD R. BLAGOJEVICH, GOVERNOR RENEE CIPRIANO, DIRECTOR

217/524-3300

September 15, 2004

CERTIFIED MAIL
7002 3150 0000 1110 8001

Mr. Greg Jevyak
Environmental Business Manager
BP Products North America Inc.
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America, Inc./Main Plant
ILD980700967
Log No. B-147-CA-44
Received: July 19, 2004
RCRA Permit

Dear Mr. Jevyak:

This is in response to a July 16, 2004 letter report submitted on your behalf by Mr. Ryan P. Hartley, P.E., of URS regarding certain activities performed within a parcel referred to as "Area 4" at the above-referenced facility (a drawing showing the location of Area 4 within the facility is attached). The subject facility is carrying out a corrective action program in accordance with Sections IV and VII of its RCRA permit (Log No. B-147 and associated modifications). Illinois EPA issued a No Further Action (NFA) letter for Area 4, subject to several conditions, on August 22, 2003 (Log No. B-147-CA-30).

Condition 7 of Illinois EPA's August 22, 2003 No Further Action letter for Area 4 required that soil containing high lead levels (greater than 5 mg/l TCLP lead) detected in the vicinity of sample location A4BH53 be addressed by removal/off-site disposal of contaminated soil followed by collection of soil verification samples. The subject submittal describes the soil removal activities required by Condition 7 of the August 22, 2003 letter. The completed activities included: (1) soil excavation and off-site disposal; and (2) collection of soil confirmation samples.

The subject submittal is hereby approved as a modification to the RCRA corrective action program required by the RCRA permit for the above-referenced facility, subject to the following conditions and modifications:

1. It appears that contaminated soil containing high lead levels present in the vicinity of sample location A4BH53 within Area 4 has been adequately removed.

2. The facility must continue to comply with the requirements of the August 22, 2003 NFA letter for Area 4. A draft institutional control as required by Condition 6 of the August 22, 2003 letter must be submitted for Illinois EPA's review and approval. This institutional control must contain the following restrictions (required by Conditions 1 through 5 of the August 22, 2003 NFA letter): (1) maintenance of engineered barriers over three areas; (2) implementation of a health and safety plan during any excavation/construction work; (3) proper management of any soil removed during construction activities; and (4) industrial/commercial use for Area 4.

3. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724.201, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Munib Ahmad, P.E., at 217/524-3300.

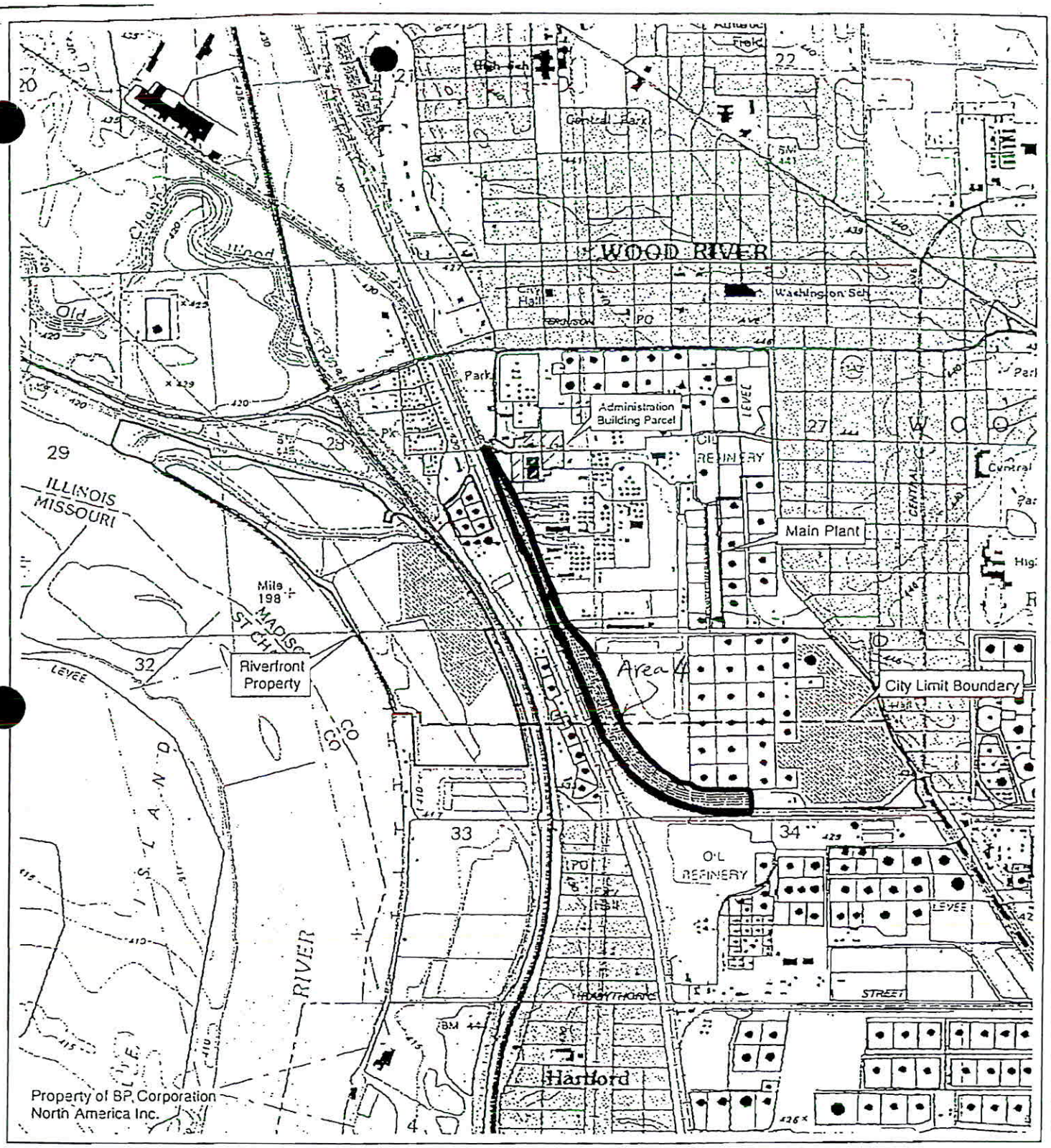
Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:MA:bjh\041153s.doc
JLM

Attachment: Site Map

cc: Ryan P. Hartley, URS



Source: USGS 7.5 Minutes Series
Topographic Map
Wood River, ILL.-MO., 1994.

Legend

- Boundary Between Wood River and Hartford
- BP Property
- Administration Building Parcel (Area 15)

1,000 500 0 1,000
Feet

1 inch equals 2,000 feet

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

PROJECT NO	FIG NO
83C054	1-1

bp

Remediation Management Services Company

150 West Warrenville Road
Naperville, IL 60563

Office: (312)809-3395
Mobile: (630)386-1784
Lori.Littrell@bp.com

December 31, 2015

Mr. Stephen F. Nightingale, P.E.
Illinois Environmental Protection Agency
Bureau of Land – Division of Land Pollution Control, Permit Section
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RE: BP Products North America Inc. – Main Plant
South Flare Pit (Area 18)
1191150001 - Madison County, ILD980700967
RCRA Permit Log No. B-147R-7-M
Transmittal of Certified Recording of ELUC Pursuant to IEPA Letter Dated 10/27/2015

Dear Mr. Nightingale,

BP Products North America Inc. (BP) is submitting the attached certified copy of the environmental land-use control (ELUC) and IEPA approval letter (Log No. 147R-CA-43) dated 10/27/2015, along with the required RCRA Corrective Action Certification Form.

Item 4 of the Illinois Environmental Protection Agency's October 27, 2015, letter required recording of the aforementioned documents on the applicable property title by the county recorder of deeds within 45 days (by 12/11/2015). The document was recorded by the Madison County Recorder of Deeds on 12/10/2015. Item 5 of the October 27, 2015, letter required submittal of a certified true copy of the filed ELUC within 30 days of the recording (by 01/09/2015).

If you have any questions or concerns regarding the information provided, please contact me at (312) 809-3395 or Tom Tunnicliff at (618) 254-9074.

Sincerely,

Lori G. Littrell

Lori G. Littrell
Operations Project Manager, BP
Remediation Management Services Company
An affiliate of BP Products NA Inc.

cc: Frank Akers, Mayor of the City of Wood River
Michael J. Hoffman, P.E., Amec Foster Wheeler
Becky Raftery, Atlantic Richfield Company, A BP affiliated company (Enfos)
Paul M. Stevens, P.G., Amec Foster Wheeler
Thomas Tunnicliff, Atlantic Richfield Company, A BP affiliated company (Enfos)
Scott Ziegler, Atlantic Richfield Company, A BP affiliated company (Enfos)

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 Facility Identification

Name: BP Wood River Main Plant Property (South Flare Pit)
County: Madison
Street Address: 301 Evans Avenue
Site No. (IEPA): 1191150001
City: Wood River
Site No. (USEPA): ILD980700967

2.0 Owner Information

Name: BP Products North America, Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Lori Littrell
Contact Title: Operations Project Manager
Phone: 312.809.3395

3.0 Operator Information

Name: BP Products North America, Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Lori Littrell
Contact Title: Operations Project Manager
Phone: 312.809.3395

4.0 Type of Submission (check applicable item and provide requested information, as applicable)

☐ RFI Phase I Workplan/Report
☐ RFI Phase II Workplan/Report
☐ CMP Report;
☑ Other (describe): Certified true copy of the ELUC filed by the Recorders Office

IEPA Permit Log No. B-147R-M-7
Date of Last IEPA Letter on Project: Oct 27, 2015
Log No. of Last IEPA Letter on Project: B-147R-CA-43

Does this submittal include groundwater information: ☑ Yes ☐ No

Date of Submittal: Dec 31, 2015

5.0 Description of Submittal: (briefly describe what is being submitted and its purpose)

Certified true copy of the ELUC filed by the Recorders Office is being submitted to IEPA in accordance with Item 5 of the IEPA Log No. B-147R-CA-43 letter dated 10/27/2015.

6.0 Documents Submitted (identify all documents in submittal, including cover letter; give dates of all documents)

RCRA Corrective Action Certification form, the Certified true copy of the ELUC filed by the Recorders Office (recorded 12/10/2015) and the Recorder's Certificate of Photocopy (dated 12/11/2015).

7.0 Certification Statement

(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below). The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

7.1 Owner/Operator Certification

(Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used)

Owner Signature: [signature] Date: 12/31/15

Title: Operations Project Manager

Operator Signature: [signature] Date: 12/31/15

Title: Operations Project Manager

7.2 Professional Certification (if necessary)

Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44 (h))

Professional's Signature: _____ Date: _____

Professional's Name _____

Address _____ Professional's Seal:

City _____

State _____ Zip Code _____

Phone _____

7.3 Laboratory Certification (if necessary)

The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory _____

_____ Date: _____

Signature of Laboratory Responsible Officer

Mailing Address of Laboratory

Address _____ _____

City _____ Name and Title of Laboratory Responsible Officer

State _____ Zip Code _____

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, Amy M. Meyer, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain **Notice of Environmental Disclosure** is the true and correct photocopy of said **Notice of Environmental Disclosure** from **BP Products North America Inc. & Amoco Oil** to **Notice** including the Certificate of Acknowledgment bearing date the **9th** day of **December** A.D. **2015** as the same appears in the records of my office in Document # **2015R43169** recorded on the **10th** day of **December** A.D. **2015**.

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this **11th** day of **December**, A.D. **2015**.

RECORDER
MADISON COUNTY, ILLINOIS

Amy M. Meyer
RECORDER
in and for
MADISON COUNTY, ILLINOIS

R001159

8245612
Tx:4185250

2015R43169
STATE OF ILLINOIS
MADISON COUNTY
12/10/2015 3:34 PM
AMY M. MEYER, RECORDER
REC FEE: 52.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE:
OF PAGES: 29

PREPARED BY:

Name: Thomas Tunnicliff
Operations Project Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

RETURN TO:

Name: Thomas Tunnicliff
Operations Project Manager
Atlantic Richfield Company
Address: 301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

52.00 ck 1036

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control For The South Flare Pit Portion of Area 18

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this ___ day of Dec 9 2015 ~~2012,~~ by BP Products North America Inc. f/k/a Amoco Oil Company, a Maryland corporation, ("Property Owner"), Property Owner of the real property located at 301 Evans Avenue, Wood River, Illinois. The property which is the subject on this ELUC is actually a 0.41 acre parcel within this real property.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against exposure to contaminated soil or groundwater or both that may be present on the property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure of a portion of the site, identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property"). This property is 0.41 acres in size; portions of this land are located in Parcel Index Numbers 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 as identified in Exhibit A. The legal descriptions are presented in Exhibit A as described below:

- A-1: Legal Description of the entire South Flare Pit (SFP);
- A-2: Legal Description of the eastern portion of the SFP within PIN 19-1-08-33-00-000-013 and the Legal Description of the western portion of the SFP within PIN 19-1-08-34-00-000-001; and
- A-3: Legal Descriptions of PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within.

Attached as Exhibit B are site maps that show the location of the 0.41 acre parcel within the facility located at 301 Evans Avenue, the legal boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of movement of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742. Scaled maps showing the ELUC are presented in Exhibit B as described below:

- B-1: Location of 0.41 acre parcel within the Facility located at 301 Evans Avenue, Wood River, Illinois;
- B-2: Legal Boundary of the SFP that is within PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001; and
- B-3: Legal Boundary of PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within.

Section Two. Property Owner represents and warrants that it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property shall be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by a site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soils excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to field screening tests for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings > 100 units) of VOCs in soil;

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the IEPA approved site specific industrial/commercial ROs developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off site for disposal in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: (1) the IEPA determines there is no longer a need for the ELUC as an institutional control; (2) the IEPA, upon written request, issues to the Property that received the closure by removal determination a new closure by removal determination approving modification or removal of the limitation(s) or requirement(s); (3) the new closure by removal determination is filed on the chain of title of the Property subject to the closure by removal determination; and (4) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

BP Products North America Inc.

By: Lisa Smith Attest: _____

Printed: LISA A SMITH Printed: _____

Its: VICE PRESIDENT Its: _____

Date: DEC 9, 2015 Date: _____

STATE OF ~~ILLINOIS~~ Texas)
) SS:
COUNTY OF ~~COOK~~ Harris)

I, Robyn A Whiteford the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Lisa A. Smith and _____, personally known to me to be the Vice President and _____, respectively, of **BP Products North America Inc. f/k/a Amoco Oil Company,** a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 9 day of December, 20~~15~~ 15

Robyn A Whiteford
Notary Public

ROBYN A WHITEFORD
Notary ID # 1656540
My Commission Expires
December 12, 2016

List of Exhibits

Exhibit A: Legal Descriptions

A-1: Legal Description of the entire SFP

A-2: Legal Description of the eastern portion of the SFP within PIN 19-1-08-33-00-000-013 and the Legal Description of the western portion of the SFP within PIN 19-1-08-34-00-000-001

A-3: Legal Descriptions of PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within

Exhibit B: Scaled Maps Showing ELUC

B-1: Location of 0.41 acre parcel within the Facility located at 301 Evans Avenue, Wood River, Illinois

B-2: Legal Boundary of the SFP that is within PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001

B-3: Legal Boundary of PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within



PIN NOS. 19-1-08-33-00-000-013
19-1-08-34-00-000-001

Exhibit A

Legal Description

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

LEGAL DESCRIPTION AND
REAL ESTATE TAX INDEX OR PARCEL #
(PURSUANT to 7421010(D)(2))

Exhibit A-1: Legal Description of the entire SFP

[See attached]

Description For
URS Corporation

South Flare Pit
0.41 Acre Tract

May 17, 2011

Part of Sections 33 and 34, all in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northeast corner of said Section 33; thence South 02 degrees 53 minutes 03 seconds East, along the east line of said section 33, 326.91 feet; thence North 88 degrees 52 minutes 55 seconds East, 24.17 feet; thence South 02 degrees 44 minutes 50 seconds West, 101.28 feet; thence South 21 degrees 18 minutes 43 seconds East, 491.38 feet; thence South 73 degrees 19 minutes 36 seconds West, 81.06 feet to the POINT OF BEGINNING; thence South 23 degrees 19 minutes 21 seconds East, 152.91 feet; thence South 60 degrees 46 minutes 50 seconds West, 96.85 feet; thence North 30 degrees 21 minutes 05 seconds West, 177.97 feet; thence North 73 degrees 19 minutes 36 seconds East, 118.92 feet to the POINT OF BEGINNING containing 0.41 acres or 17,468 square feet.

SUBJECT TO covenants, conditions, restrictions, and easements of record.

PIN NOS. 19-1-08-33-00-000-013
19-1-08-34-00-000-001

Exhibit A

Exhibit A-2: Legal Description of the eastern portion of the SFP within PIN 19-1-08-33-00-000-013 and the Legal Description of the western portion of the SFP within PIN 19-1-08-34-00-000-001

[See attached]

CMT

AVIATION • HIGHWAYS & BRIDGES
WATER & WASTEWATER • LAND DEVELOPMENT

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS

Description For
URS Corporation

AREA 18 (SFP1) EAST
0.39 Acre Tract

September 6, 2011

Part of Section 34 in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northwest corner of said Section 34; thence South 02 degrees 53 minutes 03 seconds East, along the west line of said section 34, 936.24 feet to the POINT OF BEGINNING; thence North 73 degrees 19 minutes 36 seconds East a distance of 93.51 feet; thence South 23 degrees 19 minutes 21 seconds East a distance of 152.91 feet; thence South 60 degrees 46 minutes 50 seconds West a distance of 96.85 feet; thence North 30 degrees 21 minutes 05 seconds West a distance of 124.48 feet to a point on said west line of section 34; thence North 02 degrees 53 minutes 03 seconds West, along said section line, a distance of 53.52 feet to the POINT OF BEGINNING, containing 0.39 acres or 16,988 square feet.

314 WOLF STREET • EDWARDSVILLE, IL 62025 • (618) 656-0470 • FAX (618) 656-0922 • cmtengr.com

CMT

AVIATION • HIGHWAYS & BRIDGES
WATER & WASTEWATER • LAND DEVELOPMENT

CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS

Description For
URS Corporation

AREA 18 (SFP1) WEST
0.02 Acre Tract

September 6, 2011

Part of Section 33 in Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the Northeast corner of said Section 33; thence South 02 degrees 53 minutes 03 seconds East, along the east line of said section 33, 936.24 feet to the POINT OF BEGINNING; thence South 02 degrees 53 minutes 03 seconds East, continuing along said east section line, a distance of 53.52 feet; thence North 30 degrees 21 minutes 05 seconds West a distance of 53.49 feet; thence North 73 degrees 19 minutes 36 seconds East a distance of 25.41 feet to the POINT OF BEGINNING, containing 0.02 acres or 660 square feet.

314 WOLF STREET • EDWARDSVILLE, IL 62025 • (618) 656-0470 • FAX (618) 656-0922 • cmtengr.com

PIN NOS. 19-1-08-33-00-000-013
19-1-08-34-00-000-001

Exhibit A

Exhibit A-3: Legal Descriptions of PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within

[See attached]

8155706
Tx:4116207

2015R09452
STATE OF ILLINOIS
MADISON COUNTY
03/30/2015 11:09 AM
AMY M. MEYER, RECORDER
REC FEE: 36.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE: 9.00
OF PAGES: 5

This instrument was prepared by:
Paul Shadle, Esq.
DLA Piper LLP (US)
203 North LaSalle Street
Chicago, Illinois 60601

After recording return to:
Kim E. Murakawa
Counsel, Corporate Real Estate
BP America Inc.
501 Westlake Park Boulevard, WL 1
Houston, TX 77079

Fed Ex
Hilda Barbosa
First American Title
30 N. LaSalle St.
Ste 2700
Chicago, Il.
60602

Mail tax bills to:
BP America Inc.
P.O. Box 3092
Houston, Texas 77253

EXEMPT PARA. E
35 ILCS 200/31-45

Date: MARCH 16, 2015

219804A
1081 JH

QUIT CLAIM DEED

45.00 CK 908

The grantor, **AMERICAN OIL COMPANY**, a Delaware corporation ("Grantor"), whose address is c/o BP America Inc., 501 Westlake Park Boulevard, Houston, TX 77079 for and in consideration of the sum of Ten and no/100 Dollars ($10.00) and other good and valuable consideration in hand paid, CONVEYS AND QUIT CLAIMS to **BP PRODUCTS NORTH AMERICA INC.**, a Maryland corporation ("Grantee"), whose address is c/o BP America Inc., 501 Westlake Park Boulevard, Houston, TX 77079, all of grantor's interest in and to the following legally described real estate which is situated in the County of Madison in the State of Illinois:

See Exhibit A attached hereto and made a part hereof.

[*signature page follows*]

EAST\96248324.2

IN WITNESS WHEREOF, the grantor aforesaid has executed this Quit Claim Deed as of this 16th day of March, 2015.

AMERICAN OIL COMPANY,
a Delaware corporation

By: _____
Name: DANIEL R. FIDEN
Title: DIRECTOR PORTFOLIO & ASSETS

STATE OF ILLINOIS)
) SS.
COUNTY OF COOK)

I, the undersigned, a Notary Public in and for said County in the State aforesaid, do hereby certify that DANIEL R FIDEN, Authorized Signatory for **AMERICAN OIL COMPANY**, a Delaware corporation, being the Grantor in the foregoing instrument, personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that she/he signed and delivered such instrument as her/his own free and voluntary act and as the free and voluntary act of the Grantor, all for the uses and purposes set forth therein.

GIVEN under my hand and notarial seal this 16th day of March, 2015.

_____
Notary Public

My Commission expires:

_____

OFFICIAL SEAL
SUZANNE L. LEIGH
Notary Public - State of Illinois
My Commission Expires Aug 17, 2015

THIS INSTRUMENT FILED FOR RECORD BY FIRST AMERICAN TITLE INSURANCE CO. AS AN ACCOMMODATION ONLY. IT HAS NOT BEEN EXAMINED AS TO ITS EXECUTION OR AS TO ITS EFFECT UPON TITLE

EAST\96248324.2

EXHIBIT A

LEGAL DESCRIPTION

Part of Sections 27, 28, 33 and 34 of Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois and being more particularly described as follows:

Commencing at the corner common to said Sections 27, 28, 33 and 34; thence westerly along the Section line between Sections 28 and 33 on an assumed bearing of North 88 degrees 21 minutes 31 seconds West a distance of 467.91 feet to the point of intersection with the northeasterly line of the 110 foot wide Illinois Terminal Railroad, said point also being the point of beginning of the parcel herein described; thence continuing North 88 degrees 21 minutes 31 seconds West along said section line between Sections 28 and 33 a distance of 37.56 feet to the point of intersection with the northeasterly line of the 75 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 75 foot wide Illinois Terminal Railroad a distance of 1,496.26 feet to the point of intersection with the northerly line of the South half of the Southeast Quarter of said Section 28; thence North 89 degrees 21 minutes 08 seconds West along said northerly line of the South half of the Southeast Quarter of Section 28 a distance of 26.65 feet to the point of intersection with the northeasterly line of the 50 foot wide Illinois Terminal Railroad; thence North 19 degrees 37 minutes 23 seconds West along said northeasterly line of the 50 foot wide Illinois Terminal Railroad, a distance of 1,397.11 feet to the point of intersection with the southeasterly line of the 60 foot wide Alton-St. Louis Road; thence North 51 degrees 41 minutes 18 seconds East along said southeasterly line of the 60 foot wide Alton-St. Louis Road a distance of 257.64 feet to a point; thence North 08 degrees 07 minutes 19 seconds East and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 110.97 feet to a point; thence North 01 degrees 43 minutes 06 seconds West and continuing along said southeasterly and easterly line of the 60 foot wide Alton-St. Louis Road a distance of 706.98 feet to a point; thence North 06 degrees 30 minutes 37 seconds East and continuing along said easterly line of the 60 foot wide Alton-St. Louis Road a distance of 175.81 feet to a point; thence North 13 degrees 21 minutes 11 seconds East and continuing along the easterly line of the transitional width Alton-St. Louis Road, wherein the width of said Alton-St. Louis Road transitions from 60 feet wide to 66 feet wide, a distance of 50.36 feet to a point in the easterly line of the 66 foot wide Alton-St. Louis Road; thence North 06 degrees 30 minutes 37 seconds East along the easterly line of the 66 foot wide Alton-St. Louis Road a distance of 102.97 feet to a point in the southeasterly line of F.A. Route 789, marked Illinois Route 143 and Madison Avenue; thence North 18 degrees 28 minutes 37 seconds East along said southeasterly line of F.A. Route 789 a distance of 72.16 feet to a point; thence North 54 degrees 30 minutes 50 seconds East and continuing along said southeasterly line of F.A. Route 789 a distance of 48.71 feet to a point; thence North 74 degrees 14 minutes 40 seconds East along said southeasterly line of F.A. Route 789 a distance of 45.06 feet to a point in the southerly line of said F.A. Route 789, said point also being 60.00 feet southerly of the northerly line of the Southeast Quarter of the Northeast Quarter of said Section 28; thence North 89 degrees 25 minutes 05 seconds East along said southerly line of F.A. Route 789, said southerly line of F.A. Route 789 being 60.00 feet southerly of and parallel to said northerly line of the Southeast Quarter of the Northeast Quarter of Section 28, a distance of 1,105.01 feet to a point; thence South 88 degrees 13 minutes 21 seconds East and continuing along said southerly line of F.A. Route 789, said continuation of the southerly line of F.A. Route 789 being 60.00 feet southerly of the northerly line of the Southwest Quarter of the Northwest Quarter of said Section 27 and the Southeast Quarter of the Northwest Quarter of said Section 27, a distance of 2,410.77 feet to a point; thence South 73 degrees 53 minutes 06 seconds East and continuing along the southerly and southwesterly line of F.A. Route 789 a distance of 103.38 feet to a point, thence South 84 degrees 54 minutes 03 seconds East and continuing along said southwesterly line of F.A.. Route 789 a distance of 100.13 feet to a point; thence South 33 degrees 47 minutes 40 seconds East and continuing along said southwesterly line of F.A. Route 789 a distance of 83.60 feet to the point of intersection with the westerly line of the 60 foot wide Sixth Street, also known as the Alton-Edwardsville Road, said point also being 60.00 feet westerly of the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27; thence South 00 degrees 41 minutes 06 seconds East along said westerly line of the 60 foot wide Alton-Edwardsville Road, said westerly line of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the aforesaid Southeast Quarter of the Northwest Quarter of Section 27, a distance of 1,245.87 feet to a point; thence South 00 degrees 11 minutes 08 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road, said continuation of the Alton-Edwardsville Road being 60.00 feet westerly of and parallel to the easterly line of the Southwest Quarter of said Section 27, a distance of 560.42 feet to a point; thence South 89 degrees 48 minutes 52 seconds West

a distance of 453.48 feet to a point; thence South 00 degrees 02 minutes 23 seconds East a distance of 233.93 feet to a point; thence South 00 degrees 00 minutes 18 seconds East a distance of 67.40 feet to a point; thence South 89 degrees 37 minutes 43 seconds West a distance of 336.16 feet to a point; thence South 00 degrees 11 minutes 35 seconds East a distance of 60.00 feet to a point; thence South 00 degrees 37 minutes 43 seconds East a distance of 1,879.00 feet to the point of intersection with the northerly line of the Northwest Quarter of the aforesaid Section 34; thence South 87 degrees 51 minutes 07 seconds East along said northerly line of the Northwest Quarter of Section 34 a distance of 836.60 feet to the northeasterly corner of said Northwest Quarter, said point also being the northwesterly corner of the Northeast quarter of the aforesaid Section 34; thence South 88 degrees 07 minutes 52 seconds East along the northerly line of said Northeast Quarter of Section 34 a distance of 564.42 feet to the point of intersection with the westerly line of the aforesaid 60 foot wide Alton-Edwardsville Road; thence South 37 degrees 41 minutes 28 seconds East along said Westerly line of the 60 foot Alton-Edwardsville Road a distance of 50.36 feet to a point; thence South 39 degrees 12 minutes 17 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 1,034.23 feet to a point; thence South 18 degrees 18 minutes 01 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 917.06 feet to a point; thence South 34 degrees 37 minutes 23 seconds East and continuing along said westerly line of the 60 foot wide Alton-Edwardsville Road a distance of 388.26 feet to the point of intersection with the northwesterly line of F.A. Route 132, marked Illinois Route 111; thence South 55 degrees 22 minutes 37 seconds West along said northwesterly line of F.A. Route 132 a distance of 30.00 feet to a point; thence South 34 degrees 37 minutes 23 seconds East along the southwesterly line of said F.A. Route 132 a distance of 212.48 feet to a point; thence South 01 degree 56 minutes 50 seconds West and continuing along said southwesterly line of F.A. Route 132 a distance of 275.69 feet to a point; thence South 30 degrees 41 minutes 10 seconds East and continuing along said southwesterly line of F.A. Route 132 a distance of 276.16 feet to the point of intersection with the northerly line of the 60 foot wide Illinois Terminal Railroad; thence North 88 degrees 02 minutes 23 seconds West along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 1,973.48 feet to a point; thence North 88 degrees 12 minutes 30 seconds West and continuing along said northerly line of the 60 foot wide Illinois Terminal Railroad a distance of 890.71 feet to the point of curvature of the northerly and northeasterly line of the variable width Illinois Terminal Railroad; thence continuing along said northerly and northeasterly line of the variable width Illinois Terminal Railroad to the point of tangency with the aforesaid northeasterly line of the 110 foot wide Illinois Terminal Railroad, said northerly and northeasterly line of the variable width Illinois Terminal Railroad being a curve to the right having a radius of 1,910.00 feet and an arc length of 2,286.34 feet; thence North 19 degrees 37 minutes 23 seconds West and continuing along sad northeasterly line of the 110 foot wide Illinois Terminal Railroad a distance of 1,598.81 feet to the point of beginning.

PINS:
19-1-08-27-09-101-001
19-1-08-27-10-101-001 (Affects a portion of the Property)
19-1-08-27-13-301-001 (Affects a portion of the Property)
19-1-08-27-14-301-001 (Affects a portion of the Property)
19-1-08-27-17-301-001 (Affects a portion of the Property)
19-1-08-27-18-301-001 (Affects a portion of the Property)
19-1-08-28-12-201-001 (Affects a portion of the Property)
19-1-08-28-00-000-010 (Affects a portion of the Property)
19-1-08-33-00-000-013 (Affects a portion of the Property) ← ☆
19-1-08-34-00-000-001 (Affects a portion of the Property) ← ☆
19-1-08-28-12-201-001.001 (Affects a portion of the Property)
19-1-08-34-00-000-001.001 (Affects a portion of the Property)
19-1-08-34-00-000-001.002 (Affects a portion of the Property)
19-1-08-34-00-000-001.003 (Affects a portion of the Property)
19-1-08-27-10-101-001.001 (Affects a portion of the Property)
19-1-08-27-14-301-001.001 (Affects a portion of the Property)
19-1-08-27-14-301-001.002 (Affects a portion of the Property)
19-1-08-28-00-000-010.001 (Affects a portion of the Property)

AFFIDAVIT FOR PURPOSE OF PLAT ACT REQUIREMENTS (765 ILCS 205)
THIS IS A LEGAL DOCUMENT – CONSULT YOUR PRIVATE ATTORNEY
(County Zoning & Subdivision Ordinances May Also Apply)

ORIGINAL AFFIDAVIT REQUIRED FOR RECORDING, COPIES *WILL NOT* BE ACCEPTED

Affiant is the Grantor or is the Grantors authorized representative in a deed transferring interest in the real estate described in the accompanying deed. Affiant further states this transfer is exempt from the Illinois Plat Act because it is:

(Please check all that apply)

(X) A. NOT A DIVISION OF LAND (parcel lines unchanged) ( ) C. DIVISION FOR TAXING PURPOSES ONLY (parcel lines change)

( ) B. A DIVISION OF LAND THAT MEETS ONE OF THE FOLLOWING EXCEPTIONS TO THE PLAT ACT;

____ 1. A division or subdivision of land into tracts of five (5) acres or more not involving new streets or easements of access with a minimum of five (5) acres residue or Grandfathered under prior approved plat by Land Use Committee.

____ 2. A division of lots or blocks of less than one (1) acre in a recorded subdivision not involving new streets or easements of access.

____ 3. A sale or exchange of land between owners of adjoining and contiguous land.

____ 4. A conveyance of land for use as a right-of-way for public utilities and other pipelines not involving new streets or easements of access.

____ 5. A conveyance of land owned by a public utility not involving new streets or easements of access.

____ 6. A conveyance of land for highway or other public purpose or relating to a dedication of land or for vacation of land subject to a public use.

____ 7. A conveyance made to correct a description in prior conveyance.

____ 8. The sale or exchange of parcels of land following the division into no more than two (2) parts of a parcel existing on July 17, 1959, and not involving any new streets or easements of access.

____ 9. The sale of a single lot/tract less than five (5) acres from a larger tract. (Exception only applies to the 1st tract conveyed from a larger tract as it existed on October 1, 1973.) (The single tract of less than five (5) acres must have been surveyed by an Illinois Registered Land Surveyor whose survey must accompany the deed)

IF A IS MARKED ABOVE, APPROVAL BY THE MAPS & PLATS GIS DIVISION IS NOT REQUIRED.
IF B OR C IS MARKED ABOVE, APPROVAL BY THE MAPS & PLATS GIS DIVISION IS REQUIRED.

Under the penalties of perjury I swear that the statements contained here are true and correct.

NAME: DANIEL REDEN (Please Print) SIGNATURE: _____ DATE: MARCH 16, 2015

Subscribed and sworn to before me this 16th day of March, 2015

OFFICIAL SEAL
SUZANNE L LEIGH
Notary Public - State of Illinois
My Commission Expires Aug 17, 2015

_____
Notary Public

~~All divisions of less than 2 acres~~ within the County jurisdiction must be reviewed by the Madison County Planning and Development Department

This affidavit only ensures the Recorder's Office compliance with the State Plat Act. If the property is located within a municipality or within 1.5 miles of a municipality, local ordinances may apply. *If exception 9 is used,* it is required that this land division be reviewed & approved by the participating municipality. Each municipality has five (5) business days to review deed(s) and return. If the five day limit expires, Maps & Plats will process the deed upon proof of date submitted to municipality.

Date Submitted to Municipality (s) _____ (Please check one) ( ) Municipality Jurisdiction ( ) County Jurisdiction

Municipality (s) with Jurisdiction: _____

Municipal Planning Official's Signature	*Print Name*	*Date*
Municipal Planning Official's Signature	*Print Name*	*Date*

(Revised 5/11)

Madison County Maps & Plats GIS Division, 157 North Main Street, Suite 229, Edwardsville, IL 62025-1964; Ph (618) 692-7040 ext. 4586; Fax (618) 692-8298

END

DEED POCKET NO. 9
WOOD RIVER

QUITCLAIM DEED

15-2312

BOOK 2061 PAGE 589

THE GRANTOR, STANDARD OIL COMPANY, an Indiana corporation, having its principal office in the City of Chicago, County of Cook and State of Illinois, for the consideration of TEN DOLLARS ($10.00) and other good and valuable consideration, conveys and quitclaims to THE AMERICAN OIL COMPANY, a Maryland corporation, having its principal office in the City of Chicago, County of Cook, State of Illinois, all interest in the following described real estate, to-wit:

All that part of the Northwest Quarter (NW 1/4) of Section Number Thirty-four (34) Township Number Five (5) North, Range Number Nine (9) West of the Third Principal Meridian, (3rd P.M.), lying East of the right of way of the Illinois Terminal Railroad Company as the same appeared of record on March 1, 1917, and lying North of the East and West Half Section line of said Section Number Thirty-four (34), subject to right of way for public highway.

Also all that part of the West one half (W 1/2) of the Northeast Quarter (NE 1/4) of Section Number Thirty-four (34), Township Number Five (5) North, Range Number Nine (9) West of the Third Principal Meridian (3rd P.M.), lying North of the East and West Half Section line of said Section Number Thirty-four (34), excepting and reserving however that portion of said last described tract, that lies East of the center of Alton and Edwardsville Wagon Road as travelled on March 1, 1917 consisting of Seven (7) acres more or less, subject to right of way for public highway.

Parcel# 19-1-08-34-00-000-001

Parcel# 19-1-08-33-00-000-013

And also a tract of land bounded by a line beginning at the corner of Sections Numbered Twenty-seven (27), Twenty-eight (28), Thirty-three (33) and Thirty-four (34), in Township Number Five (5) North, Range Number Nine (9) West of the Third Principal Meridian (3rd P.M.); thence from said beginning point West along the North line of said Section Number Thirty-three (33) to the Northeasterly line of the right of way of the Illinois Terminal Railroad Company as established on March 1, 1917; thence Southeasterly along said Northeasterly line of said right of way to the South line of the North one half (N 1/2) of the Northeast Quarter (NE 1/4) of said Section Number Thirty-three (33); thence East along said South line, to the East line of said Section Number Thirty-three (33); thence

BOOK 2061 PAGE 546

North along said East line of said Section, to the place of beginning, containing Nine and sixty-eight hundredths (9.68) acres, and also -

A tract of land beginning at a point in the East line of said Section Number Thirty-three (33), and distant Fourteen Hundred and Nine feet (1409') from the North line of said Section Number Thirty-three (33); thence South along said East line of said Section Number Thirty-three (33), One Hundred and Eighty-five and nine-tenths feet (185.9') to the point of intersection of said East line with the Northeasterly line of the right of way of the Illinois Terminal Railroad Company; thence in a Northwesterly direction along said right of way line One Hundred and Ninety-five and sixty-six hundredths feet (195.66') to a point; thence East, Sixty and nine-tenths feet (60.9') to the place of beginning, containing thirteen-hundredths (.13) of an acre and all situated in the Northeast Quarter (NE 1/4) of said Section Number Thirty-three (33).

Expressly subject to, and together, with all rights, titles and interests of said Grantor in, to, and under, a certain Indenture dated April 30, 1920 from said Grantor to the Illinois Terminal Railroad Company; Dedication of Right of Way for Public Road purposes dated June 22, 1953 from said Grantor to the People of the State of Illinois.

situated in the County of MADISON, in the State of Illinois.

PIN NOS. 19-1-08-33-00-000-013
19-1-08-34-00-000-001

Exhibit B

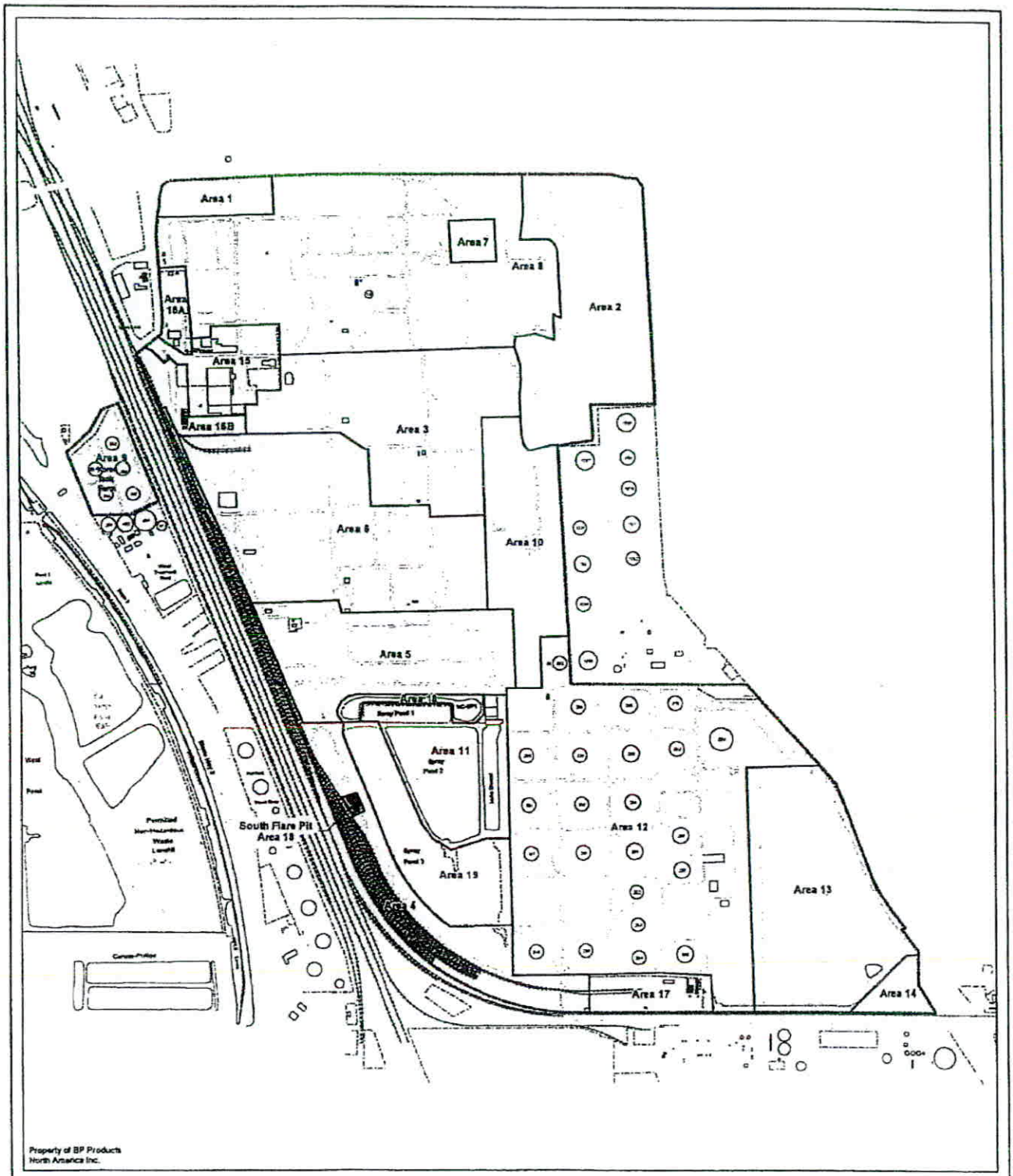
Scaled Maps showing:

A) The legal boundary of the property to which the ELUC applies (*see Exhibits B-1, B-2, and B-3*);
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies *(this does not apply to the SFP);*
C) Any physical features to which an ELUC applies (e.g., engineered barriers, monitoring wells, caps – *there are no physical features at the SFP);* and
D) The nature, location of the source, and direction of movement of the contaminants of concern *(this does not apply to the SFP).*

Maps Contained in Exhibit B

Exhibit B-1: South Flare Pit Portion of Area 18, Exhibit B Parts A/B/C/D (shows location of 0.41 acre parcel within Facility located at 301 Evans Avenue, Wood River, Illinois)
Exhibit B-2: South Flare Pit Portion of Area 18, Exhibit B Parts A/B/C/D (shows the legal boundary of the SFP)
Exhibit B-3: South Flare Pit Portion of Area 18, Exhibit B Parts A/B/C/D (shows the legal boundaries for PINs 19-1-08-33-00-000-013 and 19-1-08-34-00-000-001 for which the SFP is within)

[See attached]



Legend

Main Plant RCRA Part B Boundary

Location of South Flare Pit Portion of Area 18, 6.41 Acre Parcel, within Facility located at 301 Evans Avenue, Wood River, Illinois

N

500 250 0 500

Feet

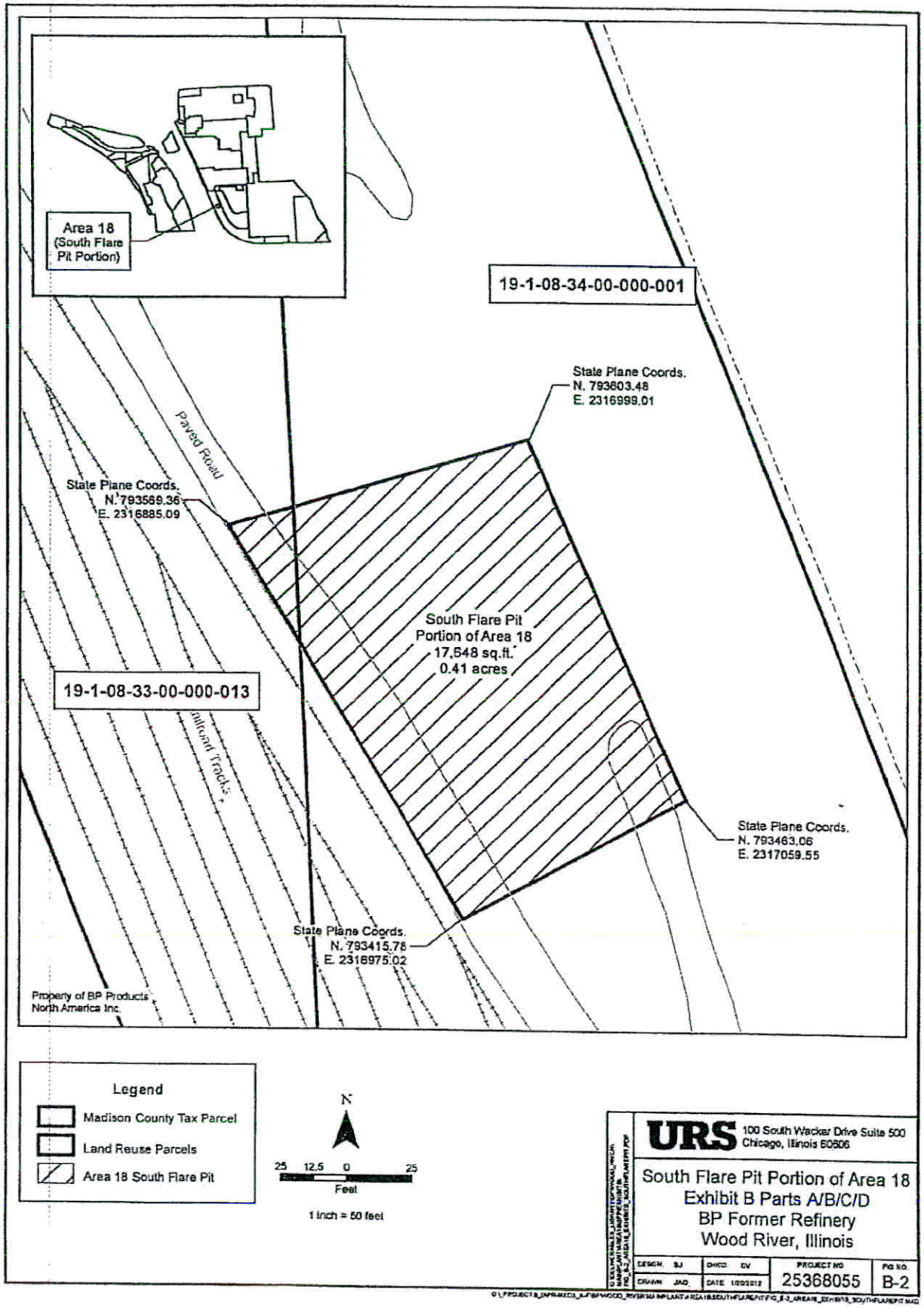
1 inch = 500 feet

URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60606

South Flare Pit Portion of Area 18
Exhibit B Parts A/B/C/D
BP Former Refinery
Wood River, Illinois

PROJECT NO 25368055

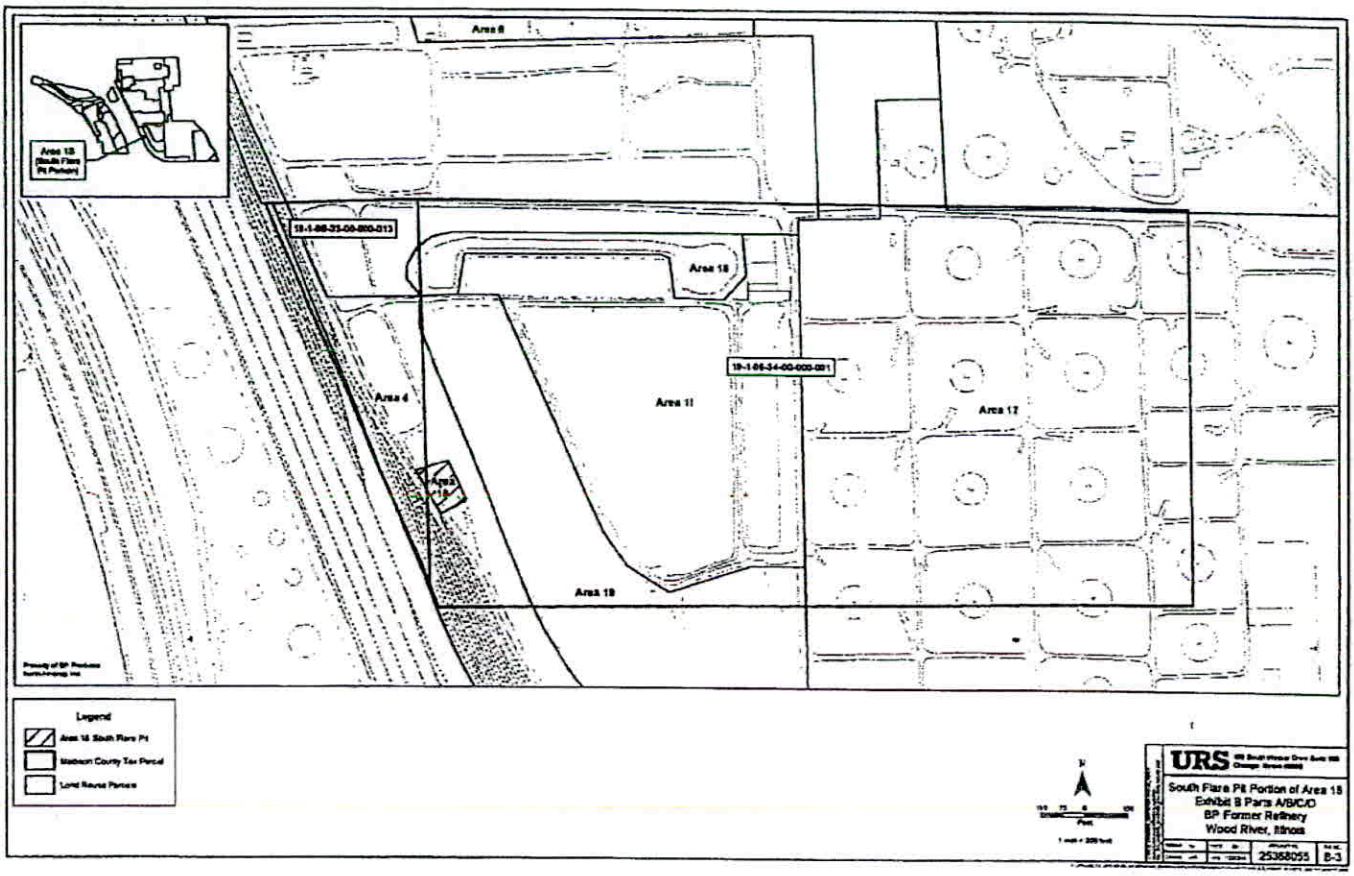
FIG NO B-1



URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60606

South Flare Pit Portion of Area 18
Exhibit B Parts A/B/C/D
BP Former Refinery
Wood River, Illinois

DESIGN SJ	CHKD. DV	PROJECT NO. 25368055	FIG NO. B-2
DRAWN JAD	DATE 10/2/2013		


Area 8
Area 18 (South Flare Pit Portion)
19-1-06-35-00-000-013
Area 18
19-1-06-34-00-000-001
Area 4
Area 11
Area 17
Area 19
Legend
Area 18 South Flare Pit
Madison County Tax Parcel
Land Reuse Parcels
URS
South Flare Pit Portion of Area 18
Exhibit B Parts A/B/C/D
BP Former Refinery
Wood River, Illinois
25368055
B-3

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/524-3300

October 27, 2015

CERTIFIED MAIL
7012 0470 0001 2976 8279

BP Products North America, Inc.
Attn: Mr. Thomas G. Tunnicliff
Environmental Business Manager
301 Evans Avenue
P. O. Box 167
Wood River, Illinois 62095

RECEIVED
OCT 30 2015
ATLANTIC RICHFIELD CO.

Re: 1191150001- -Madison County
BP Products North America Inc. –Main Plant
ILD 980700967
Log No. B-147R-CA-43
Received: July 17, 2015
RCRA Permit
Permit CA

Dear Mr. Tunnicliff:

This is in response to your July 16, 2015 submittal regarding corrective action activities at the above-referenced RCRA-permitted facility. One of the units addressed in Section IV (Corrective Action) of the facility's RCRA permit issued on March 4, 2011 is referred to as the South Flare Pit (a drawing showing the location of this unit within the facility is attached). Condition IV.C.1.b of the facility's RCRA permit indicated that a closure by removal demonstration would be completed and no further action would be necessary at the South Flare Pit once an Environmental Land Use Control (ELUC) is established which places certain restrictions on future activities at the unit.

BP Products North America, Inc. previously submitted a draft Environmental Land Use Control for the South Flare Pit which was approved by Illinois EPA August 11, 2014. However, it was found that the draft document needed minor revisions to reflect the current ownership of the land where the South Flare Pit is located. Your July 15, 2015 submittal contained a revised draft ELUC for the South Flare Pit. Illinois EPA has completed its review of this submittal and hereby approves it subject to the following conditions and modifications:

1. This letter shall supersede Illinois EPA's August 11, 1014 letter mentioned above. This letter approves a draft of the required ELUC for the South Flare Pit and shall constitute the Illinois EPA's no further action determination instrument for the South Flare Pit. A copy of this letter must be filed with the ELUC approved herein.

2. For purposes of this letter, "Property" refers to the South Flare Pit, a 0.41 acre parcel, 0.39 acres of which are in Parcel No. 19-1-08-33-00-013 and 0.02 acres are in Parcel No. 19-1-08-34-00-000-001. A scaled drawing showing the Illinois State Plane Coordinates of the corners of the South Flare Pit and the line dividing Parcel 19-08-33-00-000-013 from 19-1-08-34-00-000-001 is attached.

3. The proposed draft Environmental Land Use submitted on July 16, 2015 for the South Flare Pit is hereby approved and places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil within the property that removed, excavated, or disturbed shall be handled in accordance with all applicable laws and regulations;

   b. The property shall not be used for Residential use. The property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the property, and all construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to field screening tests for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

      (1) Field Screening. Soil shall be considered "potentially contaminated" if: (a) there is visual discoloring of the soil indicative of hydrocarbon product; or (b) a field screening test for VOCs detects the presence (i.e., PID readings > 100 units) of VOCs in soil;

      (2) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs must be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

      (3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (a) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific industrial/commercial ROs developed for the Property; or

(b) visual inspection or field screening indicates soils are below the threshold levels given in Condition 3.e.1 above.

f. Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory results, may be reused as clean fill in other areas of the former BP Refinery Main Plant facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

g. Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off-site for disposal in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

h. Documentation. All of these activities must be documented in the facility's operating records.

4. Within 45 days of the date of this letter, the ELUC approved herein must be executed, notarized and recorded in the chain of title for the subject property of the Recorder or Registrar of Titles for Madison County; a copy of this letter must be attached to the filed ELUC. The approved ELUC will not become effective until officially recorded in the chain of title for the subject property.

5. Within 30 days after filing the approved ELUC in accordance with Condition 3 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder or Registrar of Titles for Madison County that the ELUC was properly filed, must be submitted to Illinois EPA.

6. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Agency no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

7. The limitations or requirements of the ELUC apply in perpetuity until:

   a. The Illinois EPA issues a new no further action determination approving modification or removal of the limitation/requirement; and

   b. A release or modification of the land use limitation is filed on the chain of title for the property that is subject of the ELUC.

8. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742.

   a. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a request to amend the certification of closure. Sufficient information must be

provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

b. Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

9. Overall, RCRA corrective action activities at the subject facility shall be carried out in accordance with: (1) its RCRA permit; (2) Ill. Admin. Code 620, 724 and 742; and (3) Illinois EPA letters regarding these activities.

Work required by this letter, your submittal, or the regulation may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definition of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

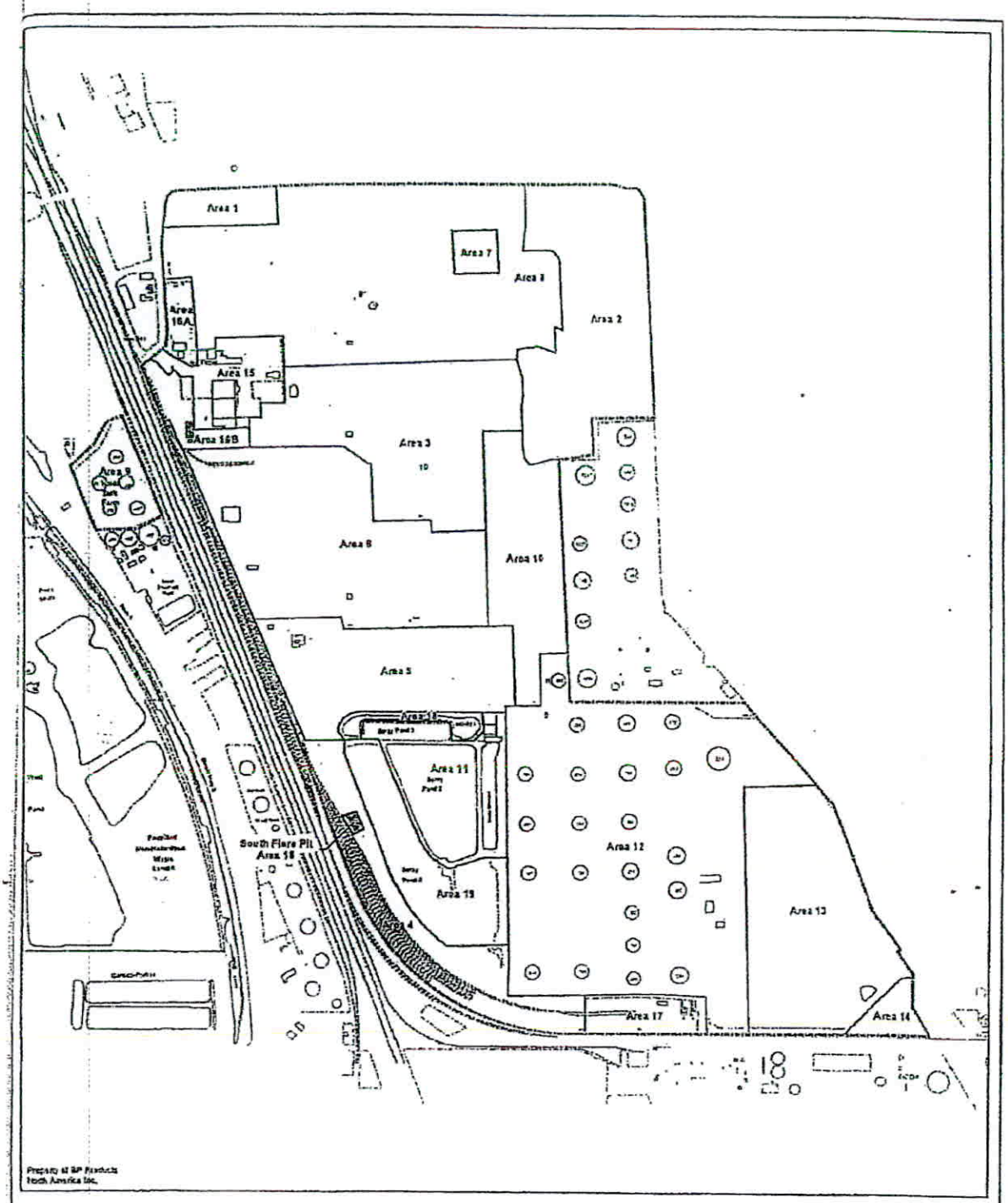
Should you have any questions regarding this matter, please contact William T. Sinnott, II at 217/524-3310.

Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

1191150001-RCRA-B147R-CA-43-Approval

Attachments: Site Layout Map
Drawing Showing the State Plane Coordinates of the Corners of the South Flare Pit



Legend

- Main Plant RCRA Part B Boundary
- Location of South Flare Pit Portion of Area 18, 6.41 Acre Parcel, within Facility located at 201 Cedar Avenue, Wood River, Illinois

N

500 250 0 500

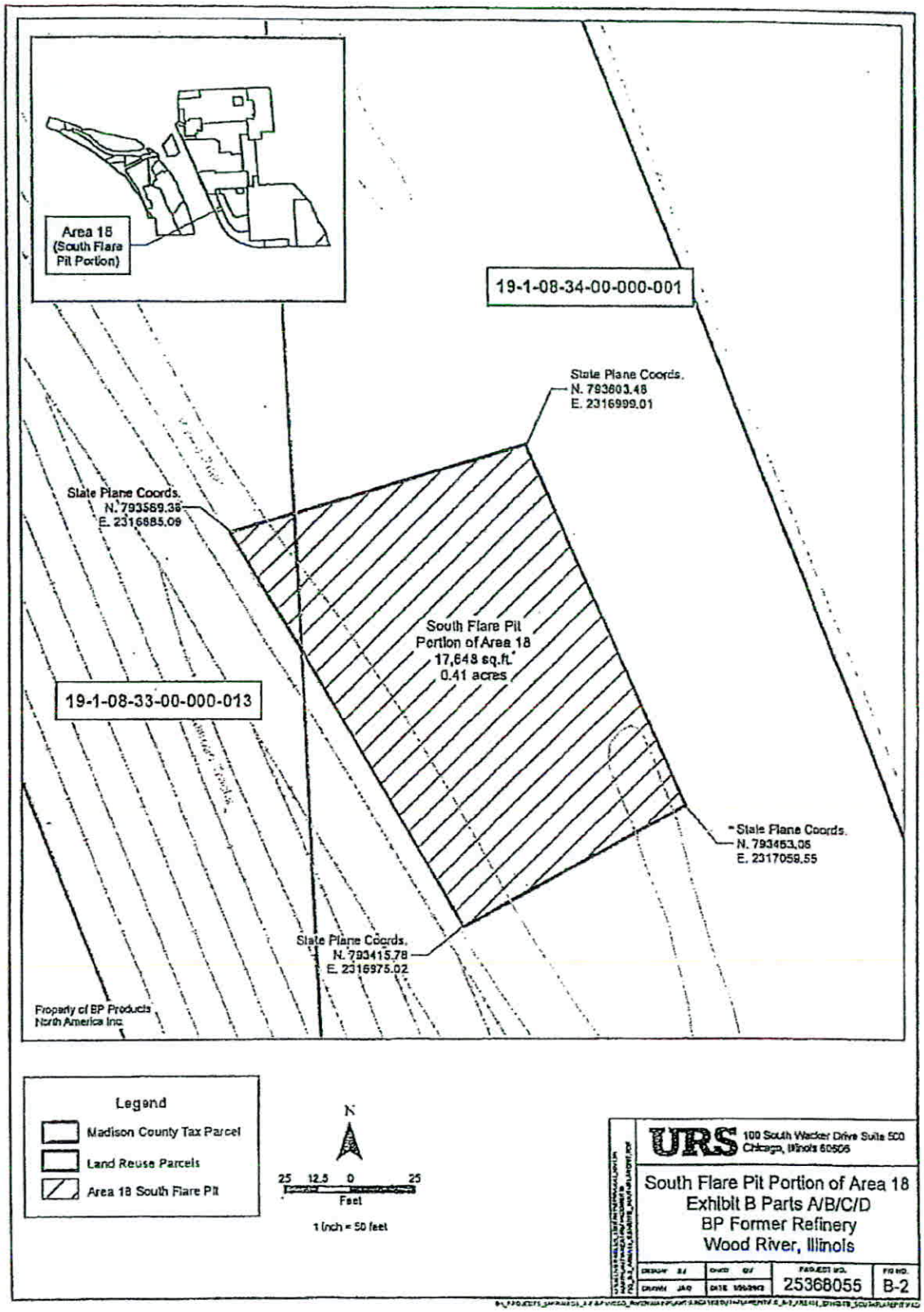
Feet

1 inch = 500 feet

URS 180 South Wacker Drive Suite 900 Chicago, Illinois 60606

South Flare Pit Portion of Area 18
Exhibit B Parts A/B/C/D
BP Former Refinery
Wood River, Illinois

		PROJECT NO. 25368055	FIG NO. B-1



END OF DOCUMENT

Remediation Management Services Company

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

May 1, 2024

Jacqueline M. Cooperider, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
RCRA Permit Log No. B-147R-CA-80
Area 2 – Police Station Donation Parcel II and BP Retained Parcel
Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529

Dear Ms. Cooperider:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting one original certified true copy of each of two environmental land use control (ELUCs) as requested by the Illinois Environmental Protection Agency (Illinois EPA or Agency). Electronic copies of this letter are being submitted directly to Ms. Amy Butler, Mr. Omar Faruk, and the Illinois EPA Collinsville Field Operations Section (Mr. Ali Al-Janabi). Enclosed with this letter is an Illinois EPA RCRA Corrective Action Certification Form (LPC 632).

In email correspondence dated April 12, 2024, Illinois EPA notified bp that certified ELUCs received by the Agency on June 22, 2017 (Log No. B-147R-CA-80) were officially missing/lost, and a new certified copy from Madison County is required. Based on the Illinois EPA receipt date, bp identified the missing ELUCs as follows:

Date of Original Submittal	Title of Original Submittal	RCRA Log No. Listed on Original Submittal
6/21/2017	Main Plant Facility – Area 2 – Police Station Donation Parcel II Certified True Copy of ELUC Recording 2017R18528	B-147R-CA-77
6/21/2017	Main Plant Facility – Area 2 – BP Retained Parcel Certified True Copy of ELUC Recording 2017R18529	B-147R-CA-78

Area 2 – Police Station Donation Parcel II: The original certified true copy of ELUC Recording 2017R18528 was submitted to the Agency to document that requirements under Items 8 and 9 of the Illinois EPA letter dated May 4, 2017 (Log No. B-147R-CA-77) were properly completed. Item 8 required recording of the aforementioned documents on the applicable property title by the county recorder of deeds within 45 days of that letter. The ELUC was recorded by the Madison County Recorder of Deeds on June 5, 2017. Item 9 required submittal of a certified true copy of the filed ELUC within 30 days of the recording. The original certified true copy submitted in the above-referenced bp letter dated June 21, 2017, fulfilled that requirement.

Area 2 – BP Retained Parcel: The original certified true copy of ELUC Recording 2017R18529 was submitted to the Agency to document that requirements under Items 9 and 10 of the Illinois EPA letter dated April 21, 2017 (Log No. B-147R-CA-78) were properly completed. Item 9 required recording of the aforementioned documents on the applicable property title by the county recorder of deeds within 45 days of that letter. The ELUC was recorded by the Madison County Recorder of Deeds on June 5, 2017. Item 10 required submittal of a certified true copy of the filed ELUC within 30 days of the recording. The original certified true copy submitted in the above-referenced bp letter dated June 21, 2017, fulfilled that requirement.

One certified true copy of each of the two above-referenced ELUCs is enclosed.

Should you have questions regarding the information provided, please contact me at (847) 346-7112.

Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

Enclosures: Illinois EPA RCRA Corrective Action Certification Form (LPC 632)
Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529

cc: Amy Butler, Illinois EPA
Curtis Samson, Illinois EPA
Takako Halteman, Illinois EPA
Omar Faruk, Illinois EPA
Ali Al-Janabi, Illinois EPA
Tom Stalcup, Mayor of the City of Wood River
Michael J. Hoffman, P.E., WSP USA Environment & Infrastructure
Kevin Wheeler, Sovereign Consulting

Return to: (Fed Ex Env.)
FATIC
30 N. LaSalle St 899617
Ste 2700
Chicago, IL 3/4
60602

8 4 3 5 1 0 6
Tx:4335443

2017R18528
STATE OF ILLINOIS
MADISON COUNTY
06/05/2017 4:13 PM
AMY M. MEYER, RECORDER
REC FEE: 76.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE: 9.00
 # OF PAGES: 51

PREPARED BY:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

RETURN TO:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

85.00 ck
6395

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control For Police Station Donation Parcel II Within Area 2
Parcel Index No. 19-2-08-27-10-101-002

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made as of this 22 day of May, 2017, by BP Products North America Inc., a Maryland corporation, ("Property Owner"), of the real property located at 301 Evans Avenue, Wood River, Illinois (referred to as the "Main Plant Facility"), which includes the 7.5 acre tract of land having Parcel Index No. 19-2-08-27-10-101-002 (this tract of land is the "Property" which is the subject of this ELUC.

WHEREAS, 35 Il. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained for a portion of the Main Plant Facility known as "Area 2" on August 13, 2002 and is attached hereto as Exhibit C; the Property which is the subject of this ELUC is located in Area 2. In addition, on August 22, 2016, a no further determination was made for the indoor inhalation exposure route for the property which is the subject of this ELUC; a copy of this letter is attached hereto in Exhibit C. The relative layout of the Main Plant Facility, Area 2, and the Property which is subject of this ELUC is shown on Exhibit B-1. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against potential exposure to contaminated soil or groundwater or both that may be present on the Property as a result of prior industrial activities. Under 35 Il. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Il. Admin. Code Part 742 to obtain risk-based closure for the Property, which is a portion of the Main Plant Facility ("Site"), identified by Bureau of Land LPC number 1191150001, utilizing an ELUC.

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibits B-1, B-2, and B-3 are maps that show the boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of the contaminants of concern, as required under 35 Il. Admin. Code Part 742.

a. The parcel covered by this ELUC is 7.50 acres in size; its Parcel Index Number (PIN) is 19-2-08-27-10-101-002 and it extends from the ground surface down to the horizontal plane at elevation 428 feet above mean sea level [MSL] (approximately 15 feet in thickness).

b. Exhibit B-1 shows the relative boundaries of the Main Plant Facility, Area 2 and the Property covered by this ELUC.

c. Exhibit B-2 is the Final Plat of the Property covered by this ELUC.

d. Exhibit B-3 shows the location where soil contamination above 35 Il. Admin. Code 742, Subpart E (Tier 1) Remediation Objectives is located and the boundaries of the engineered barrier which must be maintained within the Property covered by this ELUC.

Section Two. Property Owner represents and warrants that it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., Photoionization Detector ("PID") readings > 100 parts per million ("ppm") of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for: benzene, toluene (ethylbenzene), and xylenes ("BTEX"); and polycyclic aromatic hydrocarbons ("PAHs") by laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the IEPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off site as clean fill if laboratory data indicates constituents are less than Tiered Approach to Corrective Action Objectives ("TACO") residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off-site for disposal as a special

waste in accordance with 35 Il. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

f. The area designated "EB 2B" of the Property, which is identified on Exhibit B-3 of the ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. The soil within the Property has met the remediation objectives set forth for the vapor intrusion exposure route in Il. Admin. Code 742, Appendix B, Table H. All future building constructed on this parcel must have a basement with concrete wall and floors, be of concrete slab-on-grade construction, or some combination thereof. BP has also specified the use of additional building control technologies (vapor membrane and contingency sub-slab vapor collection control system) for this donation parcel that are suitable pursuant to 35 Il. Admin. Code 742, Subpart L.

h. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: (1) the IEPA determines there is no longer a need for the ELUC as an institutional control; (2) the IEPA, upon written request, issues to the Property that received the no further remediation determination a new no further remediation determination approving modification or removal of the limitation(s) or requirement(s); (3) the new no further remediation determination is filed on the chain of title of the Property subject to the no further remediation determination; and (4) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies. Once filed, this ELUC will supersede the ELUC filed on February 5, 2003, as Document No. 2003R08605 for the Property described in Exhibit A.

WITNESS the following signature:

BP Products North America Inc.

By: Lisa Smith Attest: Allison Crane

Printed: LISA A SMITH Printed: Allison Crane

Its: VICE PRESIDENT Its: Liability Business Manager

Date: _____ Date: _____

STATE OF TEXAS)
) SS:
COUNTY OF HARRIS)

I, Mary J. Heinitz the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Lisa A. Smith and Allison Crane, personally known to me to be the Vice President and Liability Business Manager respectively, of **BP Products North America Inc.**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 5th day of May, 2017.

Mary J. Heinitz
Notary Public

MARY J. HEINITZ
Notary Public, State of Texas
Comm. Expires 04-06-2020
Notary ID 1086666

List of Exhibits

Exhibit A: Legal Descriptions and Parcel IDs

Exhibit B: Scaled Maps

B-1: Site Layout Map
B-2: Police Station Donation Parcel Survey/Legal Description Map
B-3: Area 2 ELUC Map

Exhibit C: Copies of NFA letters related to the Donation Parcel

Exhibit A

Legal Description and Parcel ID of the "Property" covered by this ELUC

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

This ELUC applies to that portion of the following described tract of land which extends from the ground surface down to a horizontal plane at elevation 428 feet above mean sea level. The approximate "thickness" of this property is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the

herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

Exhibit B

Scaled Maps showing:

A) The legal boundary of the property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which an ELUC applies; and
D) The nature, location of the source, and direction of movement of the contaminants of concern.

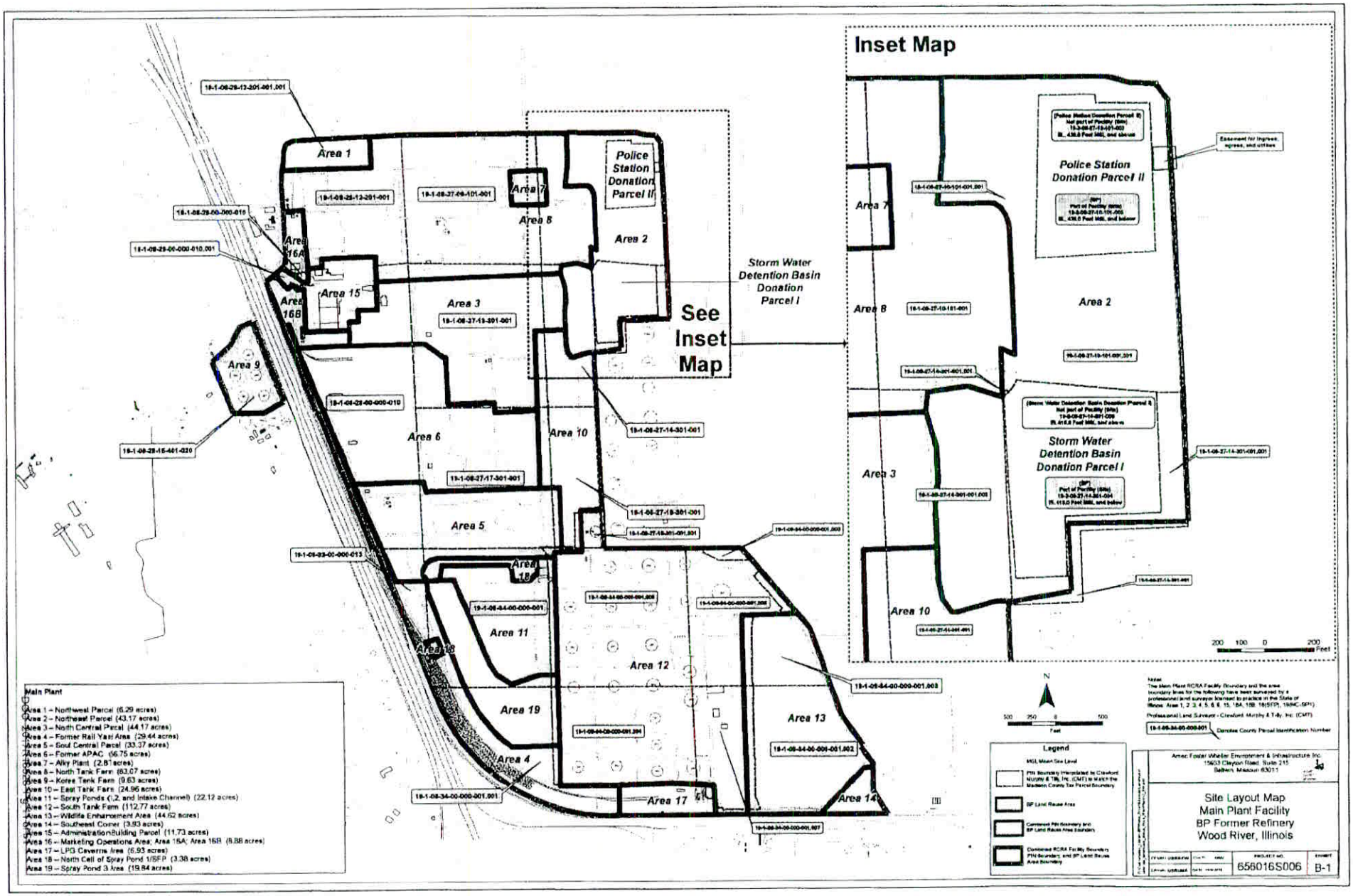
Maps Contained in Exhibit B

Exhibit B:

B-1: Site Layout Map
B-2: Police Station Donation Parcel Survey/Legal Description Map
B-3: Area 2 ELUC Map

PIN: 19-2-08-27-10-101-002

[See attached]


Inset Map
See Inset Map
Police Station Donation Parcel II
Storm Water Detention Basin Donation Parcel I
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
Area 14
Area 15
Area 16A
Area 16B
Area 17
Area 18
Area 19
Main Plant
Area 1 – Northwest Parcel (6.29 acres)
Area 2 – Northeast Parcel (43.17 acres)
Area 3 – North Central Parcel (44.17 acres)
Area 4 – Former Rail Yard Area (29.44 acres)
Area 5 – Soul Central Parcel (33.37 acres)
Area 6 – Former APAC (56.75 acres)
Area 7 – Alky Plant (2.81 acres)
Area 8 – North Tank Farm (63.07 acres)
Area 9 – Koree Tank Farm (9.63 acres)
Area 10 – East Tank Farm (24.96 acres)
Area 11 – Spray Ponds (1,2, and Intake Channel) (22.12 acres)
Area 12 – South Tank Farm (112.77 acres)
Area 13 – Wildlife Enhancement Area (44.62 acres)
Area 14 – Southeast Corner (3.93 acres)
Area 15 – Administration/Building Parcel (11.73 acres)
Area 16 – Marketing Operations Area; Area 16A; Area 16B (8.88 acres)
Area 17 – LPG Caverns Area (6.93 acres)
Area 18 – North Cell of Spray Pond 1/SFP (3.38 acres)
Area 19 – Spray Pond 3 Area (19.84 acres)
Legend
Site Layout Map
Main Plant Facility
BP Former Refinery
Wood River, Illinois
656016S006
B-1

R001201

BP DONATION PARCEL II

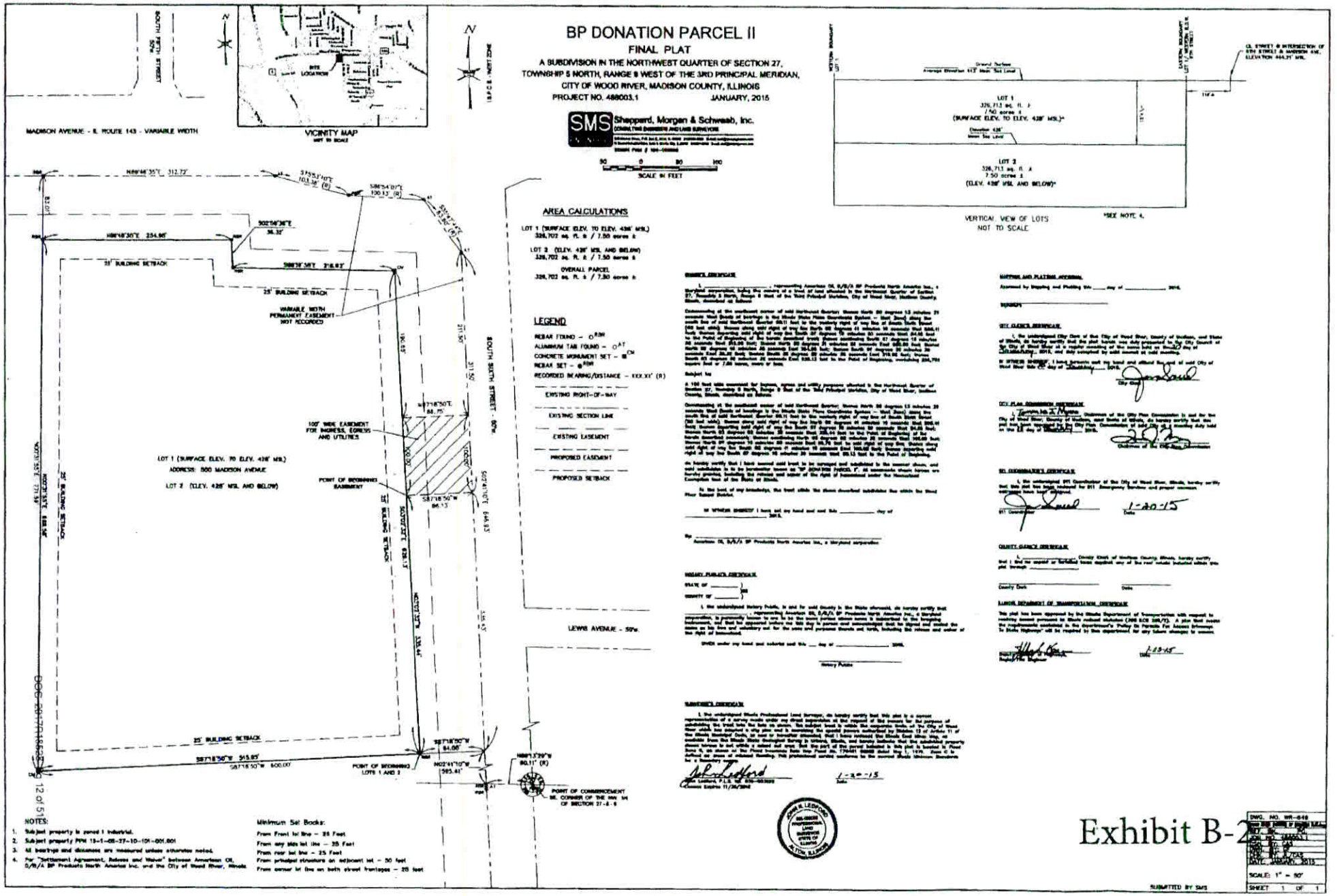
FINAL PLAT

A SUBDIVISION IN THE NORTHWEST QUARTER OF SECTION 27, TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE 3RD PRINCIPAL MERIDIAN, CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS

PROJECT NO. 488003.1 JANUARY, 2015

Sheppard, Morgan & Schwaab, Inc.

CONSULTING ENGINEERS AND LAND SURVEYORS



AREA CALCULATIONS

LOT 1 (SURFACE ELEV. TO ELEV. 428' MSL)
326,702 sq. ft. ± / 7.50 acres ±

LOT 2 (ELEV. 428' MSL AND BELOW)
326,702 sq. ft. ± / 7.50 acres ±

OVERALL PARCEL
326,702 sq. ft. ± / 7.50 acres ±

LEGEND

REBAR FOUND – ○ RBF
ALUMINUM TAB FOUND – ○ AT
CONCRETE MONUMENT SET – ■ CM
REBAR SET – ● RBS
RECORDED BEARING/DISTANCE – XXX.XX' (R)
EXISTING RIGHT-OF-WAY
EXISTING SECTION LINE
EXISTING EASEMENT
PROPOSED EASEMENT
PROPOSED SETBACK

OWNER'S CERTIFICATE

L _____, representing Amoco Oil, S/B/A BP Products North America Inc., a Maryland corporation, being the owners of a tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 00 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System – West Zone) along the east line of said Northwest Quarter 644.83 feet to the southerly right of way line of South Sixth Street (66 foot wide); thence along said right of way line South 87 degrees 18 minutes 50 seconds West 915.85 feet; thence continuing said right of way line South 87 degrees 18 minutes 50 seconds West 600.00 feet to the Point of Beginning of the herein described property; thence continuing South 87 degrees 18 minutes 50 seconds West 84.98 feet; thence North 89 degrees 48 minutes 35 seconds West 312.72 feet; thence South 87 degrees 55 minutes 10 seconds East 103.36 feet; thence South 88 degrees 54 minutes 01 seconds East 100.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:

A 100 foot wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 00 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System – West Zone) along the east line of said Northwest Quarter 644.83 feet to the southerly right of way line of South Sixth Street (66 foot wide); thence along said right of way line South 87 degrees 18 minutes 50 seconds West 915.85 feet; thence continuing said right of way line South 87 degrees 18 minutes 50 seconds West 600.00 feet; thence North 02 degrees 41 minutes 10 seconds West 595.41 feet to the Point of Beginning of the herein described easement; thence continuing North 02 degrees 41 minutes 10 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 84.98 feet to said right of way line; thence along said right of way line South 89 degrees 13 minutes 39 seconds East 80.11 feet; thence continuing said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

I, _____, hereby certify that I have surveyed and subdivided the above described tract of land into lots, streets and easements as shown on the accompanying plat, which plat is a correct representation of said survey and subdivision. I further certify that all of the land included in said plat is within the Wood River School District.

IN WITNESS WHEREOF I have hereunto set my hand and seal this _____ day of _____, 2015.

By _____
Amoco Oil, S/B/A BP Products North America Inc., a Maryland corporation

NOTARY PUBLIC CERTIFICATE

STATE OF _____ }
COUNTY OF _____ } SS

I, the undersigned Notary Public, in and for said County in the State aforesaid, do hereby certify that _____, representing Amoco Oil, S/B/A BP Products North America Inc., a Maryland corporation, is personally known to me to be the same person whose name is subscribed to the foregoing instrument, appeared before me this day in person and acknowledged that he signed and delivered the said instrument as his free and voluntary act for the uses and purposes therein set forth, including the release and waiver of the right of homestead.

GIVEN under my hand and notarial seal this ___ day of _____, 2015.

_____
Notary Public

SURVEYOR'S CERTIFICATE

I, the undersigned Illinois Professional Land Surveyor, do hereby certify that this plat is a correct representation of a survey made under my direct supervision of the property described in the caption hereon, for the purpose of subdividing the tract into the lots as shown. The subject tract is within the corporate limits of the City of Wood River which has adopted a city plan and is exercising the special powers authorized by Division 12 of Article 11 of the Illinois Municipal Code. All of the improvements required by the subdivision ordinance are in place and available from this survey. Monuments shown thereon as existing, set, found or to be set, are of the character and occupy the positions indicated thereon, and are sufficient to enable the survey to be retraced. No part of the parcel included in this plat is located in Flood Zone A, as shown on the Flood Insurance Rate Map Panel No. 17boo1 C0035 dated May 1, 1979. Zone C is defined as "areas of minimal flooding." This professional service conforms to the current Illinois Minimum Standards for a boundary survey.

_____ 1-30-15
John Ledford, P.L.S. No. 035-003909 Date
License Expires 11/30/2016

JOHN M. LEDFORD 035-003909 PROFESSIONAL LAND SURVEYOR STATE OF ILLINOIS ALTON, ILLINOIS

MAYOR AND PLATTING APPROVAL

Approved by Mayoring and Platting this ___ day of _____, 2015.

MAYOR

CITY CLERK'S CERTIFICATE

I, the undersigned City Clerk of the City of Wood River, County of Madison, and State of Illinois, do hereby certify that the plat hereon was duly presented to the City Council of the City of Wood River at a regular meeting of the same held on the 20 day of January, 2015, and duly accepted by said council at said meeting.

IN WITNESS WHEREOF, I have hereunto set my hand and official Seal of said City of Wood River this 20 day of January, 2015.

_____
City Clerk

CITY PLAN COMMISSION CERTIFICATE

I, _____, Chairman of the City Plan Commission in and for the City of Wood River, County of Madison, and State of Illinois, do hereby certify that the plat hereon was duly approved by the City Plan Commission at a meeting duly held on the 15 day of December, 2014.

_____
Chairman of the City Plan Commission

911 COORDINATOR'S CERTIFICATE

I, the undersigned 911 Coordinator of the City of Wood River, Illinois, hereby certify that this plat has been reviewed for 911 Emergency Services and proper addresses have been assigned.

_____ 1-20-15
911 Coordinator Date

COUNTY CLERK'S CERTIFICATE

I, _____, County Clerk of Madison County, Illinois, hereby certify that I find no unpaid current or forfeited taxes against any of the real estate included within this plat through _____.

_____ _____
County Clerk Date

ILLINOIS DEPARTMENT OF TRANSPORTATION CERTIFICATE

This plat has been approved by the Illinois Department of Transportation with respect to roadway access pursuant to Illinois revised statutes (1985 ILCS 205/72). A plan that meets the requirements established in the Department's Policy to Permits For Access Driveways to State Highways" will be required for any access changes to occur.

_____ 1-29-15
Region Engineer Date

NOTES:
1. Subject property is zoned I Industrial.
2. Subject property PIN 19-1-08-27-10-101-001.001
3. All bearings and distances are measured unless otherwise noted.
4. Per "Settlement Agreement, Release and Waiver" between Amoco Oil, S/B/A BP Products North America Inc. and the City of Wood River, Illinois

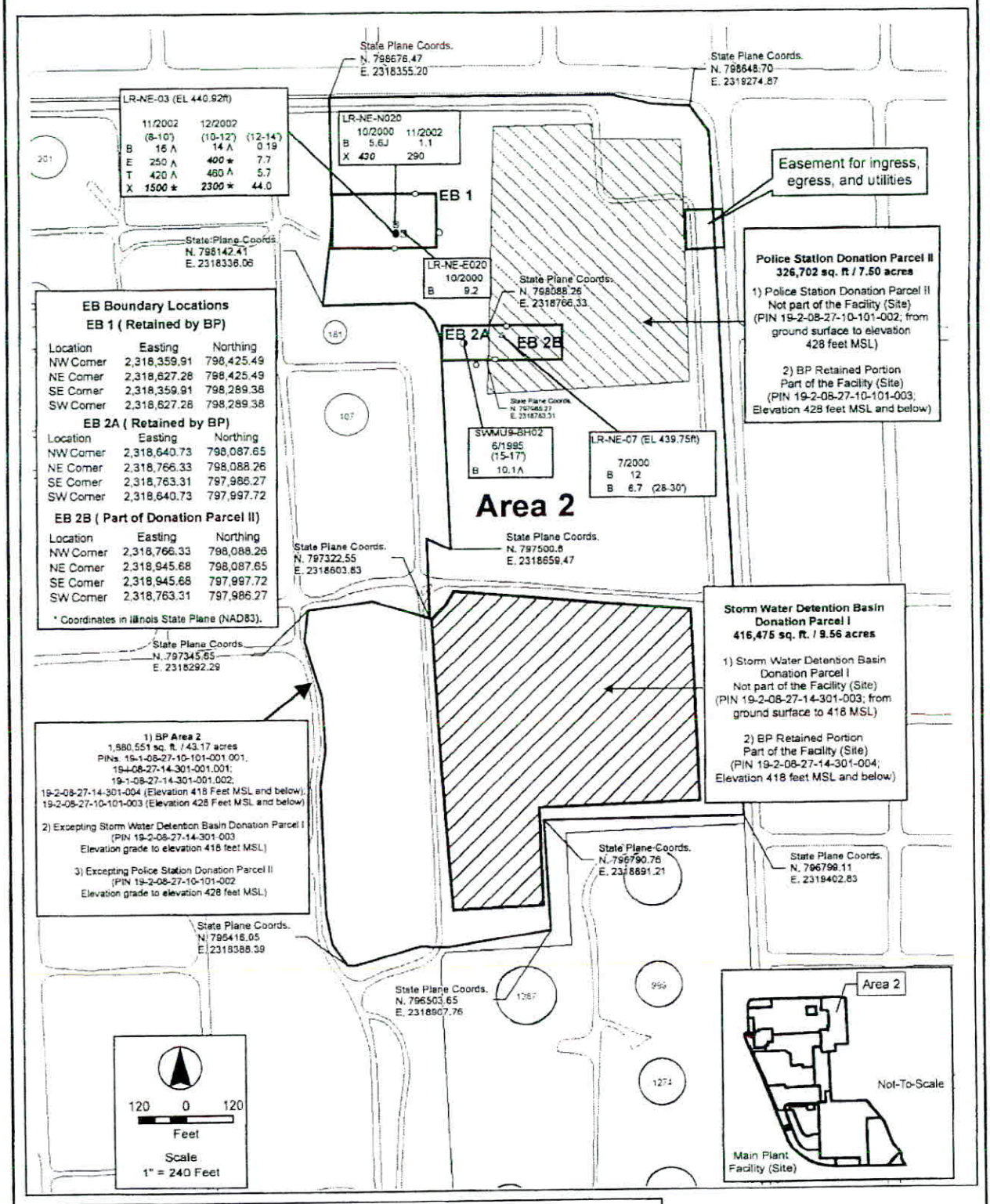
Minimum Set Backs:
From Front lot line – 25 Feet
From any side lot line – 25 Feet
From rear lot line – 25 Feet
From principal structure on adjacent lot – 50 feet
From corner lot line on both street frontages – 25 feet

SUBMITTED BY SMS

Exhibit B-2

DWG. NO. WR-648
SCALE: 1" = 80'
SHEET 1 OF 1

R001202



EB Boundary Locations

EB 1 (Retained by BP)

Location	Easting	Northing
NW Corner	2,318,359.91	798,425.49
NE Corner	2,318,627.28	798,425.49
SE Corner	2,318,359.91	798,289.38
SW Corner	2,318,627.28	798,289.38

EB 2A (Retained by BP)

Location	Easting	Northing
NW Corner	2,318,640.73	798,087.65
NE Corner	2,318,766.33	798,088.26
SE Corner	2,318,763.31	797,986.27
SW Corner	2,318,640.73	797,997.72

EB 2B (Part of Donation Parcel II)

Location	Easting	Northing
NW Corner	2,318,766.33	798,088.26
NE Corner	2,318,945.68	798,087.65
SE Corner	2,318,945.68	797,997.72
SW Corner	2,318,763.31	797,986.27

* Coordinates in Illinois State Plane (NAD83).

Legend

B: Benzene
E: Ethylbenzene
T: Toluene
X: Xylenes
J: Estimated Concentration based on QC Review

All Results are Presented in mg/kg

B 9.2 Λ Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 6-10' Unless Specified)
X 1500 ★ Exceeds Soil Saturation Limit
B 1.1 Does Not Exceed Tier 2 Soil Inhalation RO
2016 BP Police Station Donation Parcel II; subject to 35 IAC 742.Subpart L Building Control Technologies

2011 Storm Water Detention Basin Donation Parcel I

Sampling Locations
(Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)

RFI Boring Location (1995)
Confirmation Boring Location of RFI Results (2000)
Former Aboveground Tank Boring Location (2000)
Step-Out Boring Location (2000)
Midpoint Between Samples With and Without Tier 2 Exceedence
Area of Engineered Barrier (EB)/Model of Soil Impact in Excess of Tier 2 Inhalation ROs

(MSL) Mean Sea Level

Amec Foster Wheller Environment & Infrastructure Inc.
15933 Clayton Road, Suite 215
Ballwin, Missouri 63011

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

DRAWN URS/JMA DATE 11/18/2016 656016S006 EXHIBIT B-3

Exhibit C

Copies of NFA letters related to the Donation Parcel

1191150001 – Madison County
BP Products North America Inc. – Wood River Former Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

[See attached]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

August 13, 2002

CERTIFIED MAIL
7001 2510 0002 3279 8113

Gregory S. Jevyak, Environmental Business Manager
Global Environmental Management Business Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

Dear Mr. Jevyak:

This is in response to several recent submittals regarding RCRA corrective action activities at an area known as the "Northeast Corner Parcel (Area 2)" at the above-referenced facility (a list of these submittals is provided in Attachment 1 to this letter). A site layout map showing this area within the facility and the parcel's legal description, are provided as Attachments 2 and 3 respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The submittals identified in Attachment 1 to this letter contain information regarding the investigative and remedial activities completed to date in Area 2. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 2 on August 15, 2000. Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 2 provided the following requirements are met:

1. Two areas within Area 2 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 2 delineating the two areas where an engineered barrier must be established is presented in Attachment 4 to this letter.

2. Any excavation and subsurface construction work in Area 2 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 2 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 2 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 2 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

   (3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 2 must remain commercial/industrial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5, 7 and 8 will be met in the future.

7. Contaminated soil present at the following sample locations is properly managed via engineered barriers or SWMU9-BH02 addressed to achieve remediation objectives developed in accordance with 35 Ill. Adm. Code 742:

LR-NE-03	LR-NE-03-N020
LR-NE-03-E020	LR-NE-07

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

   a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications;

   b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the Parcel, except as required by Condition 8(a) above; and

   c. In an Illinois EPA letter dated March 13, 2002, the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility was revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following Illinois EPA's review of the associated permit modification request dated May 10, 2002 for the revised GMZ, the Illinois EPA will modify the RCRA Part B permit to incorporate the revision to the GMZ.

9. Prior to completion of a corrective action associated with a GMZ the groundwater quality standards (Class I or Class II) are not applicable while the GMZ is being monitored and maintained. As stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary,

and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code 742.1000(c).

10. Additional field duplicates must be collected in future groundwater sampling events. One (1) field duplicate must be collected for every ten (10) samples collected.

11. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

12. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\20021582s.doc
JKM-EBM

Attachments:
1. List of Area 2 Submittals
2. Topographic Map/Site Layout Map
3. Legal Description of Area 2
4. Portions of Area 2 Requiring an Engineered Barrier
5. Corrective Action Certification Form

Attachment 1
Log No. B-147-CA-14
Information Submitted by Facility

This document identifies the information received and reviewed by Illinois EPA as it evaluated a request for No Further Action in Area 2 of the Amoco/Main Plant Facility (Illinois EPA ID No 1191150001; USEPA ID No. ILD980700967). This information was assigned Log No. B-147-CA-14 by Illinois EPA.

1. A September 21, 2001 submittal from Frederick W. Johnson, URS, and Gregory S. Jevyak, BP which included a document entitled "Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

2. A October 12, 2002 submittal from Keith T. Wilcoxson, URS, containing revised tables in response to comments received from Harry Chappel.

3. A December 20, 2001 submittal from Frederick W. Johnson, URS which included a document entitled "Addendum 1—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

4. A January 22, 2002 submittal from Gregory S. Jevyak, BP America, Inc., which included a document entitled "Addendum 2—Northeast Corner (Area 2) Land Reuse and Investigation Report

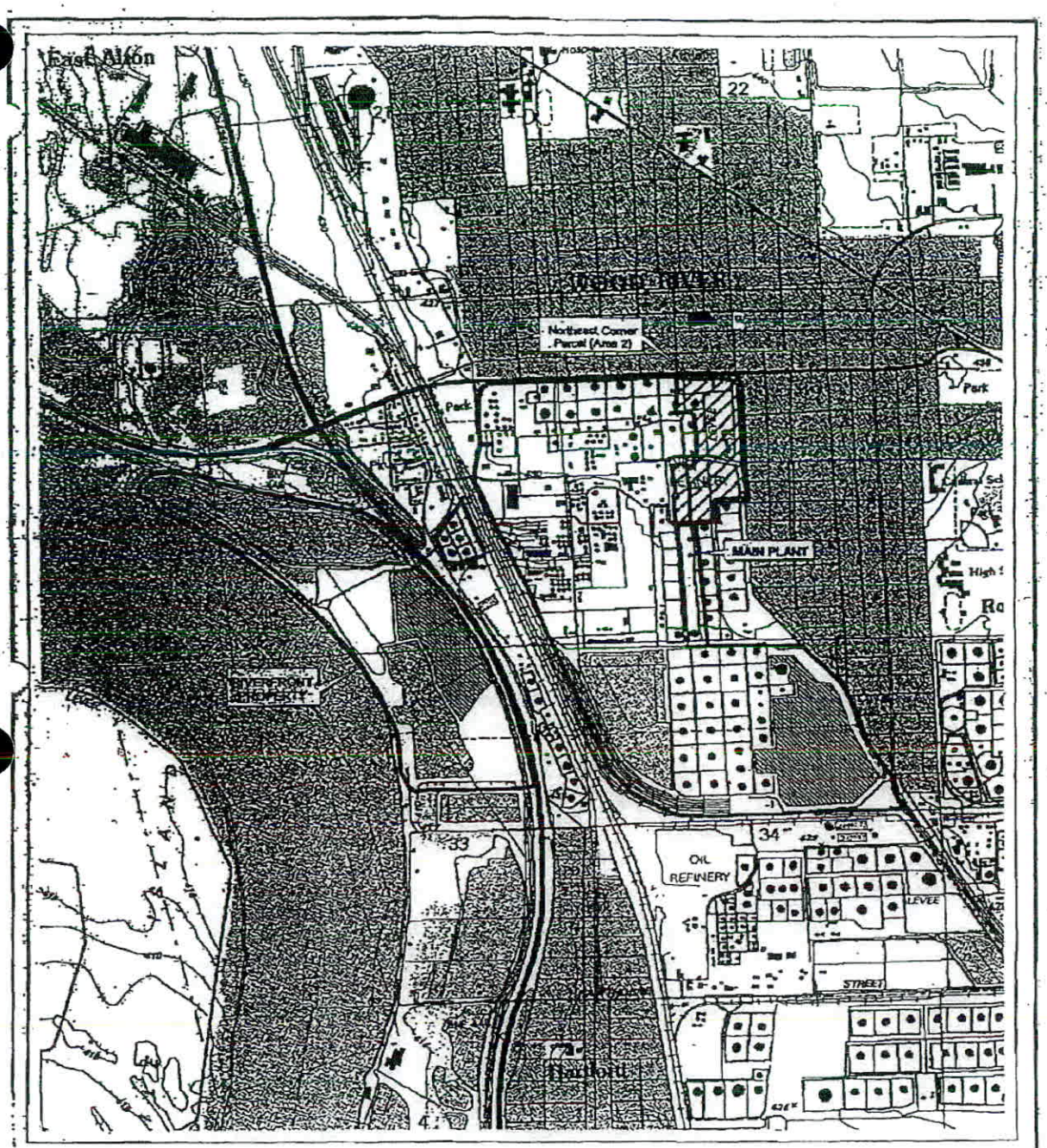
5. An April 5, 2002 submittal from Dennis A. Kasner and Frederick W. Johnson, URS which included a document entitled "Addendum 3—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

6. A May 16, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, URS which served as Addendum 4 to the Northeast Corner (Area 2) Land Reuse Investigation and Status Report.

7. A July 26, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, PE., URS, which contained additional information regarding issues addressed in Addendum 3.

8. A July 26, 2002 submittal from John Dennison, URS, which contained drawings of Area 2 and the legal description for Area 2.

att 1 b-147-ca-14



Attachment 2

Attachment 3
B-147-CA-14

This document contains the legal description for that portion of the former BP refinery in Wood River, Illinois (Illinois EPA Site No. 1191150001; USEPA ID No. ILD980700967) referred to as the "Northeast Corner" or "Area 2." Area 2 is 43.17 acres and is composed of two tracts (a 36.91 acre tract referred to as "Leased Tract 2" and a 6.26 acre tract referred to as "Leased Tract 3"). A legal description of each of these individual tracts is provided on the following pages.

att2 b-147-ca-14

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET - P.O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 2
See Corlew Plat CC 2051A

(36.91 Acres in the Northeast Corner of Amoco Main Plant in Wood River, IL)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide), the POINT OF BEGINNING of the tract herein described; thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet; thence North 00° 37' 37" West a distance of 862.36 feet; thence North 00° 23' 02" East a distance of 205.96 feet; thence South 63° 47' 13" East a distance of 67.39 feet; thence North 00° 18' 42" West a distance of 533.37 feet; thence North 07° 12' 26" West a distance of 32.06 feet; thence North 20° 48' 32" West a distance of 36.49 feet; thence North 33° 45' 54" West a distance of 36.12 feet; thence North 54° 50' 03" West a distance of 33.22 feet; thence North 88° 59' 50" West a distance of 233.69 feet; thence North 08° 34' 18" East a distance of 210.75 feet; thence North 01° 07' 40" East a distance of 324.73 feet; thence South 88° 13' 21" East a distance of 719.43 feet; thence South 73° 53' 06" East a distance of 103.38

M. B. CORLEW & ASSOCIATES, INC.

feet; thence South 84° 54' 03" East a distance of 100.13 feet; thence South 33° 47' 40" East a distance of 83.60 feet; thence South 00° 41' 06" East a distance of 1242.50 feet to the point of beginning, containing 36.91 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L
STAHLHUT
35-2214
REGISTERED
LAND SURVEYOR

(Seal)

Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET • P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 3
See Corlew Plat CC 2051A

(6.26 Acres in the Northeast Corner of Amoco Main Plant in Wood River, Illinois)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide); thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet to the POINT OF BEGINNING of the tract herein described; thence North 85° 28' 20" West a distance of 66.31 feet; thence South 76° 05' 07" West a distance of 176.24 feet; thence North 86° 57' 09" West a distance of 19.35 feet; thence North 32° 52' 02" West a distance of 68.25 feet; thence North 09° 08' 23" West a distance of 79.65 feet; thence North 00° 01' 05" West a distance of 331.70 feet; thence North 10° 17' 24" East a distance of 94.49 feet; thence North 01° 16' 11" West a distance of 140.22 feet; thence North 14° 34' 25" West a distance of 157.07 feet; thence North 08° 34' 56" East a distance of

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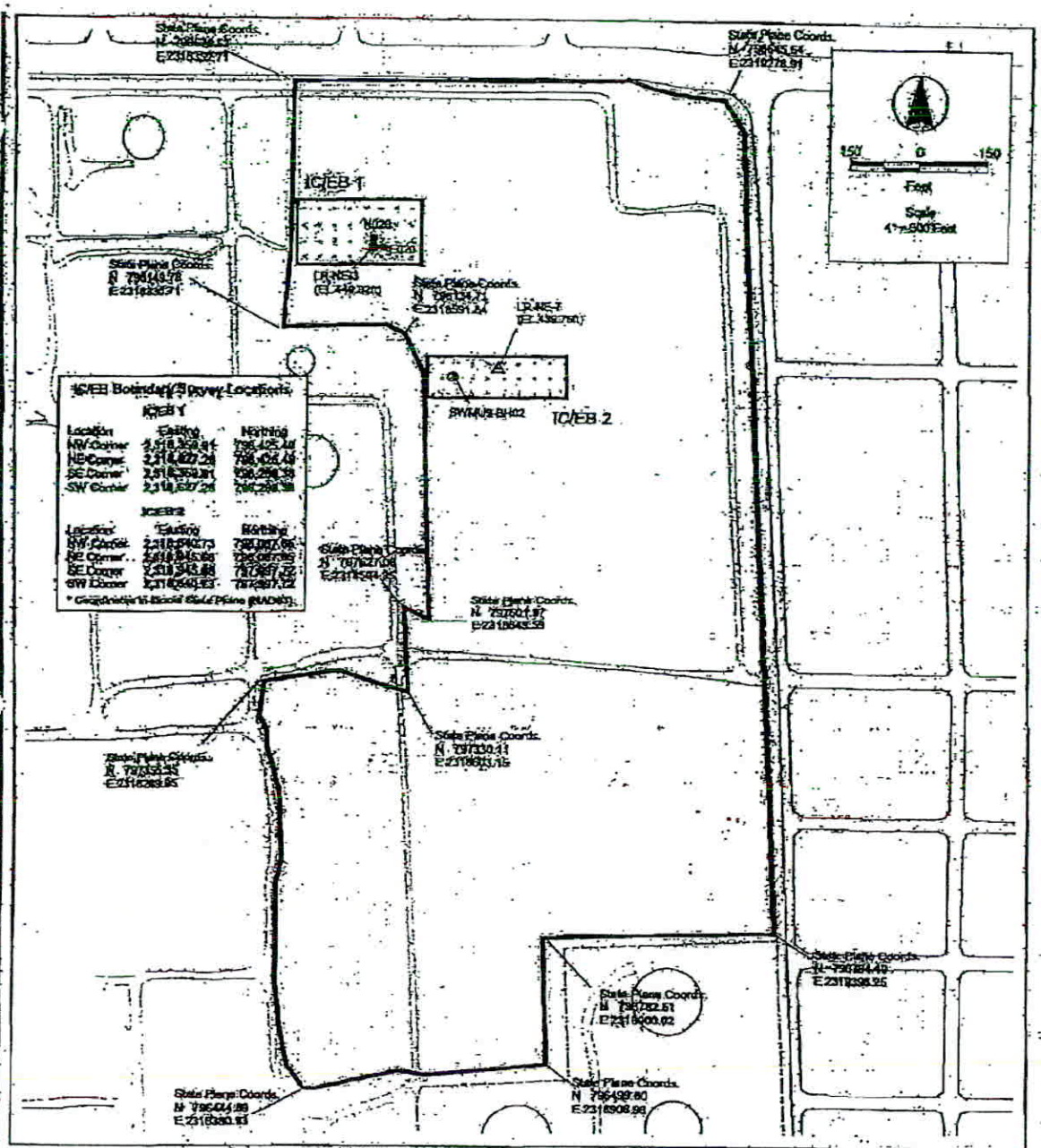
80.46 feet; thence North 83° 50' 58" East a distance of 167.06 feet; thence South 70° 15' 17" East a distance of 153.53 feet; thence South 00° 37' 37" East a distance of 862.36 feet to the point of beginning, containing 6.26 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L. STAHLHUT
35-2214
REGISTERED LAND SURVEYOR

Larry L. Stahlhut, RLS #2214 (Seal)
My License Expires 11/30/2002

MBC 99-168



Legend

- RR Sampling Locations (1995)

Sampling Locations

- Confirmation Samples of RR Results
- Former Tank Location
- Step-Out Borings
- Northeast Parcel (Area 2)
- Areas Planned for Institutional Control/ Engineered Barriers (IC/EB)

Basis For IC/EB Area Identification:

- Application of Institutional Controls to ensure a surface engineered barrier of approved specifications is maintained atop exceedances of Tier 2 Inhalation Remediation Objectives (ROs).
- Application of Institutional Control to require Site Safety Plan to protect Construction Workers.
- The proposed IC/EB areas are represented as polygons to facilitate georeferencing of area boundaries.

Note:
- Elevations shown hereon are ground elevations (ft. above MSL).
- Coordinates in Illinois State Plane Coordinate System (NAD83)

URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

AREA 2 ELUC EXHIBIT D
INSTITUTIONAL CONTROL/
ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN JD | CHKD KW | PROJECT NO. | FILE NO.
DRAWN MDC | DATE 7/26/02

Attachment 4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, ILLINOIS 60601 • (312) 814-6026

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/524-3300

November 3, 2011

CERTIFIED MAIL
7009 3410 0002 3751 3834

Mr. Tom Tunnicliff
Environmental Business Manager
Atlantic Richfield Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

Re: 1191150001 – Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-12
Received: August 12, 2011
RCRA Permit

Dear Mr. Tunnicliff:

This is in response to an August 11, 2011 submittal made on behalf of BP Products North America by George Valera and Ryan P. Hartley, P.E., URS Corporation regarding certain RCRA corrective action activities at the above-referenced facility. The RCRA corrective action program set forth in the subject facility's RCRA permit broke the facility up into several areas and required that each area be adequately remediated.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, No Further Action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft letter of the required institutional control, an Environmental Land Use Control (ELUC) on January 29, 2003 and BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

A revision of the Area 2 ELUC has become necessary as BP is donating a certain portion of Area 2 to the City of Wood River for use as a storm water basin (a drawing showing the location of this parcel of land is provided as Attachment 2 to this letter). The August 11, 2011 submittal mentioned above contained a proposed ELUC which would be established for the 9.56 acre parcel of land being donated to the city; it must be noted that this parcel only extends from the ground surface to an elevation depth of 418 mean sea level (approximately 25 feet below ground surface).

Illinois EPA has reviewed the draft ELUC for the parcel of land within Area 2 at the BP Products North America Inc. facility at 301 Evans Avenue in Wood River, Illinois which is to be donated to the City of Wood River and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 of the facility covered by the ELUC being approved herein is provided in Attachment 3. According to information provided by Mr. Valera, the PIN for this parcel is 19-2-08-27-14-301-003.

2. The recorded ELUC will supersede the ELUC recorded on February 5, 2003 for this property as Document No. 2003R08605.

3. The final ELUC filed with the Office of the Recorder or Registrar of Titles for Madison County must include a dated and notarized signature of the property owner.

4. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

5. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder or Registrar of Titles for Madison County, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

6. Within 30 days after filing the approved ELUC in accordance with Condition 3 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder or Registrar of Titles for Madison County that the ELUC was properly filed, must be submitted to Illinois EPA.

7. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Agency no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

8. The limitations or requirements of the ELUC apply in perpetuity or until:

   a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

   b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

9. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

10. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

    Illinois Environmental Protection Agency
    Bureau of Land -- #33
    Permit Section
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

11. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This action shall constitute Illinois EPA's final action on the subject submittal. Within 35 days after the date of mailing of Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of Illinois EPA. The 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days

by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Karen Nachtwey at 217/524-3233 of my staff.

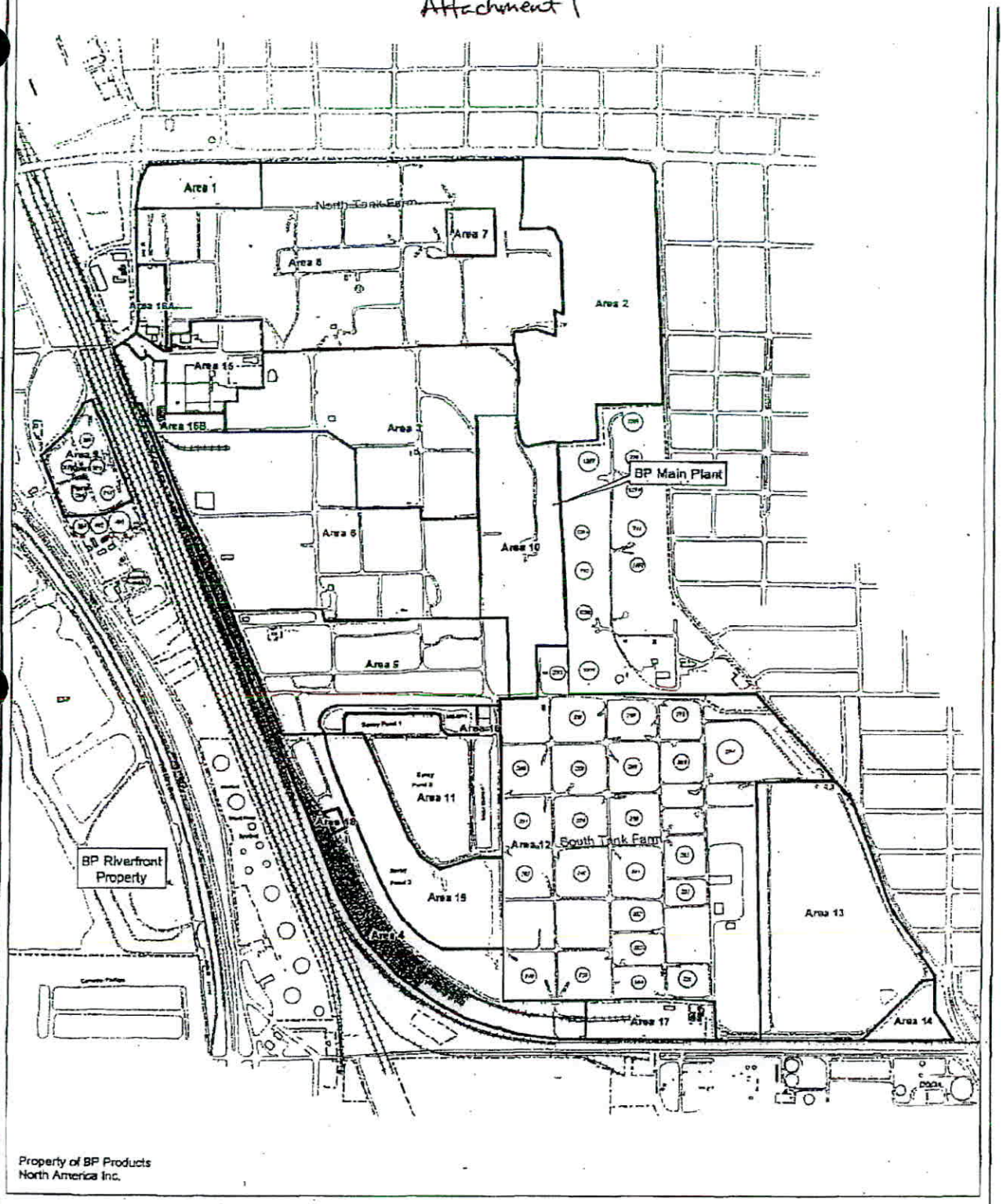
Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:KEN:bjh\111636s.doc
JCH
Attachment 1 – Site Layout Map
Attachment 2 - Map Showing Donated Parcel within Area 2
Attachment 3 – Legal Description of Donated Parcel

cc: Ryan P. Hartley, URS Corporation

Attachment 1



Property of BP Products North America Inc.

Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
Area 8 - North Tank Farm
Area 9 - Korea Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building Parcel
Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

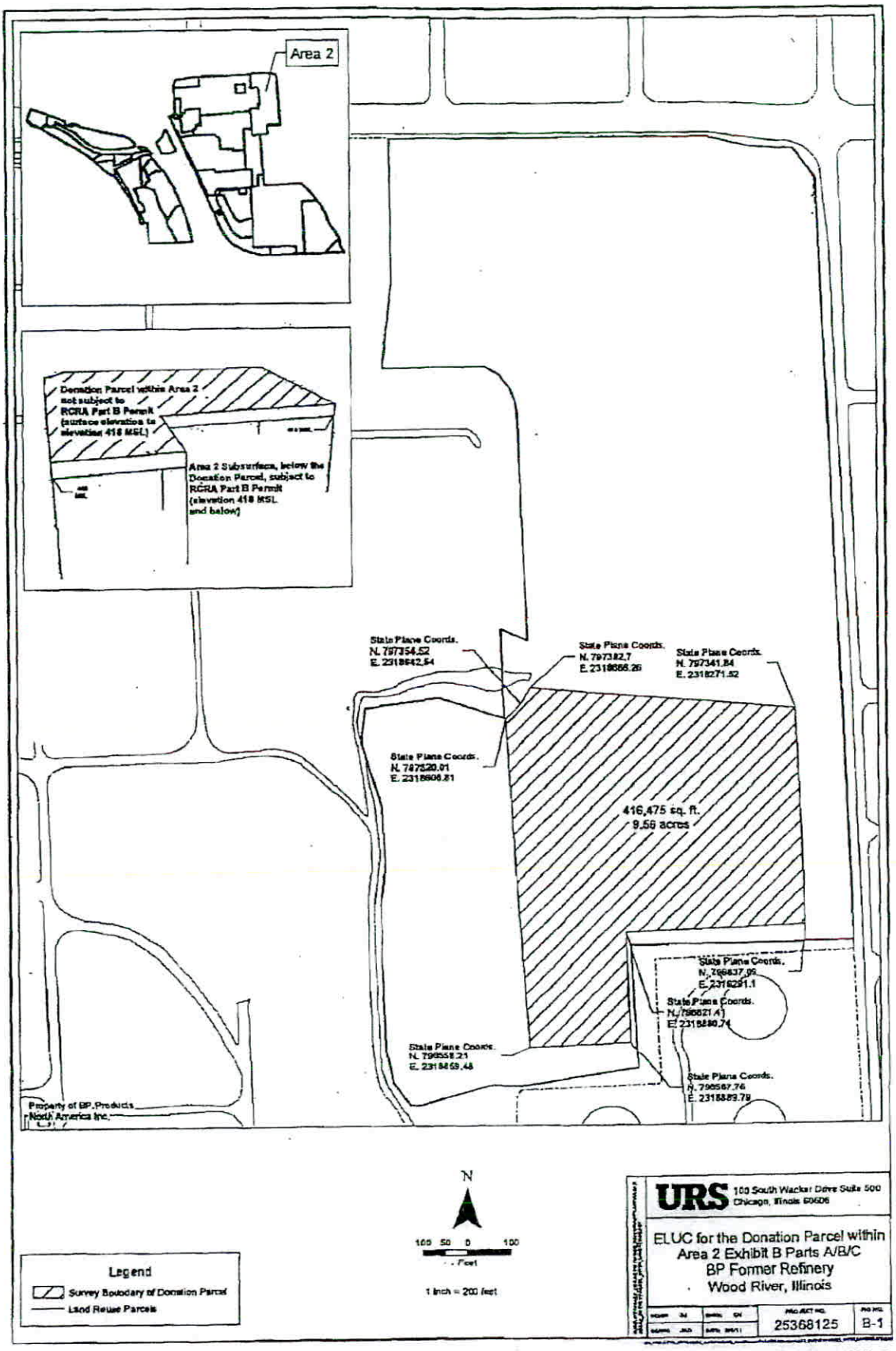
325 0 325
Feet

1 inch equals 750 feet

URS 100 South Wacker Drive Suite 900 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

B-147R-CA-12
Attachment 2



B-147R-Ch-12
Attachment 3

Exhibit A

Legal Description

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN NO. 19-2-08-27-14-301.003

Atlantic Richfield Company

Memorandum

DATE: December 1, 2011

TO: Madison County Recorder's Office, Edwardsville, Illinois - File

FROM: Thomas G. Tunnicliff, BP Products North America Inc.

SUBJECT: Minor Corrections to the Approved Donation Parcel within Area 2 ELUC dated November 3, 2011

The Illinois Environmental Protection Agency (Illinois EPA) approved the Environmental Land Use Control (ELUC) for the Donation Parcel within Area 2 on November 3, 2011. After review of this document, the following inconsistencies were identified:

Donation Parcel within Area 2 ELUC

- First page, last sentence, last paragraph - a reference to the approximate depth of the donation parcel indicates 25 feet. This should be 23 feet as stated in the August 11, 2011 submittal.
- Section 3.f of the Draft ELUC states the following: "BP is allowed access to the property for any groundwater monitoring or remediation efforts". This was not mentioned in the Illinois EPA letter. However, the Illinois EPA approved the Draft ELUC with this language and will be recorded as such.
- The PIN No. found in Attachment 3 needs to be changed from 19-2-08-27-14-301.003 to 19-2-08-27-14-301-003 which is changing the "." to "-".

Distribution
Stephen F. Nightingale, Illinois EPA
Ryan Hartley, URS Corporation

END OF DOCUMENT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, ACTING DIRECTOR

217/524-3300

August 22, 2016

CERTIFIED MAIL
7014 2120 0002 3289 3646

BP Products North America, Inc.
Attention: Lori G. Littrell, Operations Project Manager
180 West Warrensville Road
Naperville, Illinois 60563

RE: 1191150001—Madison County
BP Products North America, Inc. (BP/Main Plant)
ILD980700967
Log No. B-147R-CA-57 and CA-59
RCRA Permit

Dear Ms. Littrell:

This is in response to your December 2, 2015 and February 25, 2016 submittals regarding certain aspects of the corrective action program being carried out at the BP/Main Plant facility in Wood River, Illinois. This facility has a RCRA permit (Log No. B-147R and associated modifications) which, among other things, requires BP to properly remediate the site.

One of the portions of the BP/Main Plant facility being addressed under the RCRA corrective action provisions under its RCRA permit is referred to as "Area 2." BP has investigated, and as necessary, remediated this area in accordance with plans approved by Illinois EPA. Illinois EPA issued a no further action letter for the soils in this area on August 13, 2002; this determination was subsequently modified on February 27, 2012 to reflect the fact that the boundaries of Area 2 had been modified as a 9.56 acre parcel of land in the area had been donated to the City of Wood River for the construction of a storm water basin. A drawing showing the location of Area 2 within the subject facility is attached.

Your December 2, 2015 and February 25, 2016 submittals contained information regarding a 7.5 acre parcel of land in the northeast corner of Area 2; a drawing showing the location of this parcel within Area 2 is attached. This parcel of land is to be donated to the City of Wood River who will in turn construct a new police station within the parcel. Your December 2, 2015 submittal contained the legal description of the parcel of land being donated to the City of Wood River while your February 25, 2016 submittal contained the results of an investigation effort recently carried out at the facility to address the indoor air inhalation exposure route in accordance with 35 Ill. Admin. Code 742 (the regulations in 35 Ill. Admin. Code 742 regarding the indoor air inhalation exposure route did not become effective until July 15, 2013). Illinois EPA approved a plan to conduct this investigation effort on October 24, 2014.

Illinois EPA reviewed your December 2, 2015 and February 25, 2016 submittals as requests to modify the approved the RCRA corrective action program for the BP/Main Plant facility in Wood River, Illinois. Based on the results of this review, these submittals are hereby approved subject to the following conditions and modifications:

1. The boundaries of the proposed 7.5 acre parcel of land to be donated to the City of Wood River, as set forth in the December 2, 2015 submittal, are acceptable to Illinois EPA. As such, Parcel Identification Numbers should be obtained from the Madison County Recorder's Office for the portions of the parcel which:

   a. Extend from ground surface (average elevation 443' above mean sea level) downward to a subsurface plane which has an elevation of 428' above mean sea level; and

   b. Exist below a sub-surface plane which has an elevation of 428' above mean sea level.

2. The results of the analyses conducted on the samples collected during a soil gas investigation in the 7.5 acre parcel of land mentioned above met the remediation objectives set forth in 35 Ill. Admin. Code 742, Appendix B, Table H. An Environmental Land Use Control (ELUC) meeting the requirements of 35 Ill. Admin. Code 742.1010 must be established for this parcel of land which requires that all future buildings constructed on this parcel:

   a. Have a basement with concrete wall and floors:

   b. Be of concrete slab on grade construction; or

   c. Some combination of (a) and (b).

3. The donation of the 7.5 acre parcel of land mentioned above to the City of Wood River will modify the boundaries of Area 2 which is subject to an ELUC filed as Document 2011R45887 with the Madison County Recorder on December 7, 2011. In addition, this 7.5 acre parcel of land must be removed from the terms and conditions of the subject facility's RCRA permit (so that its ownership can be transferred to another entity). Thus, the following must be submitted to Illinois EPA for review and approval in support of these actions:

   a. A draft ELUC for the portion of Area 2 being retained by BP. This draft ELUC should be very similar to the one filed with the Madison County Recorder on December 7, 2011 modified as appropriate to reflect the new boundaries of Area 2 which result from the donation of the 7.5 acre parcel of land mentioned above to the City of Wood River.

   b. A draft ELUC developed for the 7.5 acre donation parcel in accordance with Condition 2 above and which also: (1) allows BP access to that parcel in the future for any groundwater monitoring or remediation efforts; and (2) contains any other restrictions on the parcel as set forth in the existing ELUC for Area 2.

   c. A request to modify the permit in accordance with 35 Ill. Admin. Code 703, Subpart G to remove the 7.5 acre parcel of land mentioned above from the definition of the facility covered by the BP/Main Plant facility's RCRA permit. Such a request would appear to be a Class 3 modification request. Thus, BP must submit the subject request in accordance with the procedures set forth in 35 Ill. Admin. Code 703.283 or it may request a determination by Illinois EPA that the request be viewed as a Class 1 or Class 2 modification request. If BP requests that the modification be classified as a Class 1 or Class 2 request, then the modification request must contain the necessary information to support the proposed classification. This modification request should not be submitted until

such time as the ELUCs described in this letter have been properly filed with the Madison County Recorder's office and certified copies of the filed documents are submitted to Illinois EPA.

4. Corrective action efforts at this facility must be carried out in accordance with: 35 Ill. Admin. Code 620, 724 and 742; (2) the facility's RCRA permit; and (3) Illinois EPA letters regarding such activities.

5. A completed RCRA Corrective Action Certification Form must accompany all submittals made to Illinois EPA regarding this project. To allow for the proper review of a submittal, two copies of each document should be submitted to Illinois EPA as well as the original.

6. A completed LPC-PA23 form must accompany any application to modify the subject facility's RCRA permit, along with: (a) detailed information regarding the modification request; and (b) a demonstration that the proposed modification meets the requirements of the applicable regulations in 35 Ill. Admin. Code 700-728 and the requirements of the facility's RCRA permit.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

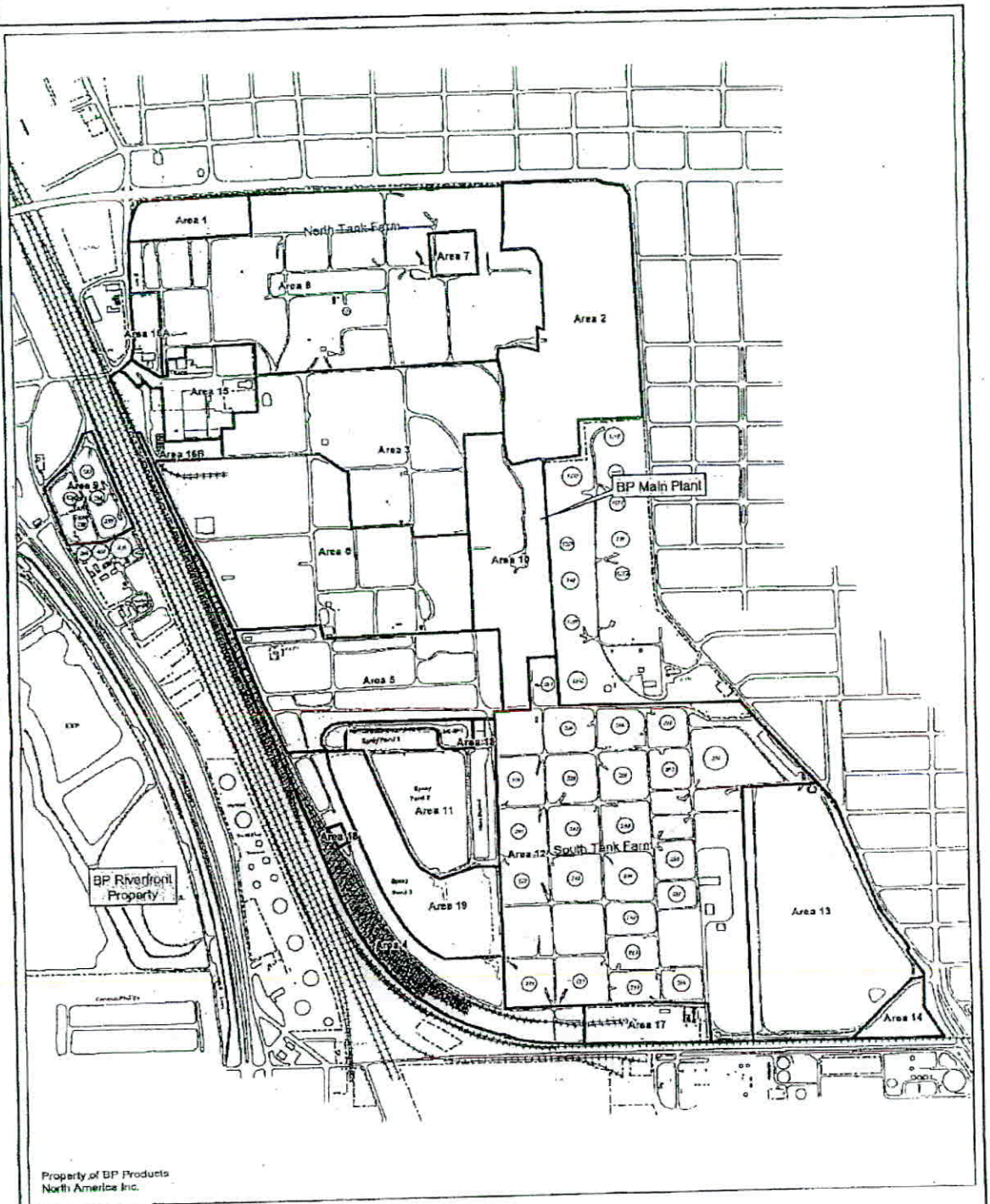
If you have any questions regarding the groundwater aspects of this letter, please contact Amy Boley at 217/558-4716. Questions regarding other aspects of this letter should be directed to Jim Moore at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:RCRA-1191150001-B-147R-CA-57
JKM AMB DM

Attachments: Site Layout Map
Location of Donation Parcel Within Area 2



Property of BP Products North America Inc.

Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
Area 8 - North Tank Farm
Area 9 - Horse Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building Parcel
Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Plume Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

325 0 325

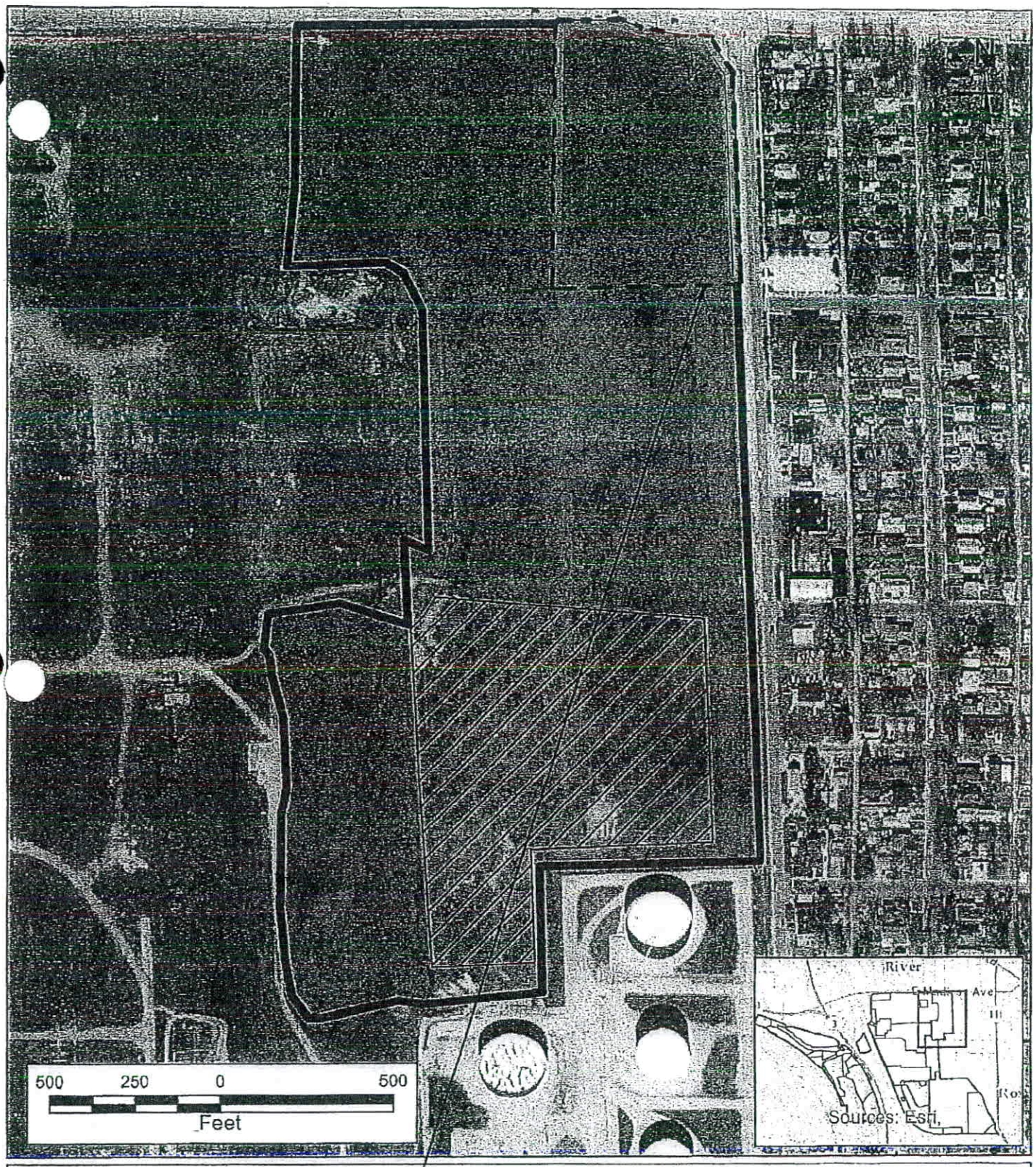
Feet

1 inch equals 750 feet

URS 100 South Wacker Drive Suite 500 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

PROJECT NO. 25366764



Legend

- Area 2 Land Reuse Parcel Boundary
- Area 2 Donation Parcel II Boundary
- Engineered Barrier Areas
- Exception Donation Parcel

FIGURE 1
SITE LOCATION MAP

AREA 2
BP Main Plant Property
Wood River, Illinois

amec

bp

Job No.	2424-13-034
Drawn By:	JLT
Reviewed By:	
Date:	2/26/2014

The map shown here has been created with all due and reasonable care and is solely for use with AMEC Project Number 2424-13-034. This map has not been certified by a licensed land surveyor, and any third party use of this map carries without exception all risks of any kind. AMEC assumes no liability, direct or indirect, whatsoever for any such third party or [illegible] use.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/524-3300

May 4, 2017

CERTIFIED MAIL
7014 2120 0002 3289 8054

BP Products North America Inc.
Attn: Lori G. Littrell, Operations Project Manager
150 West Warrenville
Naperville, Illinois 60563

Re: 1191150001 -- Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-77
Received: March 30, 2017
RCRA Permit

Dear Ms Littrell:

This is in partial response to your March 29, 2017 submittal regarding RCRA corrective action activities at the above-referenced RCRA permitted facility (Log No. B-147R and associated modifications). The subject facility is a closed oil refinery which is approximately 600 acres in size and located at 301 Evans Avenue, Wood River, Illinois. The RCRA corrective action program set forth in the subject facility's RCRA permit requires that BP properly remediate the entire facility. The RCRA permit broke the facility up into nineteen areas and sets forth a process for remediating the facility on an area by area basis. In addition, this permit contains provisions for removing remediated areas from the definition of the facility covered by the RCRA permit, thus allowing those areas to be more easily re-developed.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, no further action was necessary for the soils at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft Environmental Land Use Control (ELUC) on January 29, 2003 which would establish the required institutional controls for Area 2. BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

BP subsequently modified the ELUC for Area 2 to account for the fact that it desired to donate a 9.56 acre parcel within Area 2 to the City of Wood River for use as a storm water detention basin. This required that BP establish two new separate ELUCs which would supersede the

original one filed February 5, 2003, one for the parcel of land being donated to the City of Wood River and one for the remainder of Area 2 being retained by BP. As such, a draft ELUC for the parcel of land being donated to the City of Wood River was approved by Illinois EPA on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45888 on December 7, 2011. In addition, a draft ELUC for that portion of Area 2 retained by BP was approved by Illinois EPA in a second letter dated on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45887 on December 7, 2011.

BP is now donating a second parcel (7.5 acres in size) within Area 2 to the City of Wood River for the construction of a Police Station (this parcel is referred to as the "Police Station Donation Parcel"). Thus, BP must again establish two new ELUCs to replace the one filed on December 7, 2011 as Document No.2011R45887--one for the Police Station Donation Parcel and one for the remainder of Area 2 being retained by BP. The inset map to Attachment 1 to this letter shows the location of this 7.5 acre parcel of land within Area 2. It must be noted that the parcel being donated to the City only extends downward to a horizontal plane at elevation 428' above mean sea level (which is located approximately 15' below ground surface). BP will retain ownership of the parcel which exists below this plane as well as well as the remainder of Area 2. A legal description of the parcel being donated to the City of Wood River is provided as Attachment 2 to this letter.

A draft ELUC for Police Station Donation Parcel was approved by Illinois EPA on February 28, 2017. However, BP found that minor revisions needed to be made to this ELUC and Illinois EPA's letter before they could be filed with the Madison County, Illinois Recorder's Office. Your March 29, 2017 submittal described the minor revisions which needed to be made to the draft ELUC for the Police Station Donation Parcel and also included a revised draft ELUC for the Police Station Donation Parcel which incorporated these minor revisions.

Illinois EPA reviewed your March 29, 2017 submittal and the revised draft ELUC for the Police Station Donation Parcel as a request to modify the RCRA corrective action program at the BP/Main Plant facility and hereby approves them subject to the following conditions and modifications:

1. A legal description of the portion of 7.5 acre within Area 2 of the BP/Main Plant facility covered by the ELUC being approved herein is provided in Attachment 2. The Parcel Index No. for this parcel is 19-2-08-27-10-101-002. It must be noted that this parcel only extends vertically from the ground surface downward to a horizontal plane at elevation 428' above mean sea level (this horizontal plane is approximately 15' below the ground surface).

2. A copy of this letter must be filed along with the draft ELUC being approved herein with the Office of the Recorder for Madison County, Illinois.

3. As indicated above, Illinois EPA determined on August 13, 2002 that no further action was necessary for the soils within Area 2 provided an ELUC was established which placed certain restrictions on future activities within Area 2. The draft ELUC being approved

herein establishes the restrictions on the Police Station Donation Parcel required by Illinois EPA's August 13, 2002 letter.

4. Amendments to 35 Ill. Admin. Code 742 (Tiered Approach to Corrective Action Objectives) which became effective on July 15, 2013 required that the indoor air inhalation exposure route be addressed in developing remediation objectives for, among other things, RCRA corrective action projects. As a result, Illinois EPA's August 13, 2002 no further action determination for the soils within Area 2 did not address the indoor air inhalation exposure route. BP conducted further investigations in the subject 7.5 acre parcel in accordance with plans approved by Illinois EPA. On August 22, 2016, Illinois EPA determined that no further action was necessary to address the indoor air inhalation exposure route provided certain restrictions were placed on future activities within the subject 7.5 acre parcel. The draft ELUC being approved herein establishes the restrictions on the subject parcel required by Illinois EPA's August 22, 2016 letter.

5. Once the draft ELUC approved herein is recorded, it will supersede the ELUC recorded on December 7, 2011 as Document No. 2011R45887 as it pertains to the Police Station Donation Parcel.

6. The final ELUC filed with the Office of the Recorder for Madison County, Illinois must include a dated and notarized signature of the property owner.

7. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile

organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(2) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(4) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

f. The area designated as "EB 2B" of the Property, as shown in Attachment 3 to this letter and in Exhibit B-3 of the draft ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil

removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. The soil within the Property has met the remediation objectives set forth for the vapor intrusion exposure route in 35 Ill. Admin. Code 742, Appendix B, Table H. All future buildings constructed on this parcel must have a basement with concrete wall and floors, be of concrete slab-on-grade construction, or some combination thereof. BP has also specified the use of additional building control technologies (vapor membrane and contingency sub-slab vapor control system) for this donation parcel that are suitable pursuant to 35 Ill. Admin. Code 742, Subpart L.

h. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

8. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder for Madison County, Illinois, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

9. Within 30 days after filing the approved ELUC in accordance with Condition 8 above, a certified true copy of the filed ELUC, along with certification from the Office of the Recorder for Madison County, Illinois that the ELUC was properly filed, must be submitted to Illinois EPA.

10. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

11. The limitations or requirements of the ELUC apply in perpetuity or until:

a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

12. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification

request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

13. A completed Corrective Action Certification form must accompany all corrective-action related information submitted to Illinois EPA. To allow for the proper review of each submittal, please provide the original and one copy of each submittal (two copies if the submittal is groundwater related.

14. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Jim Moore of my staff at 217/524-3295.

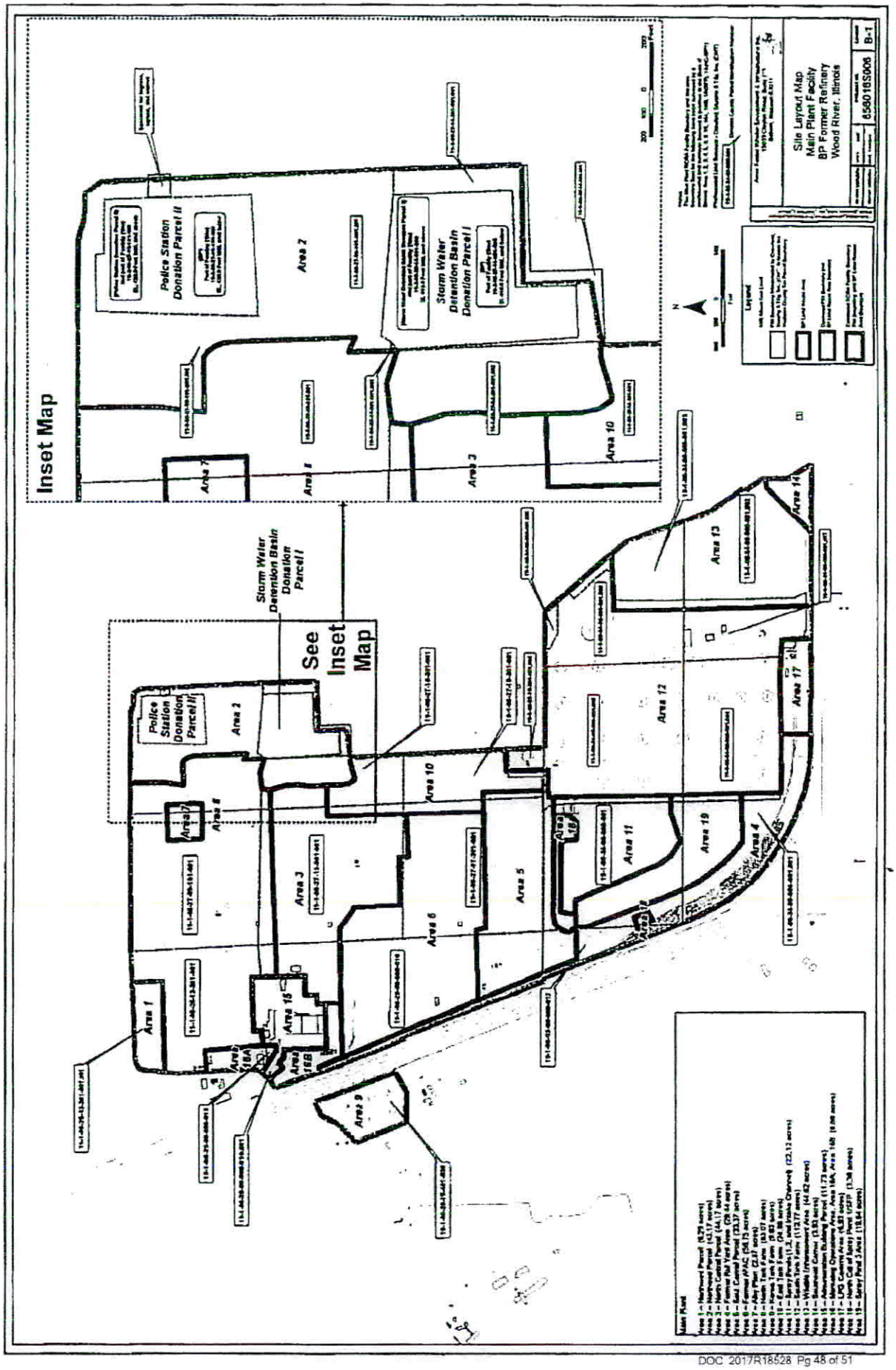
Sincerely,

Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:1191150001-RCRA-B-147R-CA-77
AND JKM-TBH

Attachments: 1 – Site Layout Map
2 – Legal Description of Donation Parcel
3 – Location of Engineered Barrier Within the Donation Parcel

cc: Allison Crane, BP (via e-mail)



B-147R-CA-77
Attachment 1
Site Layout Map

B-147R-CA-77
Attachment 2
Legal Description of Donation Parcel

Exhibit A

Legal Description and Parcel ID of the "Property" covered by this ELUC

The subject property is located in the City of Wood River, Madison County, State of Illinois, commonly known as 301 Evans Avenue, Wood River, Illinois and more particularly described as:

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

This ELUC applies to that portion of the following described tract of land which extends from the ground surface down to a horizontal plane at elevation 428 feet above mean sea level. The approximate "thickness" of this property is 15 feet.

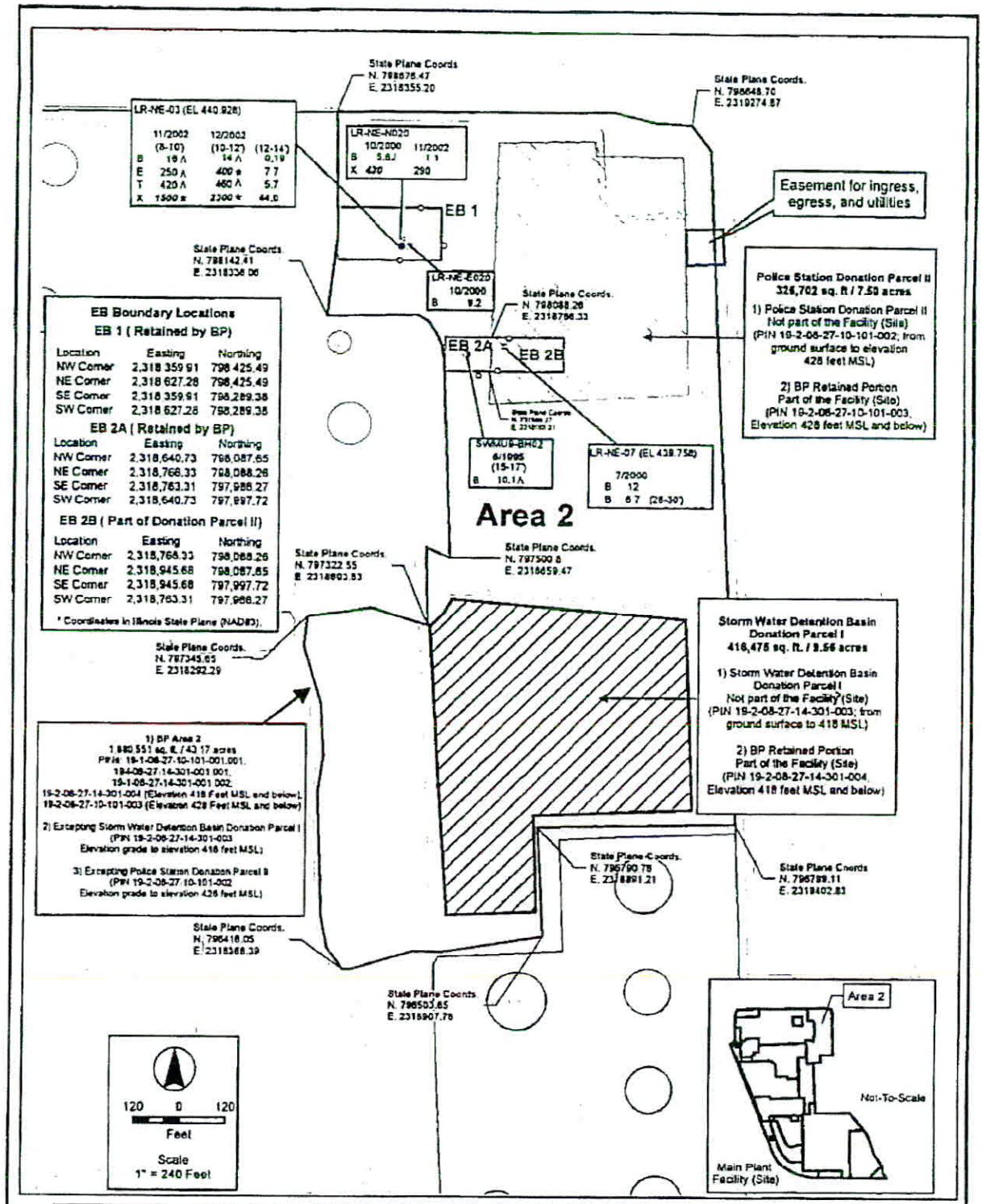
A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the

herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.



Legend

- B: Benzene
- E: Ethylbenzene
- T: Toluene
- X: Xylenes
- J: Estimated Concentration based on QC Review

All Results are Presented in mg/kg

- B9.2 A: Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 8-10' Unless Specified)
- X1500* Exceeds Soil Saturation Limit
- B 1.1: Does Not Exceed Tier 2 Soil Inhalation RO
- 2016 BP Police Station Donation Parcel II; subject to 35 IAC 742.Subpart L Building Control Technologies
- 2011 Storm Water Detention Basin Donation Parcel I
- Sampling Locations (Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)
- RFI Boring Location (1995)
- Confirmation Boring Location of RFI Results (2000)
- Former Aboveground Tank Boring Location (2000)
- Step-Out Boring Location (2000)
- Midpoint Between Samples With and Without Tier 2 Exceedence
- Area of Engineered Barrier (EB)/Model of Soil Impact in Excess of Tier 2 Inhalation ROs
- (MSL) Mean Sea Level

B-147R-CA-77
Attachment 3
Location of Engineered Barrier
Within the Donation Parcel

Amec Foster Wheeler Environment & Infrastructure Inc.
15933 Clayton Road, Suite 215
Ballwin, Missouri 63011

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

PROJECT NO. 6550163S006 EXHIBIT B-2

END OF DOCUMENT

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, Linda A. Andreas, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain ENVIRONMENTAL DISCLOSURE is the true and correct photocopy of said ENVIRONMENTAL DISCLOSURE from BP PRODUCTS NORTH AMERICA to NOTICES including the Certificate of Acknowledgment bearing date the 24th day of APRIL A.D. 2024 as the same appears in the records of my office in Document # **2017R18528** recorded on the 5th day of JUNE A.D. 2017

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 24th day of APRIL A.D. 2024.

Linda A. Andreas
RECORDER
in and for
MADISON COUNTY, ILLINOIS

R001242

Return to: (Fed Ex Env.)
FATIC
30 N. LaSalle St.
Ste 2700 699617
Chicago, IL 60602

8435108
Tx:4335443

2017R18529
STATE OF ILLINOIS
MADISON COUNTY
06/05/2017 4:13 PM
AMY M. MEYER, RECORDER
REC FEE: 73.00
CO STAMP FEE:
ST STAMP FEE:
FF FEE:
RHSPS FEE: 9.00
 # OF PAGES: 48

PREPARED BY:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

RETURN TO:

Name: Lori G. Littrell
Operations Project Manager
BP Products North America Inc.
Address: 150 West Warrenville
Naperville, IL 60563

82.00 ck
6395

THE ABOVE SPACE FOR RECORDER'S OFFICE

Environmental Land Use Control For Area 2

450F

THIS ENVIRONMENTAL LAND USE CONTROL ("ELUC"), is made this 22 day of May, 2017, by BP Products North America Inc., a Maryland corporation, ("Property Owner"), of the real property located at 301 Evans Avenue, Wood River, Illinois (referred to as the "Main Plant Facility"), which includes a 43.17 acre parcel of land referred to as "Area 2". Area 2 is the "Property" covered by this ELUC. This ELUC supersedes the ELUC recorded with the Madison County Recorder on December 7, 2011 as Document 2011R45887 for the Property which previously superseded the original ELUC recorded on February 5, 2003 as Document 2003R08605.

WHEREAS, 35 Ill. Admin. Code 742 and 415 ILCS 5/58.17 provide for the use of an ELUC as an institutional control in order to impose land use limitations or requirements related to environmental contamination so that persons conducting remediation can obtain a No Further Action determination from the Illinois Environmental Protection Agency ("IEPA"). Such determination has been obtained for the Property on August 13, 2002 and is attached hereto as Exhibit C. The reason for an ELUC is to ensure protection of human health and the environment. The limitations and requirements contained herein are necessary in order to protect against potential exposure to contaminated soil or groundwater or both that may be present on the Property as a result of prior industrial activities. Under 35 Ill. Adm. Code 742, the use of risk-based, site specific remediation objectives may require the use of an ELUC on real property and the ELUC may apply to certain physical features (e.g., engineered barriers, monitoring wells, caps, etc.).

WHEREAS, Property Owner intends to request risk-based, site specific soil and groundwater remediation objectives from the IEPA under 35 Ill. Admin. Code Part 742 to obtain risk-based closure for the Property, which is a portion of the Main Plant Facility ("Site"),

identified by Bureau of Land LPC number 1191150001, utilizing an ELUC (Exhibit B-1 shows the location of Area 2 (i.e. the "Property" covered by this ELUC within the Main Plant Facility).

NOW, THEREFORE, the recitals set forth above are incorporated by reference as if fully set forth herein and the Property Owner agrees as follows:

Section One. Property Owner does hereby establish an ELUC on the real estate, situated in the County of Madison, State of Illinois, and further described in Exhibit A attached hereto and incorporated herein by reference (the "Property").

Attached as Exhibits B-1 and B-2 are maps that show the legal boundary of the Property, the physical features to which the ELUC applies, the horizontal and vertical extent of the contaminants of concern above applicable remediation objectives for soil or groundwater or both, and the nature, location of the source, and direction of the contaminants of concern, as required under 35 Ill. Admin. Code Part 742.

a. The parcel covered by this ELUC is 43.17 acres in size; its Parcel Index Numbers (PINs) are:

19-1-08-27-10-101-001.001;
19-1-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (only exists below 418' mean sea level [MSL]);
19-2-08-27-10-101-003 (only exists below 428' MSL)
Excepting
19-2-08-27-14-301-003 (Ground surface to 418 Feet MSL) Donation Parcel I;
19-2-08-27-10-101-002 (Ground surface to 428 Feet MSL) Donation Parcel II

b. Exhibit B-1 shows the layout of the Main Plant Facility and the location of the Area 2 within the Main Plant Facility.

c. Exhibit B-2 shows the locations where soil contamination is located that exceeds 35 Ill. Admin. Code 742, Subpart E (Tier 1) Remediation Objectives, and the boundaries of the engineered barriers which must be maintained within Area 2.

Section Two. Property Owner represents and warrants that it is the current owner of the Property and has the authority to record this ELUC on the chain of title for the Property in the Office of the Recorder or Registrar of Titles in Madison County, Illinois.

Section Three. The Property Owner hereby agrees, for itself, and its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessees, possessor or user of the Property or the holder of any portion thereof interest therein, that:

a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater

and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IL Admin. Code 742;

c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., Photoionization Detector ("PID") readings > 100 parts per million ("ppm") of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will either be sampled for: benzene, toluene, ethylbenzene, and xylenes ("BTEX"); and polycyclic aromatic hydrocarbons ("PAHs") by laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the IEPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e.(i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off site as clean fill if laboratory data indicates constituents are less than Tiered Approach to Corrective Action Objectives ("TACO") residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

f. Areas designated "EB 1" and "EB 2A" of the Property, which are identified on Exhibit B-2, require an engineered barrier ("EB") to restrict potential exposure to soils beneath the barrier. Ten (10) feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations; and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. BP is allowed access to the Property for any groundwater or remediation efforts.

Section Four. This ELUC is binding on the Property Owner, its heirs, grantees, successors, assigns, transferees and any other owner, occupant, lessee, possessor or user of the Property or the holder of any portion thereof or interest therein. This ELUC shall apply in perpetuity against the Property and shall not be released until: (1) the IEPA determines there is no longer a need for the ELUC as an institutional control; (2) the IEPA, upon written request, issues to the Property that received the no further remediation determination a new no further remediation determination approving modification or removal of the limitation(s) or requirement(s); (3) the new no further remediation determination is filed on the chain of title of the Property subject to the no further remediation determination; and (4) a release or modification of the land use limitation or requirement is filed in the chain of title for the Property.

Section Five. Information regarding the remediation performed on the Property may be obtained from the IEPA through a request under the Freedom of Information Act (5 ILCS 140) and rules promulgated thereunder by providing the IEPA with the 10-digit LPC number listed above.

Section Six. The effective date of this ELUC shall be the date that it is officially recorded in the chain of title for the Property to which this ELUC applies.

WITNESS the following signature:

BP Products North America Inc.

By: Lisa G Smith Attest: Allison Crane

Printed LISA A SMITH Printed: Allison Crane

Its: VICE PRESIDENT Its: Liability Business Manager

Date: _____ Date: _____

STATE OF TEXAS)
) SS:
COUNTY OF HARRIS)

I, Mary J. Heinitz the undersigned, a Notary Public for said County and State, DO HEREBY CERTIFY, that Lisa A. Smith and Allison Crane, personally known to me to be the Vice President and Liability Business Manager respectively, of **BP Products North America Inc.**, a Maryland corporation, and personally known to me to be the same persons whose names are subscribed to the foregoing instrument, appeared before me this day in person and severally acknowledged that in said capacities they signed and delivered the said instrument and caused the corporate seal of said corporation to be affixed thereto, pursuant to authority given by the Board of Directors of said corporation, as their free and voluntary act, and as the free and voluntary act and deed of said corporation, for the uses and purposes therein set forth.

Given under my hand and official seal, this 18th day of May, 2017.

Mary J Heinitz
Notary Public

MARY J. HEINITZ
Notary Public, State of Texas
Comm. Expires 04-06-2020
Notary ID 1086666

List of Exhibits

Exhibit A: Legal Descriptions and Parcel IDs

Exhibit B: Scaled Maps
B-1: Site Layout Map
B-2: Area 2 ELUC Map (showing removed Donation Parcels I and II)

Exhibit C: Copy of the NFA letter from IEPA to BP dated August 13, 2002, with Attachments

Exhibit A

Legal Descriptions and Parcel IDs

The Property which is the subject of this ELUC, also referred to as Area 2, is located in the City of Wood River, Madison County, State of Illinois, within the BP/Main Plant Facility whose address is 301 Evans Avenue, Wood River, Illinois and more particularly described as (note that Attachment B-1 depicts the layout of the BP/Main Plant Facility, and the Property (Area 2) which is the subject of this ELUC):

LEGAL DESCRIPTION

The portion of the following described property:

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast comer of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road, and the POINT OF BEGINNING; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 537.69 feet; thence South 89 degrees 03 minutes 56 seconds West, 511.68 feet; thence South 03 degrees 17 minutes 51 seconds East, 287.59 feet; thence South 80 degrees 51 minutes 24 seconds West, 267.69 feet; thence North 87 degrees 28 minutes 33 seconds West, 15.25 feet; thence North 87 degrees 28 minutes 33 seconds West, 51.06 feet; thence South 74 degrees 04 minutes 54 seconds West, 176.24 feet; thence North 88 degree 57 minutes 22 seconds West, 19.35 feet; thence North 34 degrees 52 minutes 15 seconds West, 68.25 feet; thence North 11 degrees 08 minutes 36 seconds West, 79.65 feet; thence North 02 degrees 01 minute 18 seconds West, 331.70 feet; thence North 08 degrees 17 minutes 11 seconds East, 94.49 feet; thence North 03 degrees 16 minutes 24 seconds West, 140.22 feet; thence North 16 degrees 34 minutes 48 seconds West, 157.07 feet; thence North 06 degrees 34 minutes 43 seconds East, 80.46 feet; thence North 81 degrees 50 minutes 44 seconds East, 167.06 feet; thence South 72 degrees 15 minutes 30 seconds East, 153.53 feet; thence North 01 degree 37 minutes 11 seconds West, 205.96 feet; thence South 65 degrees 47 minutes 26 seconds East, 67.39 feet; thence North 02 degrees 18 minutes 55 seconds West, 533.37 feet; thence North 09 degrees 12 minutes 39 seconds West, 32.06 feet; thence North 22 degrees 48 minutes 45 seconds West, 36.49 feet; thence North 35 degrees 46 minutes 07 seconds West, 36.12 feet; thence North 56 degrees 50 minutes 16 seconds West, 33.22 feet; thence South 88 degrees 59 minutes 56 seconds West, 233.69 feet; thence North 06 degrees 34 minutes 04 seconds East; 210.75 feet; thence North 00 degrees

52 minutes 34 seconds West, 324.73 feet to the southerly right of way of Illinois Route 143, also known as Madison Avenue; thence continuing along said right of way for the following four courses: 1) North 89 degrees 46 minutes 26 seconds East, 719.43 feet; 2) South 75 degrees 53 minutes 19 seconds East, 103.38 feet; 3) South 86 degrees 54 minutes 16 seconds East, 100.13 feet; 4) South 35 degrees 47 minutes 53 seconds East, 83.60 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, 1242.49 feet to the POINT OF BEGINNING, containing 43.17 acres or 1,880,551 feet.

PIN: 19-1-08-27-10-101-001.001;
19-1-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below); and
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)

EXCEPT,

1. **Storm Water Detention Basin Donation Parcel I**

REAL ESTATE TAX INDEX #19-2-08-27-14-301-003
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence

South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN: 19-2-08-27-14-301-003 (Ground Surface Down to Elevation 418 Feet MSL)

AND EXCEPT,

2. Police Station Donation Parcel II

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 428 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described ae follows:

Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds

East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

PIN: 19-2-08-27-10-101-002 (Ground Surface Down to Elevation 428 Feet MSL)

Exhibit B

Scaled Maps showing:

A) The legal boundary of the property to which the ELUC applies;
B) The horizontal and vertical extent of contaminants of concern above applicable remediation objectives for soil and groundwater to which the ELUC applies;
C) Any physical features to which an ELUC applies; and
D) The nature, location of the source, and direction of movement of the contaminants of concern.

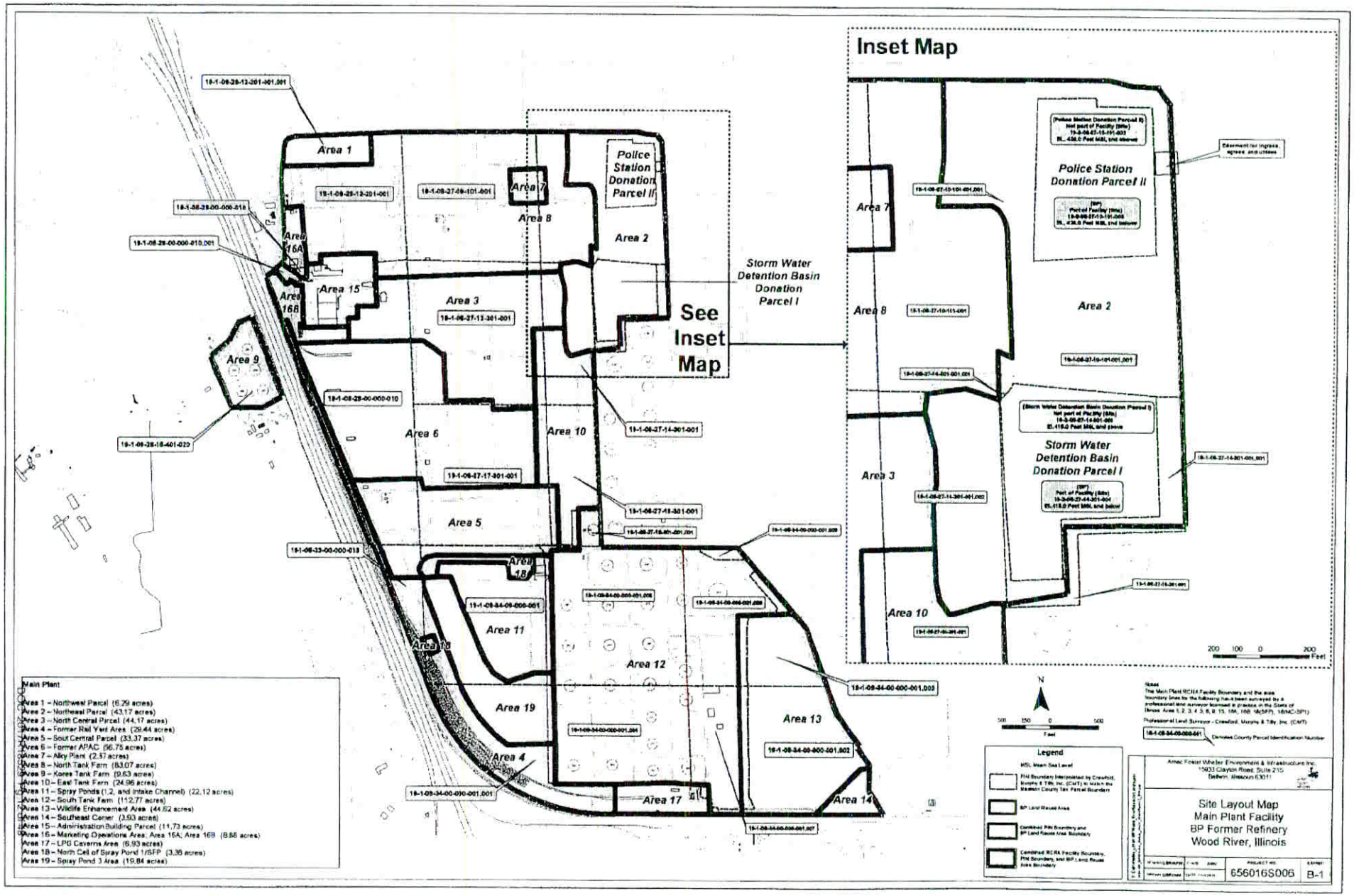
Maps Contained in Exhibit B

Exhibit B:

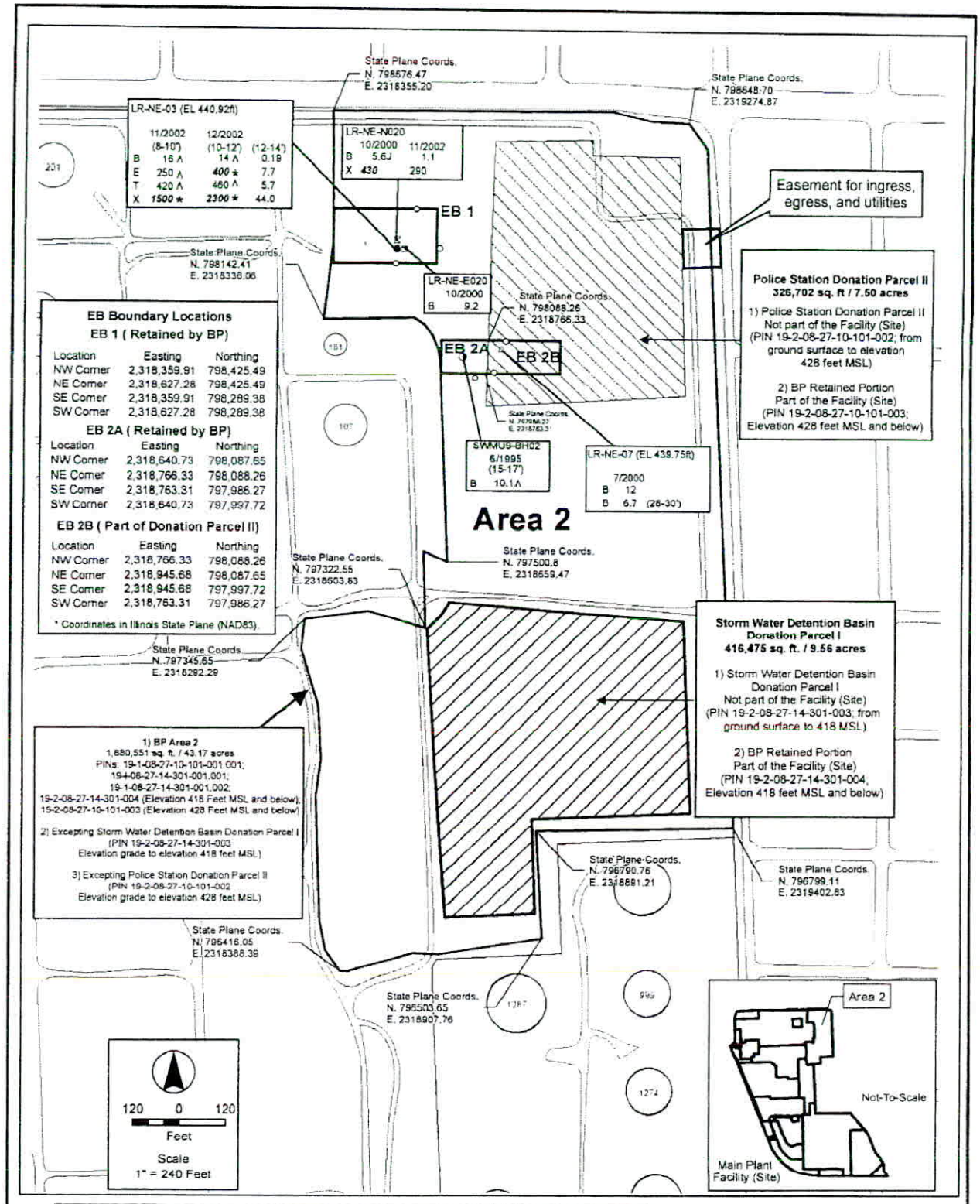
B-1: Site Layout Map
B-2: Area 2 ELUC Map (showing removed Donation Parcels I and II)

PINs: 19-1-08-27-10-101-001.001;
19-l-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below)
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)
Excepting
19-2-08-27-14-301-003 (Surface Elevation to Elevation 418 Feet MSL)
19-2-08-27-10-101-002 (Surface Elevation to Elevation 428 Feet MSL)

[See attached]


Inset Map
Area 1
Area 2
Area 3
Area 4
Area 5
Area 6
Area 7
Area 8
Area 9
Area 10
Area 11
Area 12
Area 13
Area 14
Area 15
Area 16A
Area 16B
Area 17
Area 18
Area 19
Police Station Donation Parcel II
Storm Water Detention Basin Donation Parcel I
See Inset Map
Main Plant
Area 1 – Northwest Parcel (6.29 acres)
Area 2 – Northeast Parcel (43.17 acres)
Area 3 – North Central Parcel (44.17 acres)
Area 4 – Former Rail Yard Area (29.44 acres)
Area 5 – Soiut Central Parcel (33.37 acres)
Area 6 – Former APAC (56.75 acres)
Area 7 – Alky Plant (2.57 acres)
Area 8 – North Tank Farm (83.07 acres)
Area 9 – Korea Tank Farm (9.63 acres)
Area 10 – East Tank Farm (24.96 acres)
Area 11 – Spray Ponds (1,2, and Intake Channel) (22.12 acres)
Area 12 – South Tank Farm (112.77 acres)
Area 13 – Wildlife Enhancement Area (44.62 acres)
Area 14 – Southeast Corner (3.93 acres)
Area 15 – Administration Building Parcel (11.73 acres)
Area 16 – Marketing Operations Area; Area 16A; Area 16B (8.86 acres)
Area 17 – LPG Caverns Area (6.93 acres)
Area 18 – North Cell of Spray Pond 1/SFP (3.36 acres)
Area 19 – Spray Pond 3 Area (19.84 acres)
Legend
Site Layout Map
Main Plant Facility
BP Former Refinery
Wood River, Illinois
656016S006
B-1

R001254



Legend

B: Benzene
E: Ethylbenzene
T: Toluene
X: Xylenes
J Estimated Concentration based on QC Review

All Results are Presented in mg/kg

B9.2 Λ Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 6-10' Unless Specified)
X1500★ Exceeds Soil Saturation Limit
B 1.1 Does Not Exceed Tier 2 Soil Inhalation RO
2016 BP Police Station Donation Parcel II; subject to 35 IAC 742.Subpart L Building Control Technologies

2011 Storm Water Detention Basin Donation Parcel I

Sampling Locations
(Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)

RFI Boring Location (1995)
Confirmation Boring Location of RFI Results (2000)
Former Aboveground Tank Boring Location (2000)
Step-Out Boring Location (2000)
Midpoint Between Samples With and Without Tier 2 Exceedence
Area of Engineered Barrier (EB)/Model of Soil Impact in Excess of Tier 2 Inhalation ROs

(MSL) Mean Sea Level

Amec Foster Wheller Environment & Infrastructure Inc.
15933 Clayton Road, Suite 215
Ballwin, Missouri 63011

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

DESIGN URS DOC-2017R18529 Pg 13 of 48
DRAWN URS/JMA DATE 11/16/2016
656016S006
EXHIBIT B-2

Exhibit C

Copy of the NFA letter dated August 13, 2002, with Attachments

1191150001 – Madison County
BP Products North America Inc. – Wood River Former Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

[See attached]

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276

RENEE CIPRIANO, DIRECTOR

217/524-3300

August 13, 2002

CERTIFIED MAIL
7001 2510 0002 3279 8113

Gregory S. Jevyak, Environmental Business Manager
Global Environmental Management Business Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 – Madison County
BP Products North America Inc. - Wood River Refinery
ILD980700967
Log No. B-147-CA-14
RCRA Permit

Dear Mr. Jevyak:

This is in response to several recent submittals regarding RCRA corrective action activities at an area known as the "Northeast Corner Parcel (Area 2)" at the above-referenced facility (a list of these submittals is provided in Attachment 1 to this letter). A site layout map showing this area within the facility and the parcel's legal description, are provided as Attachments 2 and 3 respectively. Overall, the corrective action activities at the subject facility are being conducted in accordance with a RCRA permit issued to the facility (Log No. B-147 and associated modifications).

The submittals identified in Attachment 1 to this letter contain information regarding the investigative and remedial activities completed to date in Area 2. Illinois EPA had previously approved plans for conducting these activities for all recognized environmental conditions in Area 2 on August 15, 2000. Based on a review of the information, Illinois EPA has determined that no further action is necessary in Area 2 provided the following requirements are met:

1. Two areas within Area 2 require an engineered barrier and associated institutional control meeting the requirements of 35 Ill. Adm. Code 742 to restrict exposure to the soils beneath the barrier. The institutional control must require maintenance of the engineered barrier, implementation of a site safety plan to protect construction workers during construction activities associated with these two areas, and proper management of any soil removed from beneath the engineered barrier. A plan view of Area 2 delineating the two areas where an engineered barrier must be established is presented in Attachment 4 to this letter.

2. Any excavation and subsurface construction work in Area 2 shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils in Area 2 and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan.

3. The soil within Area 2 shall remain in place, except where necessary to remove it for construction activities.

4. Soil excavated during construction/demolition/excavation activities within Area 2 must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds (VOCs). Soil shall be considered "contaminated" if (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) the field screening test detects the presence (i.e. PID readings >100 units) of VOCs in soil. Soils exhibiting potential contamination based on the visual or field screening will either be sampled for VOC and SVOC analysis or considered contaminated. If laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives (ROs) developed for the parcel then the soils will be considered to be not contaminated for reuse on the Main Plant property. If the soils are less than the site specific ROs but greater than residential standards they will be considered contaminated if transported offsite.

   (1) If the soil is found to be contaminated, then it must be sent off-site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

   (2) If the soil is uncontaminated, as determined by visual inspection and field screening, then it may be used as clean fill in other areas of the former refinery facility. However, procedures must be in place to ensure that this material remains on the former refinery facility and is not be transported off-site, unless it is transported off-site as a special waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal or unless such material is shown to not be a special waste to the satisfaction of Illinois EPA.

   (3) Documentation of all these activities must be placed in the facility's operating records.

5. Future use of Area 2 must remain commercial/industrial.

6. Appropriate institutional controls meeting the requirements of 35 Ill. Adm. Code, Part 742, Subpart J must be established and recorded to ensure the requirements in Conditions 1, 2, 3, 4, 5, 7 and 8 will be met in the future.

7. Contaminated soil present at the following sample locations is properly managed via engineered barriers or SWMU9-BH02 addressed to achieve remediation objectives developed in accordance with 35 Ill. Adm. Code 742:

LR-NE-03	LR-NE-03-N020
LR-NE-03-E020	LR-NE-07

8. The groundwater beneath the facility is being and must continue to be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications. Groundwater activities associated with the uppermost aquifer are subject to the following conditions:

   a. The groundwater within the Parcel must still be addressed in accordance with Section V of the RCRA Part B permit and all subsequent permit modifications;

   b. The March 28, 2002 letter from the Illinois EPA approved the City of Wood River Ordinance 02-01 and Memorandum of Understanding (MOU) between the City and the Illinois EPA for use as an institutional control. This approved institutional control meets the criteria found in 35 Ill. Adm. Code 742.925, to exclude the groundwater ingestion exposure route, established in accordance with 35 Ill. Adm. Code Part 742, Subpart J. Therefore, no further action is required with respect to the groundwater at the Parcel, except as required by Condition 8(a) above; and

   c. In an Illinois EPA letter dated March 13, 2002, the Groundwater Management Zone (GMZ) for the uppermost aquifer at the facility was revised to include the areas where constituent concentrations in groundwater exceed Class I groundwater standards. Following Illinois EPA's review of the associated permit modification request dated May 10, 2002 for the revised GMZ, the Illinois EPA will modify the RCRA Part B permit to incorporate the revision to the GMZ.

9. Prior to completion of a corrective action associated with a GMZ the groundwater quality standards (Class I or Class II) are not applicable while the GMZ is being monitored and maintained. As stated in Condition 8 of the February 5, 2002 letter from the Illinois EPA to BP, a GMZ may not be used to restrict the use of groundwater in the vicinity of the subject property. A GMZ does not prohibit the use of groundwater within its boundary,

and therefore does not meet the definition of an institutional control as found in 35 Ill. Adm. Code 742.1000(c).

10. Additional field duplicates must be collected in future groundwater sampling events. One (1) field duplicate must be collected for every ten (10) samples collected.

11. Overall, corrective action activities at the former refinery facility must continue to be implemented in accordance with: (1) this letter, (2) 35 Ill. Adm. Code 620, 724.201, and 742; and (3) the requirements set forth in its RCRA Part B permit (Log No. B-147) and all other associated modifications or other comparable mechanism issued thereafter by the Illinois EPA for this facility.

12. A completed RCRA Corrective Action Certification form (copy enclosed) must accompany all submittals made to Illinois EPA regarding RCRA corrective action activities at this facility.

This letter shall constitute Illinois EPA's final decision on the subject submittal. Within 35 days of the date of mailing of the Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of the Illinois EPA, however, the 35-day period for petitioning for a hearing may be extended for a period of time not to exceed ninety days by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions concerning groundwater-related aspects of this letter, please contact Ryan Bennett at (217) 558-2150. Questions about any other aspects of this letter should be directed to James K. Moore, P.E. at 217/524-3295.

Sincerely,

Joyce L. Munie, P.E.
Manager, Permit Section
Bureau of Land

JLM:JKM:bjh\20021582s.doc

Attachments:
1. List of Area 2 Submittals
2. Topographic Map/Site Layout Map
3. Legal Description of Area 2
4. Portions of Area 2 Requiring an Engineered Barrier
5. Corrective Action Certification Form

Attachment 1
Log No. B-147-CA-14
Information Submitted by Facility

This document identifies the information received and reviewed by Illinois EPA as it evaluated a request for No Further Action in Area 2 of the Amoco/Main Plant Facility (Illinois EPA ID No 1191150001; USEPA ID No. ILD980700967). This information was assigned Log No. B-147-CA-14 by Illinois EPA.

1. A September 21, 2001 submittal from Frederick W. Johnson, URS, and Gregory S. Jevyak, BP which included a document entitled "Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

2. A October 12, 2002 submittal from Keith T. Wilcoxson, URS, containing revised tables in response to comments received from Harry Chappel.

3. A December 20, 2001 submittal from Frederick W. Johnson, URS which included a document entitled "Addendum 1—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

4. A January 22, 2002 submittal from Gregory S. Jevyak, BP America, Inc., which included a document entitled "Addendum 2—Northeast Corner (Area 2) Land Reuse and Investigation Report

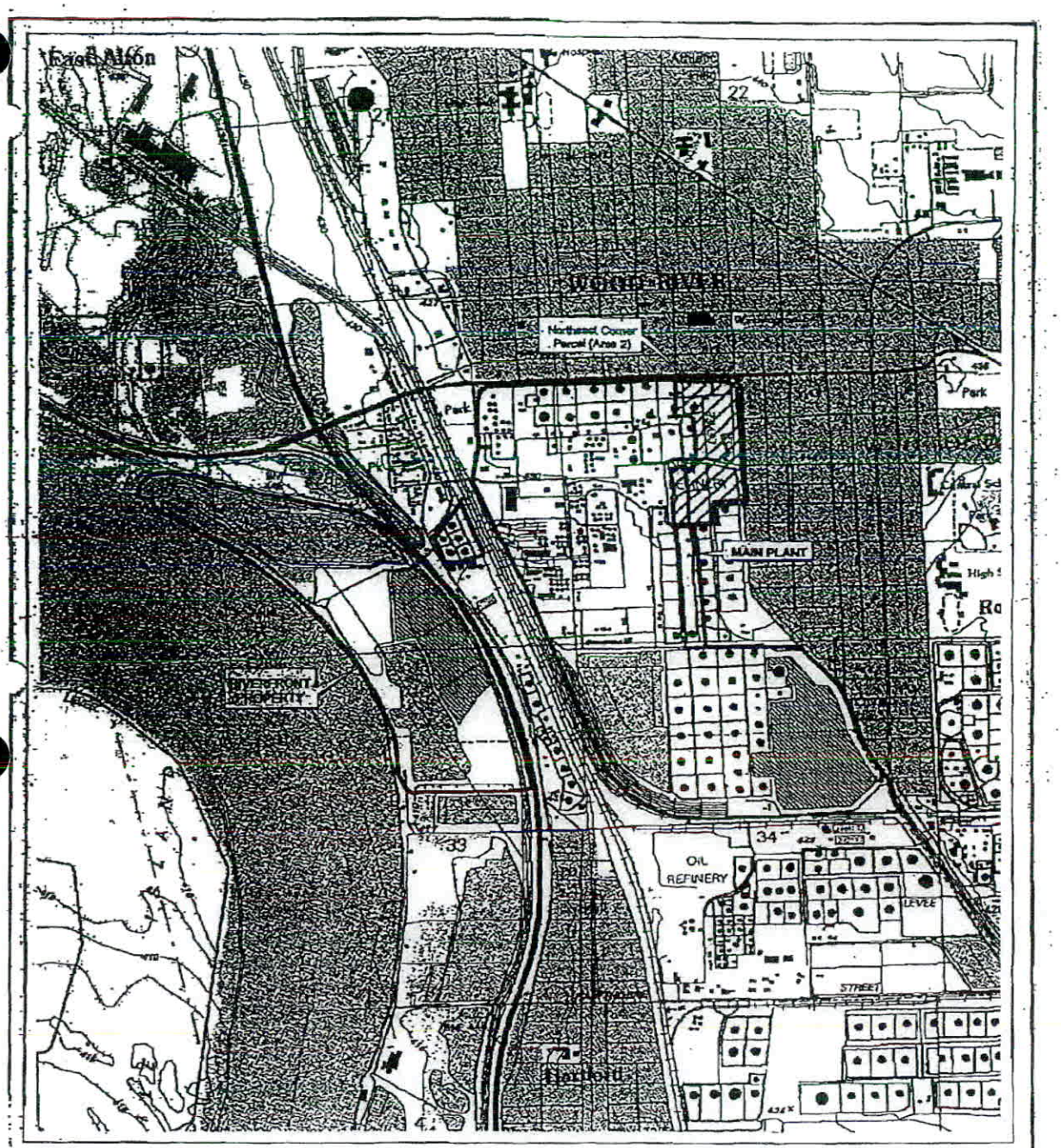
5. An April 5, 2002 submittal from Dennis A. Kasner and Frederick W. Johnson, URS which included a document entitled "Addendum 3—Northeast Corner (Area 2) Land Reuse Investigation and Status Report."

6. A May 16, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, URS which served as Addendum 4 to the Northeast Corner (Area 2) Land Reuse Investigation and Status Report.

7. A July 26, 2002 letter report from Dennis A. Kasner and Frederick W. Johnson, PE., URS, which contained additional information regarding issues addressed in Addendum 3.

8. A July 26, 2002 submittal from John Dennison, URS, which contained drawings of Area 2 and the legal description for Area 2.

att 1 b-147-ca-14



URS 122 South Michigan Avenue Suite 1920 Chicago, Illinois 60603

TOPOGRAPHIC MAP
BP FORMER REFINERY
WOOD RIVER, ILLINOIS

DESIGN: JTD	CHKD: KW	PROJECT NO. 83	FIG. NO.
DRAWN: MDC	DATE: 7/26/02		

Attachment 2

Attachment 3
B-147-CA-14

This document contains the legal description for that portion of the former BP refinery in Wood River, Illinois (Illinois EPA Site No. 1191150001; USEPA ID No. ILD980700967) referred to as the "Northeast Corner" or "Area 2." Area 2 is 43.17 acres and is composed of two tracts (a 36.91 acre tract referred to as "Leased Tract 2" and a 6.26 acre tract referred to as "Leased Tract 3"). A legal description of each of these individual tracts is provided on the following pages.

att2 b-147-ca-14

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
717 NORTH MAIN STREET • P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 2
See Corlew Plat CC 2051A

(36.91 Acres in the Northeast Corner of Amoco Main Plant in Wood River, IL)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide), the POINT OF BEGINNING of the tract herein described; thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet; thence North 00° 37' 37" West a distance of 862.36 feet; thence North 00° 23' 02" East a distance of 205.96 feet; thence South 63° 47' 13" East a distance of 67.39 feet; thence North 00° 18' 42" West a distance of 533.37 feet; thence North 07° 12' 26" West a distance of 32.06 feet; thence North 20° 48' 32" West a distance of 36.49 feet; thence North 33° 45' 54" West a distance of 36.12 feet; thence North 54° 50' 03" West a distance of 33.22 feet; thence North 88° 59' 50" West a distance of 233.69 feet; thence North 08° 34' 18" East a distance of 210.75 feet; thence North 01° 07' 40" East a distance of 324.73 feet; thence South 88° 13' 21" East a distance of 719.43 feet; thence South 73° 53' 06" East a distance of 103.38

M. B. CORLEW & ASSOCIATES, INC.

feet; thence South 84° 54' 03" East a distance of 100.13 feet; thence South 33° 47' 40" East a distance of 83.60 feet; thence South 00° 41' 06" East a distance of 1242.50 feet to the point of beginning, containing 36.91 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.



(Seal)
Larry L. Stahlhut, RLS #2214
My License Expires 11/30/2002

M. B. CORLEW & ASSOCIATES, INC.

ENGINEERS & SURVEYORS
707 NORTH MAIN STREET • P. O. BOX 597
EDWARDSVILLE, ILLINOIS 62025-0597

Telephone: (618) 656-0470 • FAX (618) 656-0922

CIVIL
STRUCTURAL
SURVEYING
TRANSPORTATION
LAND PLANNING
DRAINAGE

Description For
Triad Industries

Leased Tract 3
See Corlew Plat CC 2051A

(6.26 Acres in the Northeast Corner of Amoco Main Plant in Wood River, Illinois)

April 18, 2000
Revised October 1, 2001

A tract of land in the Southeast Quarter of the Northwest Quarter and in the Northeast Quarter of the Southwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the southeast corner of the Southeast Quarter of the Northwest Quarter of Section 27, Township 5 North, Range 9 West; thence North 87° 13' 15" West, along the south line of said Quarter Quarter Section, a distance of 60.11 feet to the west right of way line of Sixth Street (Old Alton-Edwardsville Road, 60 feet wide); thence South 00° 41' 06" West, along said west right of way line, a distance of 3.37 feet; thence South 00° 11' 08" East, continuing along said west right of way line, a distance of 537.69 feet; thence North 88° 55' 51" West a distance of 511.68 feet; thence South 01° 17' 38" East a distance of 287.59 feet; thence South 82° 51' 37" West a distance of 267.69 feet to the POINT OF BEGINNING of the tract herein described; thence North 85° 28' 20" West a distance of 66.31 feet; thence South 76° 05' 07" West a distance of 176.24 feet; thence North 86° 57' 09" West a distance of 19.35 feet; thence North 32° 52' 02" West a distance of 68.25 feet; thence North 09° 08' 23" West a distance of 79.65 feet; thence North 00° 01' 05" West a distance of 331.70 feet; thence North 10° 17' 24" East a distance of 94.49 feet; thence North 01° 16' 11" West a distance of 140.22 feet; thence North 14° 34' 25" West a distance of 157.07 feet; thence North 08° 34' 56" East a distance of

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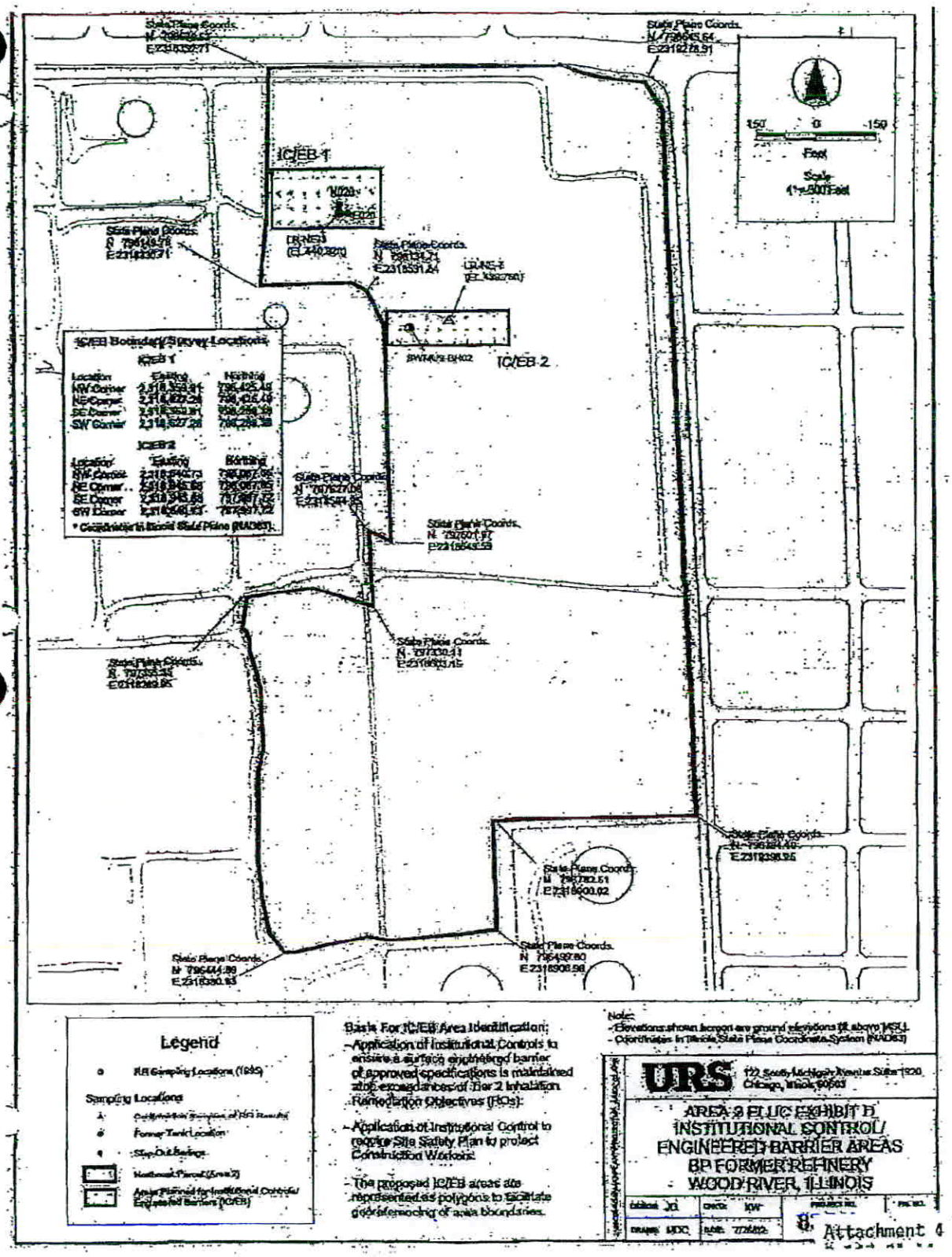
80.46 feet; thence North 83° 50' 58" East a distance of 167.06 feet; thence South 70° 15' 17" East a distance of 153.53 feet; thence South 00° 37' 37" East a distance of 862.36 feet to the point of beginning, containing 6.26 acres.

I, the undersigned Registered Illinois Land Surveyor, do hereby declare that the above is a legal description made under my supervision.

STATE OF ILLINOIS
LARRY L. STAHLHUT
35-2214
REGISTERED LAND SURVEYOR

Larry L. Stahlhut, RLS #2214 (Seal)
My License Expires 11/30/2002

MBC 99-168


IC/EB 1
IC/EB 2
IC/EB Boundary Survey Locations
Legend
Basis For IC/EB Area Identification:
- Application of Institutional Controls to ensure a surface engineered barrier of approved specifications is maintained after exceedances of Tier 2 Inhalation Remediation Objectives (ROs).
- Application of Institutional Control to require Site Safety Plan to protect Construction Workers.
- The proposed IC/EB areas are represented as polygons to facilitate georeferencing of area boundaries.
Note:
- Elevations shown herein are ground elevations (ft above) MSL.
- Coordinates in Illinois State Plane Coordinate System (NAD83)
URS
AREA 2 ELUC EXHIBIT D
INSTITUTIONAL CONTROL/
ENGINEERED BARRIER AREAS
BP FORMER REFINERY
WOOD RIVER, ILLINOIS
Attachment 4

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 - (217) 782-2829
JAMES R. THOMPSON CENTER, 100 WEST RANDOLPH, SUITE 11-300, CHICAGO, ILLINOIS 60601 - (312) 814-6026

PAT QUINN, GOVERNOR LISA BONNETT, INTERIM DIRECTOR

217/524-3300

November 3, 2011

CERTIFIED MAIL
7009 3410 0002 3751 3834

Mr. Tom Tunnicliff
Environmental Business Manager
Atlantic Richfield Company
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095-0167

Re: 1191150001 – Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-12
Received: August 12, 2011
RCRA Permit

Dear Mr. Tunnicliff:

This is in response to an August 11, 2011 submittal made on behalf of BP Products North America by George Valera and Ryan P. Hartley, P.E., URS Corporation regarding certain RCRA corrective action activities at the above-referenced facility. The RCRA corrective action program set forth in the subject facility's RCRA permit broke the facility up into several areas and required that each area be adequately remediated.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, No Further Action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft letter of the required institutional control, an Environmental Land Use Control (ELUC) on January 29, 2003 and BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

A revision of the Area 2 ELUC has become necessary as BP is donating a certain portion of Area 2 to the City of Wood River for use as a storm water basin (a drawing showing the location of this parcel of land is provided as Attachment 2 to this letter). The August 11, 2011 submittal mentioned above contained a proposed ELUC which would be established for the 9.56 acre parcel of land being donated to the city; it must be noted that this parcel only extends from the ground surface to an elevation depth of 418 mean sea level (approximately 25 feet below ground surface).

Illinois EPA has reviewed the draft ELUC for the parcel of land within Area 2 at the BP Products North America Inc. facility at 301 Evans Avenue in Wood River, Illinois which is to be donated to the City of Wood River and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 of the facility covered by the ELUC being approved herein is provided in Attachment 3. According to information provided by Mr. Valera, the PIN for this parcel is 19-2-08-27-14-301-003.

2. The recorded ELUC will supersede the ELUC recorded on February 5, 2003 for this property as Document No. 2003R08605.

3. The final ELUC filed with the Office of the Recorder or Registrar of Titles for Madison County must include a dated and notarized signature of the property owner.

4. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(i) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(ii) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(iii) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if; (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(iv) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(v) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(vi) Documentation. All of these activities must be documented in the facility's operating records.

5. Within forty-five days of the date of the this letter, the ELUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder or Registrar of Titles for Madison County, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

6. Within 30 days after filing the approved ELUC in accordance with Condition 3 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder or Registrar of Titles for Madison County that the ELUC was properly filed, must be submitted to Illinois EPA.

7. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Agency no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

8. The limitations or requirements of the ELUC apply in perpetuity or until:

   a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

   b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

9. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

10. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

    Illinois Environmental Protection Agency
    Bureau of Land – #33
    Permit Section
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

11. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications/letters issued thereafter by the Illinois EPA for this facility.

This action shall constitute Illinois EPA's final action on the subject submittal. Within 35 days after the date of mailing of Illinois EPA's final decision, the applicant may petition for a hearing before the Illinois Pollution Control Board to contest the decision of Illinois EPA. The 35-day period for petitioning for a hearing may be extended for a period of time not to exceed 90 days

by written notice provided to the Board from the applicant and the Illinois EPA within the 35-day initial appeal period.

Work required by this letter, your submittal(s) or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Karen Nachtwey at 217/524-3233 of my staff.

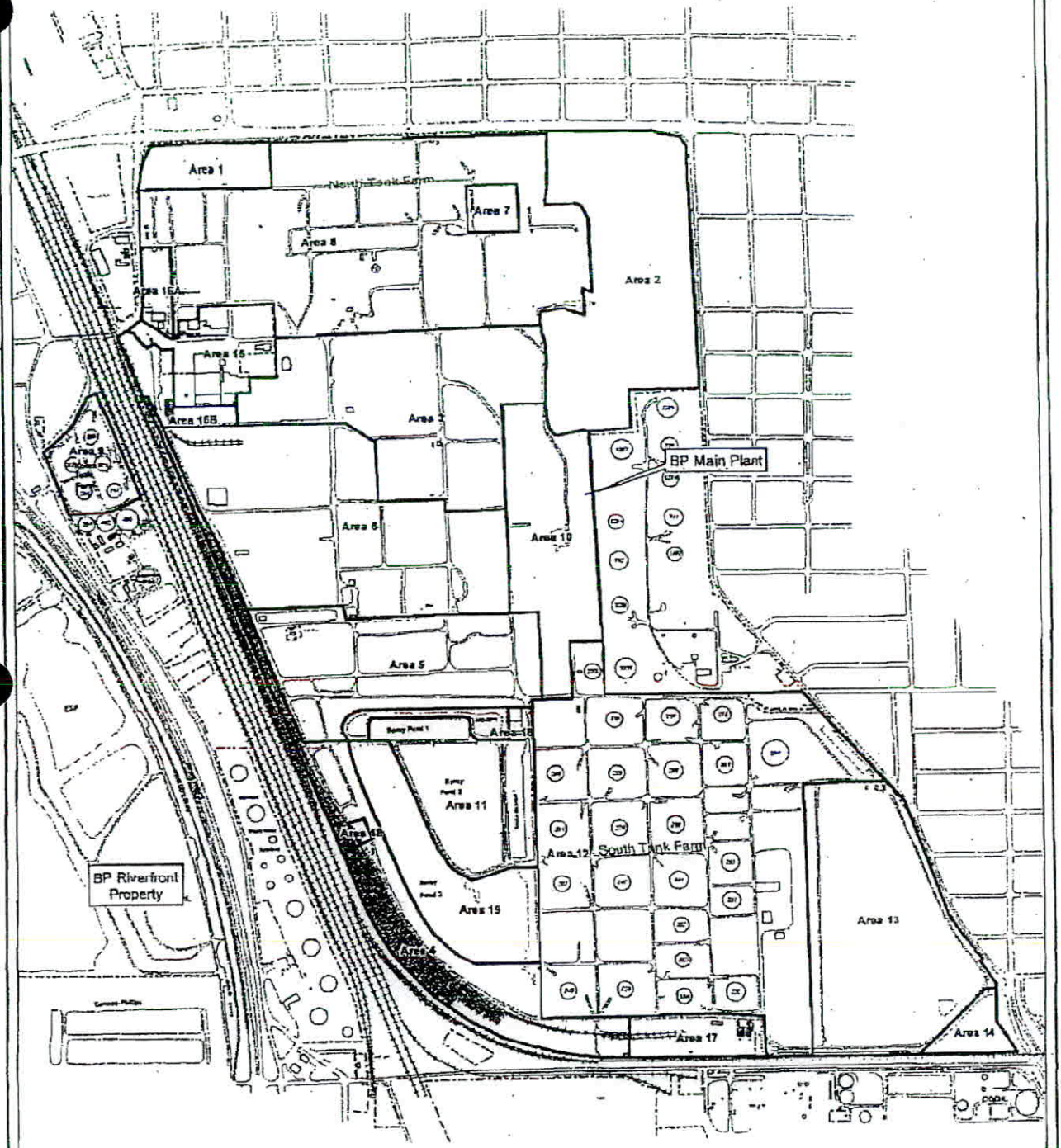
Sincerely,

Stephen F. Nightingale, P.E.
Manager, Permit Section
Bureau of Land

SFN:KEN:bjh\111636s.doc
JCH
Attachment 1 – Site Layout Map
Attachment 2 - Map Showing Donated Parcel within Area 2
Attachment 3 – Legal Description of Donated Parcel

cc: Ryan P. Hartley, URS Corporation

Attachment 1



Main Plant Land Reuse Parcels

Area 1 - Northwest Parcel*
Area 2 - Northeast Parcel*
Area 3 - North Central Parcel
Area 4 - Rail Yard Area
Area 5 - South Central Parcel
Area 6 - Former APAC
Area 7 - Alky Plant
Area 8 - North Tank Farm
Area 9 - Korea Tank Farm
Area 10 - East Tank Farm
Area 11 - Spray Ponds (1, 2, and Intake Channel)
Area 12 - South Tank Farm
Area 13 - Wildlife Enhancement Area
Area 14 - Southeast Corner
Area 15 - Administration Building Parcel
Area 16 - Marketing Operation Area
Area 17 - LPG Caverns Area
Area 18 - North Cell of Spray Pond 1 and South Flare Pit and Surrounding Area
Area 19 - Spray Pond 3 Area

N

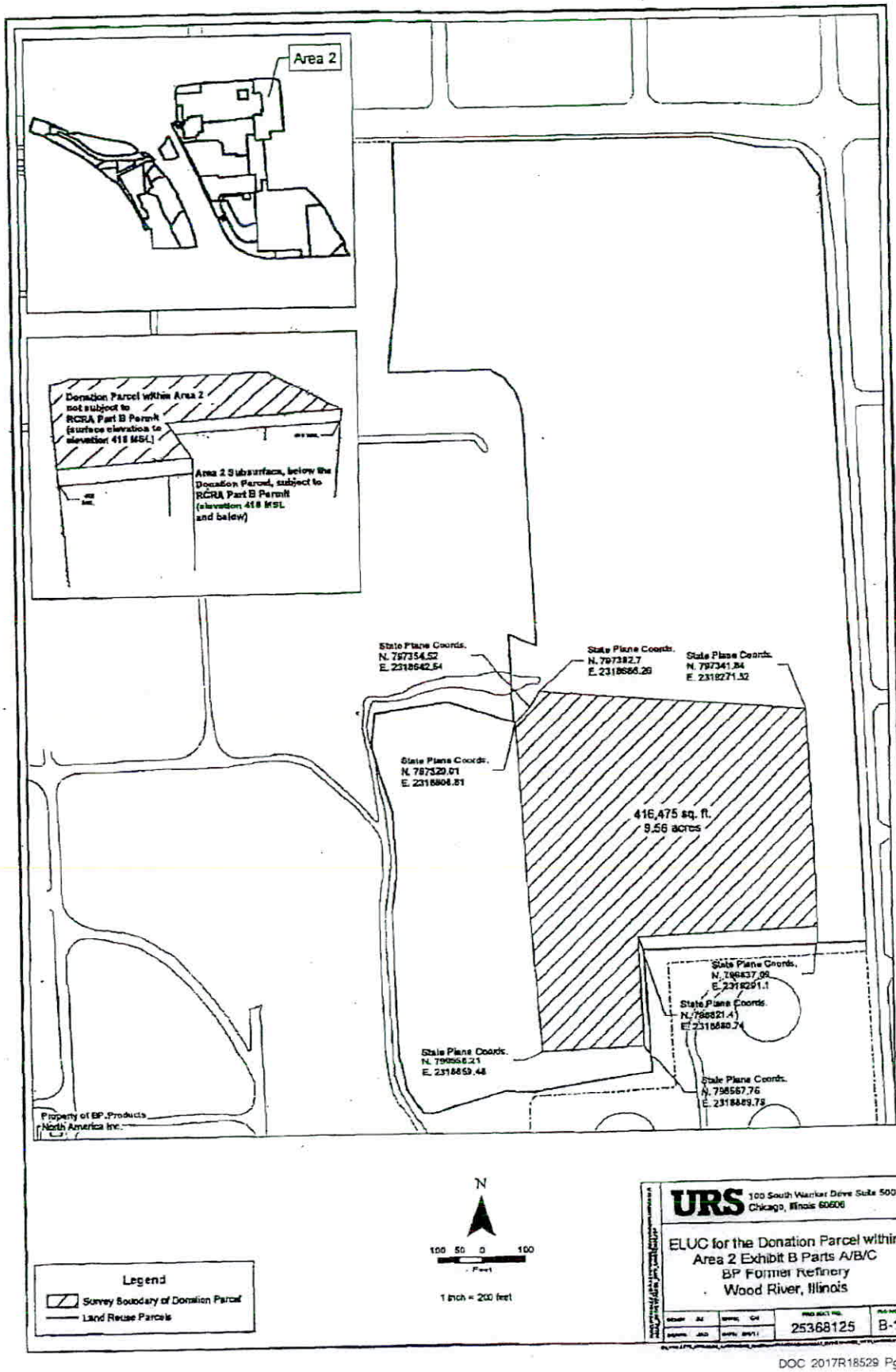
325 0 325
Feet

1 inch equals 750 feet

URS 109 South Wacker Drive Suite 500 Chicago, Illinois 60606

Main Plant Property
Land Reuse Parcels
BP Former Refinery
Wood River, Illinois

B-147R-CA-12
Attachment 2



B-147R-Ch-12
Attachment 3

Exhibit A

Legal Description

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West Half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton and Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN NO. 19-2-08-27-14-301.003

Atlantic Richfield Company

Memorandum

DATE: December 1, 2011

TO: Madison County Recorder's Office, Edwardsville, Illinois - File

FROM: Thomas G. Tunnicliff, BP Products North America Inc.

SUBJECT: Minor Corrections to the Approved Donation Parcel within Area 2 ELUC dated November 3, 2011

The Illinois Environmental Protection Agency (Illinois EPA) approved the Environmental Land Use Control (ELUC) for the Donation Parcel within Area 2 on November 3, 2011. After review of this document, the following inconsistencies were identified:

Donation Parcel within Area 2 ELUC

- First page, last sentence, last paragraph - a reference to the approximate depth of the donation parcel indicates 25 feet. This should be 23 feet as stated in the August 11, 2011 submittal.
- Section 3.f of the Draft ELUC states the following: "BP is allowed access to the property for any groundwater monitoring or remediation efforts". This was not mentioned in the Illinois EPA letter. However, the Illinois EPA approved the Draft ELUC with this language and will be recorded as such.
- The PIN No. found in Attachment 3 needs to be changed from 19-2-08-27-14-301.003 to 19-2-08-27-14-301-003 which is changing the "." to "-".

Distribution
Stephen F. Nightingale, Illinois EPA
Ryan Hartley, URS Corporation

END OF DOCUMENT

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397

BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/524-3300

April 21, 2017

CERTIFIED MAIL
7014 2120 0002 3289 8030

BP Products North America Inc.
Attn: Lori G. Littrell, Operations Project Manager
150 West Warrenville Road
Naperville, Illinois 60563

Re: 1191150001 -- Madison County
BP Products North America – Main Plant
ILD980700967
Log No. B-147R-CA-78
Received: March 30, 2017
RCRA Permit

Dear Ms. Littrell:

This is in partial response to your March 29, 2017 submittal regarding RCRA corrective action activities at the above-referenced RCRA permitted facility (Log No. B-147R and associated modifications). The subject facility is a closed oil refinery which is approximately 600 acres in size and located at 301 Evans Avenue, Wood River, Illinois. The RCRA corrective action program set forth in the subject facility's RCRA permit requires that BP properly remediate the entire facility. The RCRA permit broke the facility up into nineteen areas and sets forth a process for remediating the facility on an area by area basis. In addition, this permit contains provisions for removing remediated areas from the definition of the facility covered by the RCRA permit, thus allowing those areas to be more easily re-developed.

One of the areas being addressed by the RCRA corrective action program at this facility is referred to as "Area 2" which is located in the northeastern corner of the facility. A drawing showing the location of Area 2 within the facility is provided in Attachment 1 to this letter. On August 13, 2002, Illinois EPA issued a letter indicating that, subject to certain conditions and modifications, no further action was necessary at Area 2. One of the conditions of this letter required BP to establish an institutional control to place certain restrictions on future activities in this area. Illinois EPA approved a draft Environmental Land Use Control (ELUC) on January 29, 2003 which would establish the required institutional controls for Area 2. BP then filed the ELUC with the Madison County Recorder on February 5, 2003 as Document No. 2003R08605.

BP subsequently modified the ELUC for Area 2 to account for the fact that it desired to donate a 9.56 acre parcel within Area 2 to the City of Wood River for use as a storm water detention basin. This required that BP establish two new separate ELUCs which would supersede the original one filed on February 5, 2003—one for the parcel of land being donated to the City of

Wood River and one for the remainder of Area 2 being retained by BP. As such, a draft ELUC for the parcel of land being donated to the City of Wood River was approved by Illinois EPA on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45888 on December 7, 2011. In addition, a draft ELUC for that portion of Area 2 retained by BP was approved by Illinois EPA in a second letter dated on November 3, 2011 and filed with the Madison County Recorder as Document No. 2011R45887 on December 7, 2011.

BP is now donating a second parcel (7.5 acres in size) within Area 2 to the City of Wood River for the construction of a Police Station (this parcel is referred to as the "Police Station Donation Parcel"). Thus, BP must again establish two new ELUCs to replace the one filed on December 7, 2011 as Document No.2011R45887 -one for the Police Station Donation Parcel and one for the remainder of Area 2 being retained by BP. The inset map in Attachment 1 to this letter shows the location of the Police Station Donation Parcel within Area 2. It must be noted that the parcel being donated to the City only extends downward to a horizontal plane at elevation 428' above mean sea level located approximately 15' below the ground surface. BP will retain ownership of the parcel which exists below this plane as well as the remainder of Area 2. A legal description of the portion of Area 2 being retained by BP is provided as Attachment 2 to this letter.

A draft ELUC for the portion of Area 2 being retained by BP as it donates the 7.5 acre parcel within Area 2 as described above to the City of Wood River was approved by Illinois EPA on February 28, 2017 (Log No. B-147R-CA-65). However, BP found that minor revisions needed to be made to this ELUC and Illinois EPA's approval letter before they could be filed with the Madison County, Illinois Recorder's Office. Your March 29, 2017 submittal described these minor revisions and also included a revised draft ELUC for the portion of Area 2 being retained by BP.

Illinois EPA reviewed your March 29, 2017 submittal, including the revised draft ELUC for the portion of Area 2 being retained by BP, as a request to modify the RCRA corrective action program for the BP/Main Plant facility and hereby approves it subject to the following conditions and modifications:

1. A legal description of the portion of Area 2 within the BP/Main Plant facility covered by the ELUC being approved herein is provided in Attachment 2 to this letter. The Parcel Index Nos. for this parcel are:

   19-1-08-27-10-101-001.001
   19-1-08-27-14-301-001.001
   19-1-08-27-14-301-001.002
   19-2-08-27-14-301-004 (only exists below 418' mean sea level)
   19-2-08-27-10-101-003 (only exists below 428' mean sea level).

2. Parcel 19-2-08-27-10-101-003 is located directly beneath a 7.5 acre parcel being donated to the City of Wood River (The Parcel Index No. for the parcel being donated to the City of Wood River is 19-2-08-27-10-101-002); the parcel being donated only extends vertically

from the ground surface downward to a horizontal plane at elevation 428' above mean sea level (this horizontal plane is approximately 15' below the ground surface).

3. A copy of this letter must be filed along with the draft ELUC being approved herein with the Office of the Recorder for Madison County, Illinois.

4. As indicated above, Illinois EPA determined on August 13, 2002 that no further action was necessary for the soils within Area 2 provided an ELUC was established which placed certain restrictions on future activities within Area 2. The draft ELUC being approved herein establishes the restrictions required by Illinois EPA's August 13, 2002 letter for the portion of Area 2 being retained by BP.

5. Once the draft ELUC approved herein is recorded, it will supersede the ELUC recorded on December 7, 2011 as Document No. 2011R45888 as it pertains to the portion of Area 2 being retained by BP as identified in Condition 1 above.

6. The final ELUC filed with the Office of the Recorder for Madison County, Illinois must include a dated and notarized signature of the property owner.

7. The proposed ELUC places the following restrictions on the subject property:

   a. All groundwater, including the perched groundwater, under the Property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the Property must be handled in accordance with all applicable laws and regulations;

   b. The Property shall not be used for Residential use. The Property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 Ill. Adm. Code 742;

   c. Any excavation and subsurface construction work on the Property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils on the Property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

   d. The soil within the Property shall remain in place, except where necessary to remove it for construction activities;

   e. Soil excavated during construction/demolition/excavation activities within the Property must be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to a field screening test for volatile organic compounds ("VOCs"). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated "if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil.

(2) Laboratory Analysis. Soils exhibiting potential contamination based on the visual discoloring or a field screening test for VOCs will either be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site specific remediation objectives ("ROs") developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in 3.e (i) above.

(4) Management of Non-Contaminated Soils. Soils that are considered to be not contaminated, as determined by field screening or laboratory results, may be reused as fill in other areas of the former BP Refinery Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If the soil is found to be contaminated, then it must be sent off site for disposal as a special waste in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

f. The areas designated as "EB 1" and "EB 2A" of the Property, as shown in Attachment 3 to this letter and in Exhibit B 2 of the draft ELUC, requires an engineered barrier to restrict potential exposure to soils beneath the barrier. Ten feet of the existing soil in place over the contaminated soil (or a comparable designed engineered control) shall be used as the engineered barrier and must remain in place over the contaminated soils. Prior to commencement of any future excavation and/or construction in or near the areas containing the engineered barriers, a safety plan for these areas is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations and other U.S. EPA guidance as provided. At a minimum, the plan should address potential worker exposure if future excavation and construction activities occur within the contaminated soil. Any contaminated soil removed, or excavated from, or disturbed at the areas containing the engineered barrier must be handled in accordance with all applicable laws and regulations.

g. BP is allowed access to the Property for any groundwater monitoring or remediation efforts.

9. Within forty-five days of the date of the this letter, the LUC approved herein must be fully executed, notarized and recorded in the chain of title for the subject property in the Office of the Recorder for Madison County, Illinois, along with this letter. The approved ELUC will not become effective until officially recorded in the chain of custody for the subject property.

10. Within 30 days after filing the approved ELUC in accordance with Condition 9 above, a certified true copy of the filed ELUC, along with certification for the Office of the Recorder for Madison County, Illinois that the ELUC was properly filed, must be submitted to Illinois EPA.

11. Failure to comply with the limitations or requirements of an ELUC may result in voidance of Illinois EPA's no further remediation determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Illinois Environmental Protection Act.

12. The limitations or requirements of the ELUC apply in perpetuity or until:

a. The Illinois EPA issues a new no further remediation determination approving modification or removal of the limitation/requirement; and

b. A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

13. At no time shall this site be used in a manner inconsistent with the land use limitations established in the approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved, and (2) a new no further action determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code 742. Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC 742.

14. A completed Corrective Action Certification form must accompany all corrective-action related information submitted to Illinois EPA. To allow for the proper review of each submittal, please provide the original and one copy of each submittal (two copies if the submittal is groundwater related.

15. The original and two (2) copies of all certifications, logs, or reports which are required to be submitted to the Illinois EPA by the facility should be mailed to the following address:

Illinois Environmental Protection Agency
Bureau of Land - #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

16. Overall, corrective action activities at the subject facility must continue to be carried out in accordance with: (1) 35 Ill. Adm. Code 620, 724, and 742; and (2) the requirements set forth in its RCRA permit (Log No. B-147R) and all the other associated modifications letters issued thereafter by the Illinois EPA for this facility.

Work required by this letter, your submittals or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. This letter does not relieve anyone from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these Laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Should you have any questions regarding this matter, please contact Jim Moore of my staff at 217/524-3295.

Sincerely,

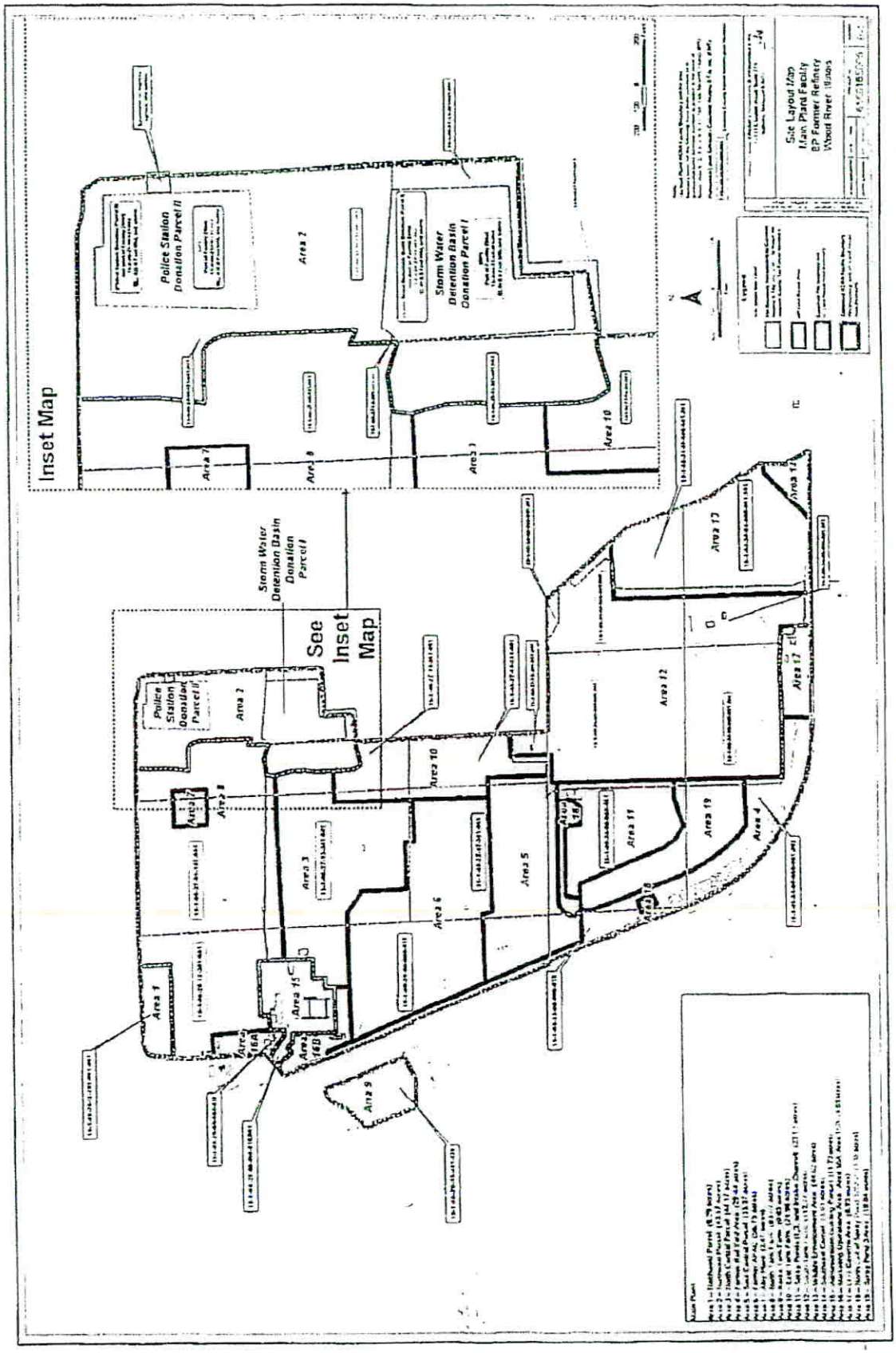
Joyce L. Munie, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

JLM:JKM:1191150001-RCRA B 147R CA 78
MM:JKM:TDB

Attachments: 1 – Site Layout Map
2 – Legal Description of Portion of Area 2 Retained by BP
3 – Location of Engineered Barriers Within the Portion of Area 2 Retained by BP

cc: Allison Crane (via e-mail)

cc: Bureau File
Collinsville Region
Terri Blake Myerx
Takako Halteman
Amy Boley
Jim Moore



B-147R:CA-78
Attachment 1
Site Layout Map

B 147R CA 78
Attachment 2
Legal Description of Portion of Area 2
Retained by BP

Exhibit A

Legal Descriptions and Parcel IDs

The Property which is the subject of this ELUC, also referred to as Area 2, is located in the City of Wood River, Madison County, State of Illinois, within the BP-Main Plant Facility whose address is 301 Evans Avenue, Wood River, Illinois and more particularly described as (note that Attachment B-1 depicts the layout of the BP Main Plant Facility, and the Property (Area 2) which is the subject of this ELUC):

LEGAL DESCRIPTION

The portion of the following described property:

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast comer of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road, and the POINT OF BEGINNING; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 537.69 feet; thence South 89 degrees 03 minutes 56 seconds West, 511.68 feet; thence South 03 degrees 17 minutes 51 seconds East, 287.59 feet; thence South 80 degrees 51 minutes 24 seconds West, 267.69 feet; thence North 87 degrees 28 minutes 33 seconds West, 15.25 feet; thence North 87 degrees 28 minutes 33 seconds West, 51.06 feet; thence South 74 degrees 04 minutes 54 seconds West, 176.24 feet; thence North 88 degree 57 minutes 22 seconds West, 19.35 feet; thence North 34 degrees 52 minutes 15 seconds West, 68.25 feet; thence North 11 degrees 08 minutes 36 seconds West, 79.65 feet; thence North 02 degrees 01 minute 18 seconds West, 331.70 feet; thence North 08 degrees 17 minutes 11 seconds East, 94.49 feet; thence North 03 degrees 16 minutes 24 seconds West, 140.22 feet; thence North 16 degrees 34 minutes 48 seconds West, 157.07 feet; thence North 06 degrees 34 minutes 43 seconds East, 80.46 feet; thence North 81 degrees 50 minutes 44 seconds East, 167.06 feet; thence South 72 degrees 15 minutes 30 seconds East, 153.53 feet; thence North 01 degree 37 minutes 11 seconds West, 205.96 feet; thence South 65 degrees 47 minutes 26 seconds East, 67.39 feet; thence North 02 degrees 18 minutes 55 seconds West, 533.37 feet; thence North 09 degrees 12 minutes 39 seconds West, 32.06 feet; thence North 22 degrees 48 minutes 45 seconds West, 36.49 feet; thence North 35 degrees 46 minutes 07 seconds West, 36.12 feet; thence North 56 degrees 50 minutes 16 seconds West, 33.22 feet; thence South 88 degrees 59 minutes 56 seconds West, 233.69 feet; thence North 06 degrees 34 minutes 04 seconds East; 210.75 feet; thence North 00 degrees

52 minutes 34 seconds West, 324.73 feet to the southerly right of way of Illinois Route 143, also known as Madison Avenue; thence continuing along said right of way for the following four courses: 1) North 89 degrees 46 minutes 26 seconds East, 719.43 feet; 2) South 75 degrees 53 minutes 19 seconds East, 103.38 feet; 3) South 86 degrees 54 minutes 16 seconds East, 100.13 feet; 4) South 35 degrees 47 minutes 53 seconds East, 83.60 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, 1242.49 feet to the POINT OF BEGINNING, containing 43.17 acres or 1,880,551 feet.

PIN: 19-1-08-27-10-101-001.001;
19-1-08-27-14-301-001.001;
19-1-08-27-14-301-001.002;
19-2-08-27-14-301-004 (Elevation 418 Feet MSL and below); and
19-2-08-27-10-101-003 (Elevation 428 Feet MSL and below)

EXCEPT,

1. **Storm Water Detention Basin Donation Parcel 1**

REAL ESTATE TAX INDEX #19-2-08-27-14-301-003
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 418 feet above mean sea level. The approximate "thickness" of the Donation Parcel is 23 feet.

Part of the West half of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, Madison County, Illinois, described as follows:

Commencing at the northeast corner of the Southwest Quarter of said Section 27; thence North 89 degrees 13 minutes 29 seconds West, 60.11 feet to the westerly right of way of Sixth Street, formerly known as Old Alton Edwardsville Road; thence South 02 degrees 41 minutes 19 seconds East, along said right of way, 3.38 feet; thence South 02 degrees 11 minutes 21 seconds East, 3.90 feet; thence North 85 degrees 11 minutes 49 seconds West, 111.30 feet to the Point Of Beginning; thence South 02 degrees 13 minutes 17 seconds East, 505.12 feet; thence South 87 degrees 48 minutes 39 seconds West, 410.66 feet; thence South 02 degrees 02 minutes 36 seconds East 253.81 feet; thence South 87 degrees 37 minutes 30 seconds West, 230.51 feet; thence North 04 degrees 15 minutes 04 seconds West, 273.85 feet; thence North 04 degrees 10 minutes 26 seconds West, 133.01 feet; thence North 03 degrees 19 minutes 34 seconds West, 356.65 feet; thence North 44 degrees 20 minutes 55 seconds East, 48.26 feet; thence North 32 degrees 50 minutes 39 seconds East, 35.75 feet; thence North 27 degrees 57 minutes 32 seconds East, 9.22 feet; thence

South 85 degrees 11 minutes 49 seconds East, 607.40 feet to the Point of Beginning, containing 9.56 acres or 416,475 square feet.

PIN: 19-2-08-27-14-301-003 (Ground Surface Down to Elevation 418 Feet MSL)

AND EXCEPT,

2. Police Station Donation Parcel II

REAL ESTATE TAX INDEX #19-2-08-27-10-101-002
LEGAL DESCRIPTION

The portion of the following described property located above the elevation of 428 feet above mean sea level The approximate "thickness" of the Donation Parcel is 15 feet.

A tract of land situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described ae follows:

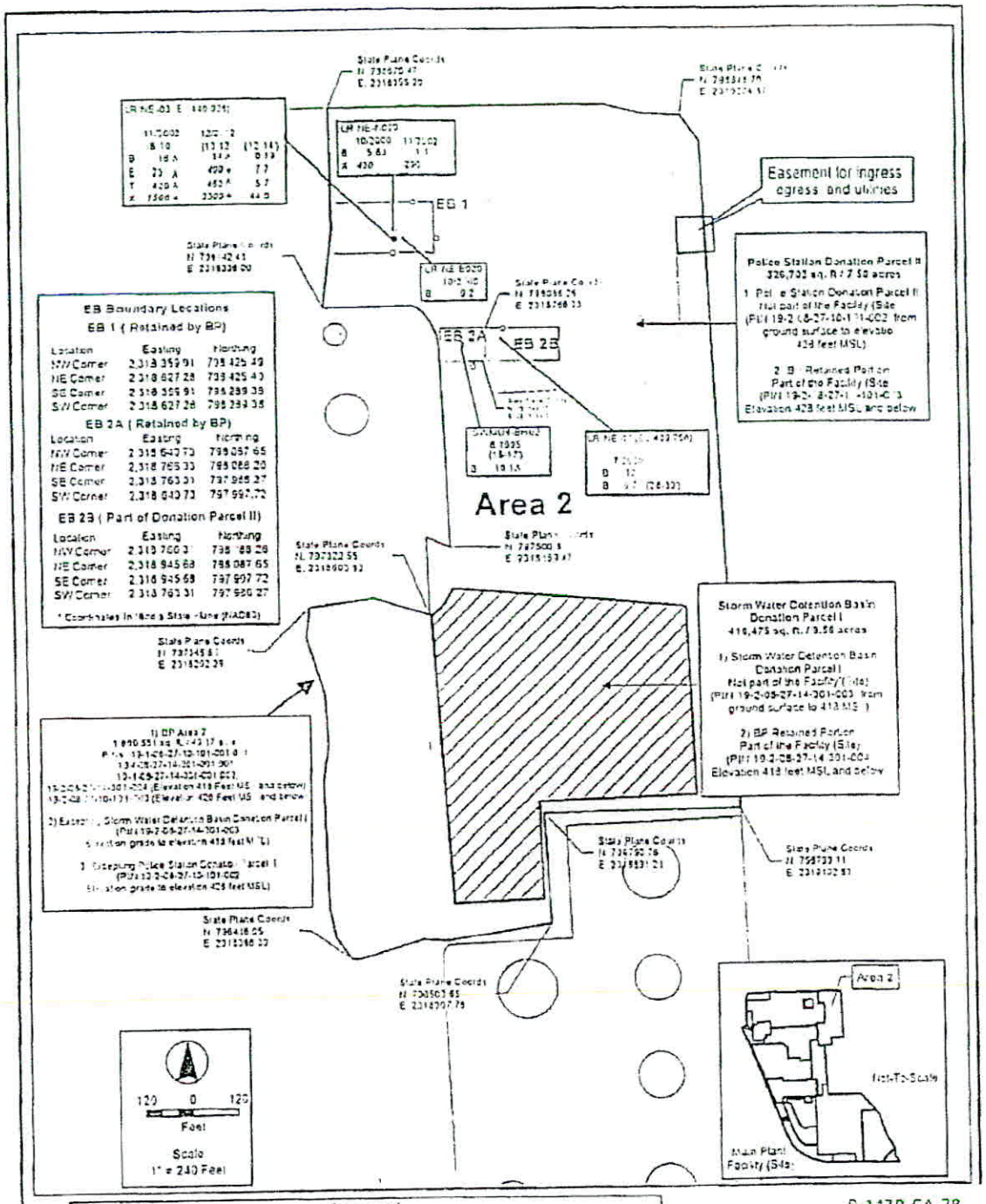
Commencing at the southeast corner of said Northwest Quarter: thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet to the Point of Beginning of the herein described tract; thence continuing South 87 degrees 18 minutes 50 seconds West 515.95 feet; thence North 00 degrees 31 minutes 55 seconds East 688.58 feet; thence North 89 degrees 46 minutes 35 seconds East 254.98 feet; thence South 02 degrees 59 minutes 38 seconds East 36.32 feet; thence South 88 degrees 59 minutes 38 seconds East 218.92 feet; thence South 03 degrees 02 minutes 32 seconds East 626.13 feet to the Point of Beginning, containing 326,702 square feet or 7.50 acres, more or less.

Subject to:
A 100 feet wide easement for ingress, egress and utility purposes situated in the Northwest Quarter of Section 27, Township 5 North, Range 9 West of the Third Principal Meridian, City of Wood River, Madison County, Illinois, described as follows:

Commencing at the southeast corner of said Northwest Quarter; thence North 89 degrees 13 minutes 29 seconds West (basis of bearings is the Illinois .State Plane Coordinate System - West Zone) along the south line of said Northwest Quarter 60.11 feet to the westerly right of way line of South Sixth Street (60 feet wide); thence along said right of way line North 02 degrees 41 minutes 10 seconds West 595.41 feet; thence departing said right of way line South 87 degrees 18 minutes 50 seconds West 84.05 feet; thence North 03 degrees 02 minutes 32 seconds West 335.44 feet to the Point of Beginning of the herein described easement; thence continuing North 03 degrees 02 minutes 32 seconds West 100.00 feet; thence North 87 degrees 18 minutes 50 seconds East 86.75 feet to said right of way line; thence along said right of way line South 02 degrees 41 minutes 10 seconds

East 100.00 feet; thence deporting said right of way line South 87 degrees 18 minutes 50 seconds West 86.13 feet to the Point of Beginning.

PIN: 19-2-08-27-10-101-002 (Ground Surface Down to Elevation 428 Feet MSL)



Legend

- B Benzene
- E Ethylbenzene
- T Toluene
- X Xylenes
- J Estimated Concentration based on QC Review

All Results are Presented in mg/kg

- B 3.2 A Exceeds Tier 2 Soil Inhalation RO (Result from Sample Between 6-10' Unless Specified)
- 1 1500+ Exceeds Soil Saturation Limit
- B 1.1 Does Not Exceed Tier 2 Soil Inhalation RO
- 2010 BP Police Station Donation Parcel II subject to 35 IAC 742 Subpart L Building Control Technologies
- 2011 Storm Water Detention Basin Donation Parcel I

Sampling Locations
(Containing BETX concentrations exceeding Tier 2 Soil Inhalation ROs)

- RFI Boring Location (1995)
- Confirmation Boring Location of RFI Results (2000)
- Former Aboveground Tank Boring Location (2000)
- Step-Out Boring Location (2000)
- Midpoint Between Samples With and Without Tier 2 Exceedence
- Area of Engineered Barrier (EB) Model of Soil Impact in Excess of Tier 2 Inhalation ROs

(MSL) Mean Sea Level

B-147R-CA-78
Attachment 3
Location of Engineered Barriers
Portion of Area 2 Retained by BP

Area2 ELUC Map
BP Former Refinery
Wood River, Illinois

656016S006 B-2

Recorder's Certificate of Photocopy

STATE OF ILLINOIS)
) SS
COUNTY OF MADISON)

I, Linda A. Andreas, the duly elected RECORDER in and for the County and State aforesaid, do hereby certify that the foregoing copy of a certain ENVIRONMENTAL DISCLOSURE is the true and correct photocopy of said ENVIRONMENTAL DISCLOSURE from BP PRODUCTS NORTH AMERICA to NOTICES including the Certificate of Acknowledgment bearing date the 24th day of APRIL A.D. 2024 as the same appears in the records of my office in Document **# 2017R18529** recorded on the 5th day of JUNE A.D. 2017

GIVEN under my hand and OFFICIAL SEAL of the RECORDER at Edwardsville, Illinois, this 24th day of APRIL A.D. 2024.

Linda A. Andreas
RECORDER
in and for
MADISON COUNTY, ILLINOIS

R001291

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

ILLINOIS EPA RCRA CORRECTIVE ACTION CERTIFICATION

This certification must accompany any document submitted to Illinois EPA in accordance with the corrective action requirements set forth in a facility's RCRA permit. The original and two copies of all documents submitted must be provided.

1.0 Facility Identification

Name: BP Wood River Main Plant Property
County: Madison
Street Address: 301 Evans Avenue
Site No. (IEPA): 1191150001
City: Wood River
Site No. (USEPA): ILD980700967

2.0 Owner Information

Name: BP Products North America Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Michelle Knapp
Contact Title: Liability Manager
Phone: 847.346.7112

3.0 Operator Information

Name: BP Products North America Inc.
Mail Address: 301 Evans Avenue
City: Wood River
State: IL Zip Code: 62095
Contact Name: Michelle Knapp
Contact Title: Liability Manager
Phone: 847.346.7112

4.0 Type of Submission (check applicable item and provide requested information, as applicable)

☐ RFI Phase I Workplan/Report
☐ RFI Phase II Workplan/Report
☐ CMP Report;
☑ Other (describe): Area 2 - Certified True Copy of ELUC Recordings

IEPA Permit Log No. B-147R-M-17 and 18
Date of Last IEPA Letter on Project November 20, 2023
Log No. of Last IEPA Letter on Project B-147R-CA-122

Does this submittal include groundwater information: ☐ Yes ☑ No

Date of Submittal May 1, 2024

5.0 Description of Submittal: (briefly describe what is being submitted and its purpose)

Resubmittal of one original certified true copy of each of two ELUCs for Main Plant Area 2 (previously submitted to Illinois EPA in June 2017) identified as officially lost files by Illinois EPA.

6.0 Documents Submitted (identify all documents in submittal, including cover letter; give dates of all documents)

Area 2 – Police Station Donation Parcel II and BP Retained Parcel Certified True Copy of ELUC Recordings 2017R18528 and 2017R18529 and this LPC 632 Form, both dated May 1, 2024.

7.0 Certification Statement

(This statement is part of the overall certification being provided by the owner/operator, professional and laboratory in Items 7.1, 7.2 and 7.3 below). The activities described in the subject submittals have been carried out in accordance with procedures approved by Illinois EPA. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

IEPA RCRA Corrective Action Certification
For: MP Area 2 - Certified True Copy of ELUC Recordings
Date of Submission: 5/1/2024

7.1 Owner/Operator Certification

(Must be completed for all submittals. Certification and signature requirements are set forth in 35 IAC 702.126.) All submittals pertaining to the corrective action requirements set forth in a RCRA Permit must be signed by the person designated below (or by a duly authorized representative of that person):

1. For a Corporation, by a principal executive officer of at least the level of vice president.
2. For a Partnership or Sole Proprietorship, by a general partner or the proprietor, respectively.
3. For a Governmental Entity, by either a principal executive officer or a ranking elected official.

A person is a duly authorized representative only if:

1. the authorization is made in writing by a person described above; and
2. the written authorization is provided with this submittal (a copy of a previously submitted authorization can be used).

Owner Signature: _____ Date: 5/1/2024

Title: _____

Operator Signature: _____ Date: 5/1/2024

Title: _____

7.2 Professional Certification (if necessary)

Work carried out in this submittal or the regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. No one is relieved from compliance with these laws and the regulations adopted pursuant to these laws. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Professional's Signature: _____ Date: _____

Professional's Name _____

Address _____ Professional's Seal:

City _____

State _____ Zip Code _____

Phone _____

7.3 Laboratory Certification (if necessary)

The sample collection, handling, preservation, preparation and analysis efforts for which this laboratory was responsible were carried out in accordance with procedures approved by Illinois EPA.

Name of Laboratory _____

_____ Date: _____

Signature of Laboratory Responsible Officer

Mailing Address of Laboratory

Address _____ _____

City _____ Name and Title of Laboratory Responsible Officer

State _____ Zip Code _____

POWER OF ATTORNEY

BP Products North America Inc., a corporation duly organized and subsisting in good standing under the laws of Maryland (the ***"Company"***) does hereby make, constitute, and appoint the following persons:

Bien-Curtin, Michelle	Greco, Chris	McAnulty, Mike
Bryson, Josh	Griffis, Dave	McDonald, Scott
Burmeister, Loren	Halsey, Ron	Melton, Wade
Campbell, Felton	Harris, Jenni	Onufrak, Nicholas
Crane, Allison	Hilmo, Tim	Peterson, Nick
Dippo, Ron	Jackson, Michael	Pokorny, Luke
Dunlap, Shannon	Johnson, Brian	Schaeffer, Jim
Emmet, Lisa	Johnson, Paul	Skance, John C
Ferry, Steve	Knapp, Michelle	Smith, Jim L
Frisch, Greg	Larson, Eric	Wojciechowski, Mary
Gallery, Patricia	Littrell, Lori	

each as its lawful Attorney-in-Fact (hereinafter referred to as ***"Attorney-in-Fact"***) for and in the name of the Corporation to take any and all of the following actions:

1. Preparation, execution, and submittal of all necessary applications to obtain permits and/or renewals of such permits, as may be required by state, federal or local authorities;

2. In coordination with legal counsel assigned by the Company or its affiliate, Remediation Management Services Company (**"RMSC"**), prepare and execute access agreements for the right of entry to properties owned by third parties;

3. At my direction, or the direction of my herein identified designee, prepare, execute and submit environmental reports and correspondence to any federal, state and/or local governmental agencies, as may be required by any federal, state or local laws, regulations or ordinances;

4. Preparation, execution, and submittal of all applications, forms, waste profiles and other documents, as required by applicable laws, to treat or dispose of non-hazardous contaminated soil, water, and related waste at or associated with such facilities in accordance with applicable laws and the waste disposal policies of the Company and RMSC.

5. Following review by and approval from me as the Vice President appointed by the Company, or from my designee as herein identified, the preparation, execution and submittal of applications, forms, waste profiles and other documents, as required by applicable laws, to treat or dispose of hazardous contaminated soil, water and related waste at or associated with such facilities, in accordance with applicable laws and the waste disposal policies of the Company and RMSC.

HEREBY GIVING AND GRANTING said Attorney-in-Fact full power and authority to do and perform all acts necessary and proper to accomplish the foregoing, and hereby ratifying and confirming all that said Attorney-in-Fact shall do or cause to be done by virtue thereof.

THIS POWER OF ATTORNEY contains the following restrictions:

1. The authorities described herein are not transferable nor can they be sub-delegated to any other individuals.

2. The power and authority hereby conferred upon the Attorney-in-Fact supersedes and replaces any previous delegation of power or authority, specifically if those previous delegation(s) are connected to the authorities described herein.

THIS POWER OF ATTORNEY shall be effective as of the execution date of this Power of Attorney and shall remain valid until the earlier of any of the following:

1. On and through March 31, 2025;
2. The date the Attorney-in-Fact ceases to be an employee of the Company or any wholly owned subsidiary of BP p.l.c.; or
3. The date this Power of Attorney is formally revoked by the Company.

BP Products North America Inc. has caused this Power of Attorney to be executed by its duly authorized officer on this day February 1, 2024.

BP Products North America Inc.

By: DocuSigned by: Joseph Sontchi C0698C0B5523465...

Name: Joe Sontchi
Title: Vice President

DOCUMENT 19

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1191150001*** *Federal ID(s)* ***ILD980700967*** *Respond by:* ***9/29/2024***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Data Regarding Logged Submittal(s) per Log # ***B-147R2***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU,	DAU,	RCRA GAU
Active	Renewal Part B Pmt	RCRA Part B	OF		SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
BP Wood River Main Plant Property Part B RCRA permit renewal application	Additional Info	Technical	

Date Received 08/30/2024 Date Due 11/28/2024 Date Mailed

Submittal Comment:

Reponsed to permit NOD	Resp-Technical NOD	Technical	

Date Received 08/02/2024 Date Due 10/31/2024 Date Mailed

Submittal Comment:

Time extension request for submittal of a response to the IEPA RCRA Permit Renewal App NOD letter dated 6/18/2024	Resp-Technical NOD	Technical	

Date Received 07/05/2024 Date Due 10/03/2024 Date Mailed

Submittal Comment:

Replacement pages submitted 1) Consition C.8.1.5 - Page 13 and 2) Exhibit C-1, Table 1 - Page 4			Technical NOD

Date Received Date Due Date Mailed 06/18/2024

Submittal Comment:

Renewal application	1st Submittal	Technical	

Date Received 10/09/2020 Date Due 01/07/2021 Date Mailed

Submittal Comment:

BOLSiteCode ***1191150001*** *Federal ID(s)* ***ILD980700967*** *Respond by:* ***9/29/2024***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Data Regarding Logged Submittal(s) per Log # ***B-147R2***

Final Action Data

For Log No: B-147R2

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
					0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1191150001*** *FedID:* ***ILD980700967*** *Respond by:* ***11/8/2020***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Facility Permit Universe: ☐ **OperatingUniverse** ☐ **PostClosureUniverse** ☑ **CorrActionUniverse** ☐ **UIC**

Facility Type: ***Right-to-Know Status:*** ***RTK Status Change Date:***

Site Comments:

Data Regarding Log #: *B-147R2*

Review Status	PermitClass	AppType	Reviewers: RCRA CAU	DAU	CU
Active	Renewal Part B Pmt	RCRA Part B	THN		AMB

LogComments:

Submittals for Log

DocTitle_Description	Submittal Type	Review Type	Agency Response
Renewal application	1st Submittal	Technical	

Submittal Received: 10/09/2020 **Date Due:** 01/07/2021 **Pub Notice/Date Mailed:**

Submittal Comments:

Final Action Data

For Log No: B-147R2

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
					0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

Main Plant Copy 5/11

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1191150001*** *Federal ID(s)* ***ILD980700967*** *Respond by:* ***6/16/2022***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Data Regarding Logged Submittal(s) per Log # ***B-147R2***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU,	DAU,	GAU
Active	Renewal Part B Pmt	RCRA Part B	THN CS		AMB

DocTitle_Description	Submittal Type	Review Type	Agency Response
Replacement pages submitted 1) Consition C.8.1.5 - Page 13 and 2) Exhibit C-1, Table 1 - Page 4			

Date Received: Date Due: Date Mailed:

Submittal Comment:

Renewal application	1st Submittal	Technical	

Date Received: 10/09/2020 Date Due: 01/07/2021 Date Mailed:

Submittal Comment:

Final Action Data

For Log No: B-147R2

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
					0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

DOCUMENT 20

BP Products North American Inc./Main Plant (Log No: B-147R2) ADMINISTRATIVE RECORD Index for Draft Permit Decision	
Date	**CORRESPONDENCE**
08-30-24	**Permit Application:** Replacement Pages Submitted 1) Section C text; 2) Section C, Figures C-2a and C-2b, 3) Section C, Exhibit C-1, Table 1; and Section C, Exhibit C-4 (new)
08-1-24	**Permit Application:** BP Main Plant Complete Revised Renewal Application based on 6-18-24 NOD (Application replaces 10-8-20 Application)
07-3-24	**Letter:** BP Main Plant: Extension Request
6-18-24	**Letter:** Illinois EPA Notice of Deficiencies
5-11-22	**Permit Application:** Replacement pages submitted 1) condition C.8.1.5- Page and 2) Exhibit C-1, Table-1. Page4
12-02-20	**Letter:** Illinois EPA – Application Complete
10-8-20	**Letter:** BP Main Plant – Renewal Permit Application
4-10-20	**Letter:** Illinois EPA renewal notice letter

bp

Remediation Management Services Company

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

August 29, 2024

Jacqueline M. Cooperider, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
Log No. B-147R2
RCRA Administrative Record - 24D
Permit Renewal Application – Replacement Pages

Dear Ms. Cooperider:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting to the Illinois Environmental Protection Agency (Illinois EPA) the following items as replacement pages to Section C of the previously submitted Permit Renewal Application (Log No. B-147R2) for the former bp Wood River Refinery (Main Plant Property):

1. Section C text;
2. Section C, Figures C-2a and C-2b;
3. Section C, Exhibit C-1, Table 1; and
4. Section C, Exhibit C-4 (new).

The replacement pages are required to address the following items discussed on a teleconference with the Illinois EPA on August 20, 2024: i) the proposed abandonment of Gradient Control/Cone of Depression Well VW01, and ii) incorporation of the proposed replacement of Main Plant Observation Well G87L in accordance with the Monitoring Well Condition letter submitted to Illinois EPA on July 30, 2024. Enclosed with this submittal is a RCRA Permit Application Form (LPC-PA23) and completed 39(i) Certification Form.

Should you have questions regarding the information provided, please contact me at (847) 346-7112.

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Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

Enclosures: RCRA Permit Application Form (LPC-PA23) and 39(i) Certification
Main Plant Property Permit Renewal Application Replacement Pages, Revision Date: 08/28/2024

cc: Amy Butler, Illinois EPA
Takako Halteman, Illinois EPA
Omar Faruk, Illinois EPA
Shawntay Dial, Illinois EPA
Ali Al-Janabi, Illinois EPA
Norberto Gonzalez, USEPA Region V
Tom Stalcup, Mayor of the City of Wood River
Michael J. Hoffman, P.E., WSP USA Environment & Infrastructure Inc.
Starlet S. Wright, Sovereign Consulting Inc.

B-147R2 (AI) R0011308
cc: Collinsville

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 1191150001 USEPA ID Number: ILD980700967

Site Name: BP Wood River - Main Plant Property

Physical Site Location (street, road, etc.): 301 Evans Avenue

City: Wood River Zip Code: 62095 County: Madison

Existing RCRA Permit (if applicable): Log No. B-147R-M-17 and M-18

II. Owner/Operator Identification

Owner Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847-346-7112

Email: michelle.knapp@bp.com

Operator Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

IEPA
Division of Records Management
Releasable
SEP 06 2024

Contact Name: Michelle Knapp Reviewer: MDB

Phone #: 847-346-7112

Email: michelle.knapp@bp.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

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III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number _____
- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☐ Treatment
- ☐ Disposal
- ☐ Incineration
- ☑ Groundwater
- ☑ Corrective Action
- ☐ UIC Class I
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

BP Wood River Main Plant Property Part B RCRA permit renewal application

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Michelle Knapp

Owner Signature: [signature] Date: 8/26/24

Title: Liability Manager

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Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Michelle Knapp

Operator Signature: [signature] Date: 8/26/24

Title: Liability Manager

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 26th day of August 2024

Notary Signature: [signature]

My commission expires on: July 5, 2026

INAYAT I PRADHAN
Official Seal
Notary Public - State of Illinois
My Commission Expires Jul 5, 2026

Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Print or Type): Michael J. Hoffman

Engineer Signature: [signature]

Illinois License No.: 062-037839

Expiration Date of License: 11/30/2025

Engineer Phone No. 309-692-4422

Email: michael.hoffman@wsp.com

Engineer Address:

2412 W. Nebraska Ave.
Peoria, IL 61604

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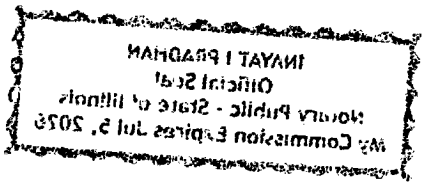
MICHAEL J. HOFFMAN
62-0037839
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))


INAYAT I PRADHAN
Official Seal
Notary Public - State of Illinois
My Commission Expires Jul 5, 2025


MICHAEL J. HOFFMAN
62-037639
REGISTERED
PROFESSIONAL
ENGINEER
OF
ILLINOIS

Illinois Environmental Protection Agency

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39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: BP Wood River Main Plant Property IEPA BOL No.: 1191150001

Site Address: 301 Evans Avenue

City: Wood River State: IL Zip Code: 62095

Permit Numbers (if applicable): B-147R-M-17 & M-18

Owner

Owner Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Operator

Operator Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Is this 39(i) certification for the owner or the operator?

○ Owner ○ Operator ⊘ Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Joseph Sontchi	Vice President

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B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
Michelle Knapp	Liability Manager

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if fhe following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

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Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Signature of Applicant Officer	22 August 2024 Date
Joseph Sontchi Printed Name	Vice President Title

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Attachment A (1 of 1)

This Attachment must be completed for each owner or operator, and for each officer or employee identified in Section II, for whom one or more affirmative responses were included in Section III.

Name: _____ Title: _____

Status: ☐ Owner ☐ Operator ☐ Officer ☐ Employee (check all that apply)

A. Prior Findings or Convictions

1. Has there been a finding that the person named above violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ○ No

2. Has the person named above ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ○ No

3. Has there been a finding against the person named above of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ○ No

If the answer to any of the above questions is Yes, attach a copy of each final administrative or judicial determination that required an affirmative response.

B. Pending Proceedings

Is there any proceeding currently pending that could result in one of the following:

1. A conviction or finding described in subsection A, above? ○ Yes ○ No

2. The reversal of a conviction or finding described in subsection A, above? ○ Yes ○ No

If the answer to any of the above questions is Yes, please provide information about the pending proceeding, including the parties involved, the adjudicating body, the docket number, the nature of the proceeding, and the status. The box below will expand as needed. Attach additional sheets if necessary.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JUN 18 2024

9589 0710 5270 0477 0573 44

BP Products North America, Inc.
Attention: Ms. Michelle Knapp
Liability Manager
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North American Inc./Main Plant
ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Permit NOD

Dear Ms. Knapp:

The Illinois EPA has completed an initial technical review of the RCRA Post-Closure permit renewal application (renewal application), dated October 8, 2020, and received by the Illinois EPA on October 9, 2020, for the above referenced facility. The renewal application was determined to be administratively complete by the Illinois EPA on December 2, 2020 and this review focused on the technical aspects of the renewal application and compliance with Title 35 Illinois Administrative Code (IAC) Part 724.

A list of comments identified during this technical review is attached. Each comment must be addressed before the Illinois EPA can complete the technical review of the renewal application.

The response should be submitted as "original", and three (3) additional copies and postmarked no later than thirty (30) days from the date of this letter. In addition, please send an additional copy of the response directly to the Illinois EPA, Collinsville Field Office and the USEPA as required on Comment 1b in the attachment. The "original" set of revised pages will become part of the Illinois EPA's administrative record for this renewal application. One (1) copy will eventually be part of the repository the Illinois EPA establishes as part of the public participation efforts associated with the draft permit decision to be made regarding the renewal application. The two (2) additional copies will be distributed to the project managers within the Illinois EPA responsible for reviewing the renewal application.

The response should be in a format, which allows incorporation of the new information into the appropriate sections of the renewal application. To allow proper review of this new information,

the location of the response to each comment should be identified in a list cross-referencing these items. Each revised page or drawing must have the revision date identified on them for tracking purposes.

Form LPC-PA23 must accompany the submission. The original and three (3) copies of the new information and certification form should be submitted to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL. 62794-9276

For any questions regarding this permit, please contact Omar Faruk at 217/557-9764 or omar.faruk@illinois.gov. For questions regarding groundwater issues, contact Amy Butler at 217/558-4716 or amy.butler@illinois.gov.

Sincerely,

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC: OF:1191150001-RCRA-B147R2-NOD.doc
TNH
Attachments: 1. Technical Review Comments

2. Illinois EPA's Guidance Document (May 2021)

cc: Norberto Gonzalez, USEPA Region V
Michael J. Hoffman, P.E., WSP Environment and Infrastructure, Inc.
Starlet S. Wright, Sovereign Consulting, Inc.

TECHNICAL REVIEW COMMENTS
B-147R2

The following comments are provided as part of the Illinois EPA's technical review of BP Products North America, Inc.'s (BP) Post-Closure permit renewal application (renewal application) dated October 8, 2020 and received by the Illinois EPA on October 9, 2020. The solid waste management units (SWMUs) at BP are being addressed by the corrective action requirements of the facility's RCRA permit.

Note: Illinois EPA's Guidance Document entitled, "Information Which Must be Provided in an Application for a RCRA Post-Closure Permit May 2021", will be referred to as "Illinois EPA's Guidance Document" in the following technical review comments. A copy of this guidance document is attached. If BP revises any sections of the renewal application based on Illinois EPA comments, please use the attached guidance document. These technical review comments are organized so that they follow the format of this guidance document.

1. General Comment:
   a. Provide a list of acronyms for the permit renewal application.
   b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).
   c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program.
      i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved.
      ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.
      iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.
      iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".
2. Exhibit A-1b, Hazardous Waste Permit Part A Form:
   a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.

b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.

3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification:

   a. Update the information on the 39(i) Certification, Section B for the new liability manager.

4. Exhibit A-4, Public Notice Letter:

   a. Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated.

5. Exhibit B-1:

   a. Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.

6. Section B.2.2:

   a. Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).

7. Section C.3:

   a. Revise Section C.3 to also identify the groundwater classification.

8. Section C.4:

   a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically:

      i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate with the exceptions listed in Comment 8.b below; and

      ii. Figures C-1 through C-5 and Exhibit C-1 are adequate, with the exceptions listed in Comments 8.b and 9 below.

   b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s) and 703.185(c). The facility must provide additional information to present the following:

i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

ii. An updated Water Well Survey (WWS) must be completed and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site.

9. Section C.8:

   a. Figures C-4 and C-5 must be revised as they do not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

10. Section C.8.1.1 and Figure C-5:

   a. Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I GQSs. Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells may result in the requirement for additional corrective action.

11. Section C.8.1.5:

   a. Update Cone of Depression (COD) well information to reflect changes since the time of the submittal; and

   b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

12. Section C.8.4:

   a. The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.

13. Appendix C of Exhibit C-1:

   a. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

14. Section C.8.4.5 and Exhibit C-3:

a. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted, or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

ii. Indicate the most current version of the proposed software that will be used.

iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

iv. It is stated higher detection limits were reported for many COCs during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher, and demonstrate why this is an appropriate approach for the evaluations.

1. The March 2009, Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities (Unified Guidance), must be followed and percentages of non-detections handled accordingly; and

2. Statistical requirements of 35 IAC 724.197 also apply.

v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for antimony, G006 is only analyzed for arsenic, etc.

vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

15. Section C.8.4.6:

a. Update Section C.8.4.6 to reflect changes since the time of the submittal.

16. Section C.8.4.8:

    a. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.

17. Section C.8.4.9:

    a. Revise Section C.8.4.9 to reflect the statistical approach being proposed in Section C.8.4.5.

18. Section C.9:

    a. Revise Section C.9 to reflect the frequency for the statistical approach being proposed in Section C.8.4.5.

19. Section F (Groundwater Aspects)

    a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit.

    b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The summary must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.

20. Section F.4.2:

    a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.

    b. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application:

        i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area.

        ii. A copy of the certified ELUC for each applicable Land Reuse Area.

21. Section F.4.2.2.2:

    a. Provide the total size of Area 2 in the detailed description of unit.

22. Section F.4.2.3.2:

    a. Provide the screening interval during field screening investigation from November 2002 to July 2003.

23. Section F.6:

    a. Revise Exhibit F-2 based on the following comments:

        i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.

        ii. Check for consistency between the task objective for Area 5, mentioning four remediation areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.

        iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.

        iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.

        v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Information Which Must be Provided in an Application for a RCRA Post-Closure Permit
May 2021

Introduction/Purpose

35 Ill. Admin. Code 702.121 requires facilities that have closed a hazardous waste management unit as a landfill to obtain a RCRA post-closure permit. This permit will set forth the requirements which must be met in providing the closed unit at least thirty years of post-closure care: it will also contain requirements regarding corrective action efforts for the solid waste management units of concern at the facility. This document sets forth in an organized and logical form, the information which must be provided in an application for a RCRA post-closure permit; it was developed in general accordance with 35 Ill. Admin. Code 703.214

Hazardous waste management units closed as landfills (and thus must be covered by a RCRA post-closure permit) typically fall into one of four categories:

- Hazardous waste surface impoundments that could not achieve "clean closure" and thus were closed as landfills;
- Hazardous waste surface impoundments that were operated as disposal units and closed as a landfill;
- Landfills which co-disposed of hazardous waste with municipal and non-hazardous special waste; and
- Landfills which received hazardous waste as well as non-hazardous special waste.

The key components of post-closure care of a unit closed as a landfill includes: maintenance of the final cover; operation of any leachate/gas collection system(s); and implementation of a groundwater monitoring and, as necessary, remediation system. In addition, as noted above, another other key item that must be addressed under a RCRA post-closure permit is the implementation of an appropriate corrective action program on the solid waste manage units of concern at the facility.

This document is comprised of the following six sections which identify in outline form the information which should be contained in an application for a RCRA post-closure permit:

A. Forms, Certifications, Confidentiality, and Public Involvement
B. Facility Description
C. Groundwater Monitoring
D. Procedures to Prevent Hazards
E. Post-Closure Requirements
F. Corrective Action

The forms mentioned in this document can be found on Illinois EPA's internet site (https://www2.illinois.gov/epa/Pages/default.aspx). Illinois EPA will follow the procedures set forth in 35 Ill. Admin. Code 702, 703, and 705, as well as the Illinois Environmental Protection Act, in reviewing and processing this application.

The Illinois EPA's Bureau of Land Permit Section is responsible for reviewing RCRA post-closure permit applications; these applications should be submitted to Illinois EPA at the address above. Questions regarding the development of the groundwater-related aspects of an application should be directed to the Groundwater Unit of the Permit Section while questions related to other aspects of the application should be directed to the RCRA Unit of the Permit Section. The general telephone number for both the Groundwater Unit and the RCRA Unit is 217/524-3300.

Table of Contents

In addition to identifying the sections, tables, figures and attachments, the Table of Contents for the application should include a list of acronyms used in the application. This information will aid both the Illinois EPA and anyone from the general public who reads the permit application.

SECTION A--FORMS, CERTIFICATIONS, CONFIDENTIALITY, and PUBLIC INVOLVEMENT

A.1 RCRA Part A Application Form: 702.121, 702.123, 702.126(a) and (d),703.181

The Part A application must be complete and consistent with the Part B application. 703.181 specifies the contents of a Part A application. Signatures must be provided for both the owner and operator of the facility as described in Item A.2.1 below (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility).

A.2 Certification Using the LPC-PA23 Form: (703.182)

A completed LPC-PA23 form must be included in the application (this form is available on Illinois EPA's internet site). Completion of this form should ensure the requirements of A.2.1 and A.2.2 below are met.

A.2.1. Facility Certification: 702.121, 703.182, 702.126

Applications must be accompanied by a certification as specified in 702.126(d) signed by authorized representatives of both the owner and operator of the facility (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility). Authorized representatives of an owner or operator which must complete and sign this certification are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public Agency, either a principal executive officer or ranking elected official. If the application is not signed by representatives other than those just described, information must be provided indicating that the person is authorized to sign RCRA permit applications for the owner or operator.

A.2.2. Technical Information Certification: 703.182, Illinois Professional Engineering Act

Technical data, such as design drawings, specifications and engineering studies, must be certified (sealed) by a qualified Professional Engineer licensed to practice in the State of Illinois in accordance with Ill. Rev. Stat., par. 5101, Sec. 1 and par. 5119, Sec. 13.1. Work required to be conducted in developing an application or work required to be conducted for compliance with the RCRA regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

A.2.3. 39i Certification: Section 39 (i) of Environmental Protection Act

Section 39, Paragraph (i) of the Illinois Environmental Protection Act requires that Illinois EPA conduct an evaluation of prospective owner's or operator's prior experience in waste management operations

before it issues a RCRA permit. This paragraph goes on to state that the Illinois EPA may deny such a permit if the prospective owner or operator or any employee or officer of the prospective owner or operator has a history of:

1. Repeated violations of federal, State, local laws, regulations, standards, or ordinances in the operation of waste management facilities; or
2. Conviction in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court, or conviction in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition; or
3. Proof of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.

Illinois EPA has created a form (available on its internet site) which applicants (the owner and the operator) must use to provide it with the information necessary to make the evaluation described above.

A.3 Public Disclosure Exemption Claims and Trade Secret Claims:
Section 7 of the Act; 2 Ill. Adm. Code Part 1828; **35 Ill. Adm. Code Part 130**

Note: A.3.2 thru A.3.5 below are only applicable if an applicant desires to request a public disclosure exemption claim or trade secret claim. Any documents submitted that are not properly marked and justified will not be regarded as exempt and will be released to the public upon request.

A.3.1. No Information Claimed Exempt from Public Disclosure

If no information in the application is claimed exempt from public disclosure, the applicant should clearly state this in the cover letter and this subsection of the application. This will release any disclaimers on drawings, plans etc. that are included in the application.

A.3.2. Trade Secrets Claims

This claim should be asserted if any portion of the application is regarded as trade secret pursuant to 35 Ill. Adm. Code 130. To assert this claim

1. Provide a claim and justification letter;
2. Stamp each page in red ink "TRADE SECRET" that is to be exempt.
3. Provide a version for public review which does not include the trade secret information.

A.3.3. Exempt or Exempt In-Part Data Claims: **2 Ill. Adm. Code 1828.401**

This claim should be asserted if any portion of the application is regarded as exempt or exempt in part pursuant to 2 Ill. Adm. Code 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the exemption is requested.
3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.3.4. Privileged Information: **2 Ill. Adm. Code 1828.401**

This claim should be asserted if any portion of the submittal is regarded as privileged and meets the definition of privileged information pursuant to 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the claim is requested.
3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.4 Public Participation: Facility Mailing List & Information Repositories:
Environmental Protection Act, Section 39(d), 35 Ill.Amin. Code 703.193, 703.248, 705.163

A.4.1. Facility Mailing List:

The Facility Mailing List required to be established and maintained in 35 Ill. Adm. Code 705.163(a) is a list of all entities who must be notified of any permit-related activities at a RCRA permitted facility. The application must include the most-recent list the facility has; this list must identify its last revision date and be provided as an attachment to the application. A printed copy and an electronic copy in MS Word format must be provided.

The list must be updated and resubmitted to the IEPA as needed to include individuals who have interacted with the facility such as: those attending the pre-application meeting, respondents to mailings, and those attending the public meeting when a permit modification is requested. IEPA will review and approve all updates prior to using the mailing list. Mailing lists originally developed by IEPA are available from IEPA's RCRA community involvement coordinator.

A.4.2. Identification of Repositories:

It is important that information regarding a RCRA permitted hazardous waste management facility be available to the local citizens for review. Thus, all information submitted to IEPA in furtherance of a RCRA permit application, (with the exception of trade secrets), must be made available to the public at the office of the County Board or governing body of the municipality and also in another location in the host community (or nearest community to the facility) no later than the date the permit application is submitted to IEPA. Provide the name, address, contact person, phone number, and business hours for each repository.

Note: The community repository may not be located at the facility and must be available to the community for review and copying of application documents after regular office hours. Public libraries are recommended repository locations.

A.4.3. Contents of Repository:

The repository contents must include all information submitted to IEPA in furtherance of a RCRA permit application (with the exception of trade secrets). The applicant is required to maintain, verify and update the contents of the repositories throughout the application process. Each time information is submitted to Illinois EPA, a copy must also be placed in the repository. Placement of a given submittal in the repository should be documented in the cover letter transmitting the submittal to Illinois EPA.

Repositories must be well-organized and kept up to date. A comprehensive inventory of all documents in the repository should be maintained, as well as a brief description of each document listed in the inventory. The applicant should visit each repository on a regular basis to ensure its organization is maintained.

A.4.4. Public Notice of Repository Availability:

The applicant must provide written notice of the repositories' availability for public review to everyone on the facility mailing list; this notice must include all of the following information:

1. Identification and address or map of the facility and the hazardous waste management operations that the permit application addresses;
2. A statement that permit application materials have been prepared and are available for community members to review and copy at the repository.
3. The location and business hours of the repository.
4. A statement that the applicant will update the repository materials periodically during the Illinois EPA's review of the permit application.
5. The name, address and telephone number of the applicant's contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities.
6. The following statement "For general information on the hazardous waste management permit program in Illinois, please contact" then provide the address of the Illinois EPA RCRA Community Involvement Coordinator.

This notice must be made no later than the date the permit application is submitted to the Illinois EPA. Documentation that the public notices were made must be included in the application. Specifically provide a copy of the letter sent to individuals on the approved facility mailing list. Indicate the date the letter was sent, and the revision date of the mailing list used for the mailings.

SECTION B--FACILITY DESCRIPTION

B.1 General Facility Description: 702.123, 703.183(a), 703.183(n), 703.183(s)

B.1.1. Operation of Facility:

Provide the following information about the facility:

1. Identify the owner and operator of the facility as well as the address and size of the facility;
2. Describe the facility in general, its operations, and the specific activities conducted by the applicant that require a permit under RCRA, including the nature of the business.
   a. Commercial facilities should identify the types of industry served;
   b. On-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.
3. A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.
4. The Tax Property Identification Number(s) of the land which comprises the facility. If more than one Property Identification Numbers are associated with the facility, a scaled drawing showing the boundaries of each parcel within the facility must be provided.

B.1.2. Hazardous Waste Management Units at the Facility

Identify and briefly describe the hazardous waste management units at the facility.
Note: More information about these units will be provided in Section E of the application.

B.1.3. Solid Waste Management Units at the Facility

Identify and briefly describe the solid waste management units at the facility which are the focus of the RCRA corrective action program at the facility.
Note: More information about these units will be provided in Section F of the application.

B.2 Topographic Map: 702.123(g), 703.183(s), 703.184, 703.185(c), 703.185(d), 724.195, 724.197

B.2.1. Facility + 1 mile:

Provide a topographic map (or Quadrangle map) that extends at least 1 mile beyond the property boundaries. This map must depict the legal boundaries of the facility and surrounding land uses.

B.2.2. Facility + 1000 feet:

Provide a topographic map that shows the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two foot interval should be used if the ground surface relief at the facility is less than 20' and a five foot interval should be used if the relief is greater than 20').

Multiple maps may be submitted to meet this requirement if necessary. The map(s) should contain/identify the following:

Map Requirements: Facility + 1,000 ft	
Map Orientation (north arrow)	Areas in the 100-year flood plain
Map Date	Flood control or drainage barriers
Scale	Run-on/run-off control systems
Legal boundaries of the facility	Fire control facilities
Surrounding land uses	A wind rose
Access controls	Hazardous waste management units
Buildings and Structures	Solid waste management units
Storm drains	Equipment required by Item D.2 below
Sewers: storm, sanitary and process	Surface waters including intermittent streams
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	

If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. In addition, if an applicant feels that some of these requirements cannot be met for some reason or are not applicable, then sufficient information must be provided in the application to support this position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.

B.3 Location Standards: 703.184, 724.118

B.3.1 Seismic Standard:

Identify any hazardous waste management units within 200 feet (61 meters) of a fault which has had displacement during Holocene time.

B.3.2. Floodplain Standard:

Document whether or not the facility is located within a 100-year floodplain. Provide the source of this data as well as a copy of the relevant flood map produced by the National Flood Insurance Program (NFIP). Appropriate calculations/maps must be provided when NFIP maps are not available.

B.3.3. Facilities in the 100-year Floodplain

Facilities within the 100-year floodplain must provide the following information regarding procedures in place to prevent its flooding:

B.3.3.1. Engineering Analysis and Structural/Engineering Study.

Provide the following regarding information to demonstrate that flooding of the hazardous waste management units will not occur:

1. An engineering analysis that identifies and evaluates the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood;
2. A structural or other engineering study that shows how the design of the hazardous waste management units and flood protection devices at the facility will prevent flooding of the units.

B.3.3.2. Procedures to Remove Waste

In lieu of B.3.3.1, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. This information must include:

1. Timing of movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility.
2. The location(s) to which the waste will be moved, and a demonstration that those facilities are eligible to receive hazardous waste in accordance with 35 Ill. Admin. Code 702, 703, 724 and 725;
3. The planned procedures, equipment, and personnel to be used, and the means to ensure that such resources will be available in time for such use;
4. The potential for accidental discharge of waste during movement.

B.3.4. Existing Facilities Not in Compliance with 35 Ill. Admin. Code 724.118(b)

Provide a plan showing how the facility will be brought in compliance and a schedule for compliance with 35 Ill. Admin. Code 724.118(b). A variance petition regarding this plan/schedule to come into compliance with 35 Ill. Admin. Code 724.118(b) must be filed concurrently with the Illinois Pollution Control Board.

B.4 Operating Record: 724.173

The Permittee must keep and maintain a written operating record that includes all the records, reports, notifications, and data required by 35 Ill. Admin. Code 724.173 and the conditions in this permit for the entirety of the post-closure care period. Identify the location where the Operating Record is maintained at the facility. Describe the procedures used to record the following information described in 724.173 in the facility's operating record (as such information becomes available) during the post-closure period:

1. Records of inspections, and repairs
2. Monitoring, testing, analytical data, and corrective action data when required,
3. All closure and post-closure cost estimates,
4. Annual certification that a program is in place to reduce the volume/toxicity of hazardous waste generated at the facility.

Separate documents may be used to compile this information, provided the requirements of 724.173 are met. A description of where the operating record will be maintained must also be provided.

SECTION C—GROUNDWATER MONITORING

C.1 Exemption from Groundwater Protection Requirements: 703.185, 724.190(b)

If a waiver from the 35 Ill. Admin. Code 724, Subpart F groundwater monitoring requirements is requested, the applicant must demonstrate one of the following conditions applies to the facility or exempted under 724.101.

C.1.1. Waste Piles: **724.190(b)(2) and (5)**

The waste pile has been designed and operated to meet conditions specified in 724.350(c).

C.1.2. Landfill: **724.190(b)(2)**

The landfill has been designed and operated to meet conditions specified herein.

C.1.3. No Migration: **724.190(b)(4)**

No potential for migration of liquid from a regulated unit to the uppermost aquifer exists during the active life of the regulated unit (including the closure period) and the post closure period. Predictions must be based on assumptions maximizing the rate of liquid migration.

C.2 Interim Status Groundwater Monitoring Data: 703.185(a)

The applicant must provide, by reference, the location of a summary of the groundwater monitoring data obtained during the interim status period.

C.3 Historical Hydrogeological Summary: 703.185(b), 620.210

The applicant must provide an identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property. Include groundwater classification, flow direction and rate, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area). A table of hydraulic properties must be submitted which includes at a minimum permeability, sieve analysis, porosity, hydraulic conductivities, etc.

C.4 Topographic Map Requirements: 703.183(s), 703.185(c)

The applicant must provide on the map required in 703.183(s) a complete legal description of the property boundary along with the following additional information:

The waste management area, the property boundary, the proposed point of compliance, the proposed groundwater monitoring zone (if applicable), the proposed location of groundwater monitoring wells and the information required in 703.185(b)

C.5 Contaminant Plume Description: 703.185(d), 721-Appendix I

The applicant must provide a description of any plume of contamination detected in the groundwater originating from a regulated unit. Identify the concentrations of Part 721, Appendix I constituents (throughout the plume or the maximum concentration of each Appendix I constituent) for the plume of contamination delineated on the topographic map.

Note: The monitoring program for a given unit must be established based on the monitoring data from the facility and be appropriate for the groundwater conditions beneath the regulated unit.

Only complete the monitoring program section which is currently appropriate for the facility.
C.6: Detection, C.7: Compliance, C.8: Corrective action

C.6 Detection Monitoring Program: 703.185(f), 724.198

If the presence of hazardous constituents has not been detected in the groundwater at the time of permit application, the applicant must provide sufficient information, supporting data and analyses to establish a detection monitoring program which meets the requirements of 724.198.

A detection monitoring program must include at a minimum the ability to monitor for specific indicator parameters based upon the type and characteristics of waste(s) managed at the facility and to maintain a complete and accurate record and statistical evaluation of all groundwater monitoring data.

C.6.1. Indicator Parameters, Waste Constituents, Reaction Products to be Monitored: 703.185(f)(1), 724.198(a)

The applicant must provide a list of indicator parameters, waste constituents or reaction products to be used in providing a reliable indication of the presence of hazardous constituents in the groundwater.

C.6.2. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.6.3. Groundwater Monitoring System: 703.185(f)(2), 724.197(a) & (b), 724.198(b)

The detection monitoring system must be installed at the established compliance point and comply with 724.197(a) & (b). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.6.4. Description of Sampling and Analysis Procedures: 703.185(f)(4), 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.6.5. Evaluation of Groundwater Surface: 724.197(f), 724.198(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The applicant must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.6.6. Background Quality: 703.185(f)(3), 724.197(g), 724.198(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, reestablish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.6.7. Statistical Evaluations: 703.185(f)(4), 724.197(h), 724.198(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.6.8. Statistically Significant Increases: 724.198(f) & (g)

Using methods required in item C.6.7, the applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater. If such evidence exists, specific measures of retesting and Illinois EPA notification must be provided.

C.7 Compliance Monitoring Program: 703.185(g), 724.199

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, The applicant must submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of 724.199.

C.7.1. Description of the Monitoring Program: 724.199(a)

The program will be used to determine if compliance standards have been achieved by a regulated unit.

C.7.1.1. Waste Description: 703.185(g)(1), 724.193(a), 724.199(a)(1)

The applicant must provide a list of hazardous constituents for groundwater that are reasonably expected to be in or derived from waste(s) in the regulated unit.

C.7.1.2. Concentration Limits: 703.185(g)(4), 724.194(a), 724.199(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for the hazardous constituents in groundwater.

C.7.1.3. Compliance Point: 724.195, 724.199(a)(3)

The applicant must provide a discussion addressing the compliance point including rationale for location of groundwater monitoring wells utilized to delineate the compliance point.

C.7.1.4. Compliance Period: 724.196, 724.199(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.7.2. Alternate Concentration Limits: 703.185(g)(4), 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.7.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater quality.

C.7.2.2. Potential Adverse Effects on Hydraulically Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and potential adverse effects on hydraulically connected surface water quality.

C.7.3. General Monitoring Program Requirements: 703.185(g)(5), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197. Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. he program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.7.4. Groundwater Monitoring System: 724.197(a), (b) & (c), 724.199(b)

The compliance monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b) and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft bgs): well depth, screen interval, ground surface, and stick-up.

C.7.5. Description of Sampling and Analysis Procedures: 703.185(g)(6), 724.197(d) & (e), 724.199(c)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.7.6. Background Quality: 724.197(g)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.7.7. Statistical Evaluations: 703.185(g)(6), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.7.8 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation must take place each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.7.9. Annual Appendix I: 724.199(g)

The applicant must provide procedures for the Annual Appendix I sampling event. Samples from all monitoring wells at the compliance point must be analyzed for all constituents listed in Appendix I at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer.

C.7.10. Statistically Significant Increases: 724.199(h) & (i)

Using methods required in C.7.7, The applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater of the point of compliance. If such evidence exists, specific measures of retesting and IEPA notification must be met.

C.8 Corrective Action Program: 703.185(h), 724.191(a)(2) & (3), 724.200

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under 724.194, Table 1, or if groundwater monitoring conducted at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, The applicant must submit sufficient information supporting data and analyses to establish a corrective action program which meets the requirements of 724.200.

C.8.1. Description of Corrective Action Program: 703.185(h), 724.200

The program will be used to demonstrate the effectiveness of a corrective action measure.

C.8.1.1. Characterization of Contaminated Groundwater: 703.185(h)(1), 724.200(a)(1)

The applicant must include a characterization of the contaminated groundwater, including concentrations.

C.8.1.2. Concentration Limits: 703.185(h)(2), 724.194(a), 724.200(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for groundwater for each of the hazardous constituents.

C.8.1.3. Compliance Point: 724.195, 724.200(a)(3)

The applicant must provide a discussion addressing the compliance point.

C.8.1.4. Compliance Period: 724.196, 724.200(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.8.1.5. Construction Detail: 703.185(h)(3)

The applicant must provide detailed plans and an engineering report describing the corrective action to be taken, including all aspects of any groundwater and/or product removal/treatment system.

C.8.1.6 Effectiveness of Corrective Action: 703.185(h)(4), 724.200(d) & (g)

The applicant must describe how the groundwater monitoring program will assess the adequacy of the corrective action.

C.8.2. Alternate Concentration Limits: 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.8.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater.

C.8.2.2. Potential Adverse Effects on Hydraulically-Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on hydraulically connected surface water quality.

C.8.3. Corrective Action Plan: 703.185(h), 724.200(b), 724.200(c), 724.200(e)

In addition to the other requirements of 724.200, The applicant must provide and describe a corrective action program to remove or treat in place hazardous waste constituents in groundwater between the point of compliance and the downgradient facility boundary, or beyond the facility boundary where necessary to protect human health and the environment.

The corrective action program must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded considering the extent of contamination.

C.8.4. Groundwater Monitoring Program: 703.185(h), 724.192, 724.200(d)

The groundwater monitoring program must be as effective as the program required under C.7 above in determining compliance with groundwater protection standards and in determining the success of a corrective action program.

C.8.4.1. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.8.4.2. Groundwater Monitoring System: 724.197(a) & (b), 724.200(d)

The corrective action monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b), and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.8.4.3. Description of Sampling and Analysis Procedures: 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C8.4.4. Background Quality: 724.197(g), 724.199(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.8.4.5. Statistical Evaluations: 703.185(f), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.8.4.6. Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.8.4.7. Extension of Compliance Period: 724.200(f)

The applicant must provide a discussion addressing the extension of the compliance period. The compliance period during which the groundwater protection standard applies shall be extended until the applicant demonstrates that the groundwater protection standard of 724.192 has not been exceeded for three consecutive years.

C.8.4.8. Effectiveness of Corrective Action: 724.200(g)

The applicant must provide a discussion addressing the evaluation and reporting of the effectiveness of the corrective action program to the Illinois EPA. The written reports must be submitted semi-annually.

C.8.4.9. Evaluation of the Corrective Action Program: 724.200(h)

The applicant must provide a discussion addressing any determination that the corrective action program no longer satisfies the requirements of 724.200.

C.9. Reporting Requirements: 724.197(j)

The applicant must provide a discussion addressing groundwater monitoring data collected and the maintenance of the data in the facility operating record.

SECTION D--PROCEDURES TO PREVENT HAZARDS

D.1 Security: 703.183(d), 724.114

The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the unit(s) closed as landfills. Unless a waiver is granted, the facility must have either a 24-hour surveillance systems, or a barrier and a means to control entry as set forth in Item D.1.2 below.

D.1.1. Waiver from the Security Requirements:

Facilities seeking a waiver from the security requirements must provide information demonstrating that:

1. Physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

2. Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of 724.

D.1.2. Restricting Entry to the Facility

Describe the means used to restrict entry the facility

1. 24-Hour Surveillance System. Describe the 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) at the facility that continuously monitors and controls entry onto the active portion of the facility; or

2. Barrier and Controlled Entry: Describe the artificial or natural barrier system (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and the means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance or controlled roadway access to the facility).

D.1.3. Warning Signs

Identify the locations of all warning signs on a scale drawing of the facility. A sign with the legend, "Danger - Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The sign must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

D.2. Equipment Requirements: 703.183, 724.132, 724.133, 724.134, 724.135

All facilities must have the equipment and procedures listed in D.2.2 thru D.2.8 below in place unless the applicant submits a waiver request as identified in D.2.1 below. The location within the facility of the equipment described in this section must be shown on the drawings required in Section B.2.2 above.

D.2.1. Waiver

Facilities may seek a waiver from any or all of the equipment/procedure requirements below. To obtain a waiver, the applicant must demonstrate that none of the hazards posed at the facility would require the particular type of equipment/procedure at issue.

D.2.2. Internal Communications

Describe the internal communications or alarm system for providing immediate emergency instruction (voice or signal) to facility personnel.

D.2.3. External Communications

Describe the device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, state or local emergency response teams.

D.2.4. Emergency Response Equipment

Describe the following emergency response equipment present at the facility: portable fire extinguishers; fire control equipment, spill control equipment; and decontamination equipment.

D.2.5. Water for Fire Control

Provide a statement signed by an independent fire control professional, or the responsible fire department, certifying that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. The document must include an original signature from the fire control professional or responsible fire department.

D.2.6. Personnel Protection Equipment

Describe the procedures, structures, and clothing equipment used to protect personnel from undue exposure to hazardous waste.

D.2.7. Testing & Maintenance of Emergency Equipment

Demonstrate that all facility communications or alarm systems, fire protection equipment, spill control equipment and decontamination equipment, where required, is tested, maintained, and calibrated, as necessary to assure its proper operation in time of emergency.

D.2.7.1. Equipment Testing:

Identify all emergency equipment and describe how the equipment is tested, maintained, and calibrated.

D.2.7.2. Schedule

Provide a testing and maintenance/calibration schedule for all communications, monitoring, safety, spill control, decontamination, and emergency equipment.

D.2.8. Equipment and Power Failure

Describe the procedures, structures, and equipment used to mitigate the effects of equipment failure and power outage.

D.3 Inspection Requirements: 703.183(e), 724.115

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record.

D.3.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must also include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

D.3.1.1. Items Inspected

Identify each item to be inspected at the facility in order to comply with the RCRA requirements. these items include, all RCRA regulated units, monitoring equipment, safety and emergency equipment, security and communication devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

D.3.1.2. Types of Problems

Identify the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, eroding dike).

D.3.1.3. Inspection Frequency:

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

D.3.2. Repair Log

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who makes the corrected repair;
6. The date the repair was made;
7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

D.3.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the procedures to be followed if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

SECTION E--POST-CLOSURE REQUIREMENTS

See 703.183(m), 703.203(f), 703.204(h), 703.207(e), 724.218, 724.297(b) and (c), 724.328(b), 724.328(c)(1)(B), 724.380(c), 724.410(b)

E.1 Information Regarding the Unit(s) Closed as a Landfill

The foundation for developing an appropriate post-closure care program for a unit closed as a landfill is a thorough understanding of the unit, focusing on its surroundings, construction, operation and closure.

E.1.1. General Information Regarding of the Unit to Receive Post-Closure Care

Identify the unit(s) at the facility which were closed as landfills to which the post-closure requirements of 35 Ill. Admin. 724, Subpart G apply. Among other things, provide:

1. A scaled drawing showing the location and boundaries of the unit within the facility;
2. A copy of Illinois EPA's letter accepting certification of closure of the unit as a landfill;
3. The date that the post-closure care period for the unit began; and
4. A certified copy of the survey plat and post-closure notices filed in accordance with 35 Ill. Admin. Code 724, Subpart G or 725, Subpart G with the county in which the facility is located.

E.1.2. Geology and Hydrogeology Around/Beneath the Unit

Provide a detailed description of the geology and hydrogeology around/beneath the unit. Of special concern is the presence of silt, sand or other permeable zones around and beneath the unit which, if not properly addressed, could be a conduit for the migration of leachate or landfill gas away from the landfill. This description should be supplemented with boring logs, drawings and cross-sections.

E.1.3. Characterization of Waste/Contaminated Soil Present in the Landfill Unit

Provide a description of the type, quantity and characteristics of the waste and/or contaminated soil remaining in the unit.

E.1.4. Initial Closure Activities

Provide a detailed description, as appropriate, of the following initial activities carried out in closing the unit as a landfill:

1. Removal of waste and contaminated soil;
2. Stabilization of material remaining in the unit; and
3. Use of structural fill material to establish final contours.

E.1.5. Details Associated with the Closed Unit

Provide a detailed description, as-built drawings, cross-sections, and scaled drawings of the overall unit that includes/shows the following. Of special concern is the vertical elevations associated with each component of the unit. Note: the specific information regarding any leachate collection system, leak detection system and/or gas management system present in the landfill that must be described/shown is identified in Sections E.3 thru E.5 below.

1. The soils underlying the unit;

2. The bottom liner system of the unit (if any is present);
3. A description of the base of the unit if it has no constructed liner system;
4. Any permeable zones around or beneath the landfill and a description of the procedures used to seal off these zones;
5. Any cut-off walls or slurry walls constructed outside the landfill boundaries to address migration of leachate or landfill gas from the landfill;
6. The final cover system over the unit;
7. The final contours established for the unit; and
8. The run-on and run-off control systems of the unit.

E.2 Contact Person

Provide the name, address and phone number of the person or office to contact about the unit during the post-closure care period. A copy of the post-closure permit and associated approved permit modifications must be maintained by this person/office; a copy of these documents must also be maintained at the facility subject to the permit.

E.3 Operation of the Leachate Collection System

Note: This section need only be addressed if a leachate collection system is present in the landfill unit.

E.3.1. Quality of Leachate in the Leachate Collection System

1. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachates need to be analyzed for:
   a. Those constituents for which a public or food processing water supply standard has been established in 35 Ill. Admin. Code 302;
   b. Those constituents for which a groundwater quality standard has been established in 35 IAC 620;
   c. The 51 organic chemicals in drinking water described in 40 CFR 141.40.
   d. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

   A list of all the above contaminants is provided as Attachment 1 to this document. This list may be reduced if information is provided indicating that certain listed contaminants are not expected to be present in the leachate.

2. If the list of analytes has been reduced, provide an analysis for all constituents listed in E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.

3. If there is more than one leachate sump but the application does not propose to analyze the leachate from each sump, provide justification for how the leachate sample(s) are considered "representative" for a given landfill.

4. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA.

E.3.2. Leachate Collection System Within the Landfill

1. Identify the general components of the leachate collection system within the landfill (includes the filter layer, leachate collection layer, leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps, leachate collection wells, leachate removal pumps or other equipment used to remove leachate, manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leachate collection system within the landfill. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Identify the contours of the top of the liner system including any leachate collection trenches; the elevation of the lateral leachate collection pipes; the screened interval of any leachate collection wells or monitoring points; and the elevation of the bottom of the leachate collection sumps, wells, manholes and clean-outs.

3. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system within the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;

   b. Identify each piece of equipment on a piping and instrumentation diagram; and

   c. Describe the operational function and capabilities of each piece of equipment.

4. If the landfill was designed to meet the requirements of 35 Ill. Admin. Code 724.401, then an engineering report must be provided demonstrating that the system was constructed and will be operated in such a manner to prevent the leachate depth over the top liner from exceeding one foot. Appropriate calculations must be provided as part of this demonstration along with justification of all assumed parameters and of the numerical techniques used in making the demonstration.

5. If it was not necessary for the landfill to meet the requirements of 35 Ill. Admin. Code 724.401, then information must be provided regarding the maximum leachate levels which will be present at the leachate removal points and throughout the landfill. An engineering report/analysis of the leachate levels which will be present in the landfill must be provided as well as information from past operations of the leachate collection system which will verify the projected levels.

E.3.3. Leachate Collection System Outside the Landfill

1. Identify the general components of the leachate collection system which allow for the removal and of the leachate and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:

   a. Provide a detailed description of the procedures used to install the components of leachate collection system mentioned above;

   b. Provide specifications, piping and instrumentation diagram, and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.

   c. Identify the sample point(s) used to collect leachate samples on the piping and instrumentation diagram.

d. Indicate the locations of the leachate collection system sampling points on a scale drawing of each landfill. Identify the sample points by both the facility and Illinois EPA identification numbers for each sample point.

2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;

   b. Identify each piece of equipment on a piping and instrumentation diagram; and

   c. Describe the operational function and capabilities of each piece of equipment.

E.3.4. Management of Leachate Collection System (LCS)

Describe how the LCS is managed. Discuss how all parts of the leachate collection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depicts the overall leachate collection system, from the pump within each leachate collection sump/well to the leachate accumulation tank. For each leachate collection sump/well, identify:

   a. The approximate elevation of the bottom of the sump or landfill at that location,

   b. The leachate elevation which activates the pump in each sump or extraction well,

   c. The leachate level which activates the pump within the sump/well,

   d. The leachate elevation when the pump shuts off, and

   e. A description of the instrumentation in place so that the amount of leachate removed from a given sump/well over a given time period can be determined.

2. Describe the procedures which will be followed to document/record all aspects of the management of the leachate collection system(s). At a minimum, the results of leachate quality analyses and the amount of leachate removed from a given sump/well each month must be documented in the operating record.

3. Describe how the collected leachate will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.3.5. Summary of Leachate Management Program Conducted to Date

Provide information addressing the items in Section E.3.4 regarding the leachate management program implemented during the past ten years. This information should discuss the efficiency of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

E.4 Operation of the Leak Detection System: 724.402, 724.403 and 724.404

This subsection must be addressed if a Leak Detection System (LDS) is present in the landfill. The LDS must be capable of detecting, collecting and removing leaks through the upper liner system at the earliest practicable time throughout all areas of the landfill. The LDS must be constructed of a drainage layer along with sumps and pumps of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

1. Each landfill unit must have its own set of LDS sumps.

2. Each LDS sump and associated removal system must be designed so that volume of liquid in the LDS sump can be measured and as well as the volume of leachate removed from the sump.

E.4.1. Description of the Leak Detection System Within the Landfill

Provide an engineering report describing how the leak detection system was constructed and will be operated to ensure the requirements of 35 Ill. Admin. Code 724.401 are met. Among other things, this report must:

1. Identify the general components of the leak detection system within the landfill (includes the drainage layer, the leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps; manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leak detection system. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Information of special importance includes: the contours of the top of the liner system; the elevation of the leachate collection pipes; and the elevation of the bottom of the leachate collection sumps, manholes and clean-outs.

3. Provide detailed information regarding all equipment associated with the leak detection system (pumps, monitoring equipment, etc.) within the landfill. Specifically:
   a. Provide information regarding the make, model and specifications of each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational functions and capabilities of each piece of equipment.

4. Provide the pump operating level for each LDS sump within each landfill unit. This is the maximum level of leachate which can accumulate in each LDS sump before the pump within the sump is activated and leachate is removed from the sump.
   a. This level can be no more than the depth of leachate that can accumulate within the LDS sump without allowing any leachate to back-up into the drainage layer.
   b. This level must also minimize the hydraulic head on the liner of the LDS sump.
   c. Development of the pump operating level for each LDS sump should also take into account the pump activation level and the sump dimensions.

5. Provide the action leakage rate (ALR) (in gallons per acre per day) for each LDS sump. The action leakage rate is the maximum design flow, modified by a factor of safety, that the LDS can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate factor of safety to allow for uncertainties in the:
   a. Design; construction; layout and operation of the system;
   b. Characteristics of the waste and leachate in the landfill;
   c. Likelihood and amounts of other sources of liquids in the LDS and
   d. Proposed response actions

Examples of uncertainties/concerns with the LDS include decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, and overburden pressure.

E.4.2. Description of the Leak Detection System Outside the Landfill

1. Identify the general components of the leak detection system which allow for the removal of the leachate from the landfill and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:
   a. Provide a detailed description of the procedures used to install the components of leak detection system mentioned above.
   b. Provide specifications and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.
2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:
   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational function and capabilities of each piece of equipment.

E.4.3. Management of Leachate Accumulating in the Leak Detection System

Describe how the LDS is managed. Discuss how all parts of the leak detection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depict the overall leak detection system, from the pump within each leachate collection sump to the leachate accumulation tank. For each leak detection sump/well, identify:
   a. The approximate elevation of the bottom of the landfill at that location,
   b. The pump operating level,
   c. The leachate level which activates the pump within the sump/well, and
   d. The leachate elevation when the pump shuts off.
2. Describe the procedures which will be followed to document/record all aspects of the management of the LDS. At a minimum, the permittee needs to provide documentation of the amount of leachate removed from a given LDS sump over a set time period, and any exceedances of the action leakage rate in the operating record.
3. Describe how the leachate collected in the LDS will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.4.4. Recent Operation of the Leak Detection System

Provide information addressing the items discussed in Section E.4.3 regarding the operation of the LDS during the past ten years. This information should discuss the efficiency of the existing LDS or identify deficiencies which must be addressed to ensure system is operating properly.

E.5 Operation of the Gas Monitoring/Collection System

This subsection must be addressed if the closed unit has a landfill gas monitoring/collection system.

E.5.1. Detailed Description of the Landfill Gas Collection System

The following information needs to be provided regarding any landfill gas collection system at the facility (in addition to drawings, it is also important to include text describing the various aspects of this system and the chronological history of the installation of this system).

1. A map and detailed drawings showing the location of the collection points and the layout and construction details of the collection system.

2. A description and specifications for all machinery, compressors, flares, piping and appurtenances in the system.

3. A piping and instrumentation diagram as well as other schematics to depict the system's operation.

4. A description of how the landfill gas collection system operates. Describe the information which will be monitored, evaluated and recorded regarding the operation of the system. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

5. Documentation or assurance that the gas collection system meets the following standards:
   a. The system is designed and will be operated such that the limits described in 35 IAC 811.311(a)(1), (a)(2) and (a)(3) will not be exceeded;
   b. The gas collection system will transport gas to a central point or points for processing for beneficial uses or disposal in accordance with the requirements of 35 IAC 811.312;
   c. The gas collection system has been designed to function for the entire design period;
   d. All materials and equipment used in construction of the system have been rated by the manufacturer as safe for use in hazardous or explosive environments and shall be resistant to corrosion by constituents of the landfill gas;
   e. The gas collection system has been designed to withstand all landfill operating conditions, including settlement;
   f. Provisions have been made for collecting and draining gas condensate to a management system meeting the requirements of 35 IAC 811.309;
   g. The gas collection system will not compromise the integrity of the liner, leachate collection or cover systems; and
   h. The gas collection system shall be equipped with a mechanical device, such as a compressor, capable of withdrawing gas, or has been designed so that a mechanical device can be easily installed.

6. A description of the criteria that will be used to determine when operation of the gas collection system may be discontinued.

7. A description of the testing procedures that will be used to assure that the lines from the collection points to the gas processing or disposal facility are air tight.

8. Identify where condensate in the system will be collected and then stored prior to shipment off-site for treatment or disposal. Include a description of all equipment associated with collection and storage of the condensate.

E.5.2. Landfill Gas Monitoring Plan

Provide the following information regarding the landfill gas monitoring system's ability to monitor the buildup and composition of landfill gas.

1. A narrative and plan sheets describing the most likely paths of migration for gas generated by the unit and demonstrating that the proposed gas monitoring program will detect any gas buildup and/or migration.

2. Detailed drawings and material specifications of the four types of gas monitoring devices required (i.e., devices within the waste unit, below ground devices around the unit, air ambient monitoring devices and continuous air monitoring devices within buildings) on site or near the facility if there is an indication of gas.

3. A map showing the locations of the below ground monitoring devices and the continuous air monitoring devices.

4. Documentation that the various types of below ground gas monitoring devices:
   a. Are placed at intervals and elevations within the waste to provide a representative sampling of the composition and buildup of gases within the unit.
   b. Are placed around the unit at locations and elevations capable of detecting migrating gas from the ground surface to the lowest elevation of the liner system or the top elevation of the groundwater, whichever is higher.
   c. Are constructed from materials that will not react with or be corroded by the landfill gas.
   d. Have been designed and constructed to measure pressure and allow collection of a representative sample of gas.
   e. Are constructed and maintained to minimize gas leakage.
   f. Do not interfere with the operation of the liner, leachate collection system or delay the construction of the final cover system.

5. A description of the procedures and prerequisite weather conditions for performing ambient air monitoring including the location standards for placement of the monitoring devices and maximum wind speed.

6. A description (narrative or graphic) of the location of the continuous air monitoring devices inside the buildings within the facility (and nearby buildings if applicable).

7. A schedule specifying the frequency and minimum duration of gas monitoring.

8. Identification of the parameters that samples from each type of monitoring device will be analyzed.

9. A description of the procedures which will be used to collect and analyze the various air samples to be obtained as part of the landfill gas monitoring program.

E.5.3. Landfill Gas Disposal/Processing System

The following information must be provided regarding the gas disposal system or gas processing system at this facility. These systems can be either an on-site or an off-site facility.

1. For on-site facilities (either flare systems or facilities which process the gas for beneficial use) the following information must be provided:
   a. A map showing the location of the facility;

b. Engineered drawings showing the layout and details of landfill gas processing and disposal system, including compressors, blowers, raw gas monitoring systems, devices used to control the flow of gas from the unit, flares, gas treatment devices, air pollution control devices and monitoring equipment;

c. A copy of the approved air discharge permit or, if the permit is pending, a copy of the air discharge permit application required by 35 Ill. Admin. Code 200 through 245; and

d. A list of the parameters and constituents for which the gas shall be monitored.

2. For off-site processing facilities the following information must be provided:

a. A list of the parameters and constituents for which the gas shall be monitored;

b. A description of the means by which the gas shall be conveyed from the landfill to the off-site processing facility; and

c. Documentation that the off-site processing facility meets the following requirements:

(1) The solid waste disposal facility will contribute less than 50 percent of the total volume of gas accepted by the gas processing facility. (Otherwise, the processing facility must be considered a part of the solid waste management facility); and

(2) The gas processing facility is sized to handle the expected volume of gas.

E.5.4. Summary of the Landfill Gas Collection / Monitoring / Processing Systems

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

2. Summarize the operation of the landfill gas collection, monitoring, and processing systems during the past ten years. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.6 Post-Closure Inspection Plan

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record and where they are located.

E.6.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

E.6.1.1. Items Inspected

The plan must identify each item to be inspected in order to comply with the RCRA requirements. These include, but not necessarily limited to:

1. All RCRA regulated units;

2. Monitoring equipment;

3. Safety and emergency equipment;
4. Security control devices;
5. Erosion damage;
6. Cover settlement, subsidence and displacement;
7. Vegetative cover condition;
8. Integrity of run-on and run-off control measures;
9. Cover drainage system functioning;
10. Leachate collection and removal system;
11. Leak detection system;
12. Gas monitoring/extraction system;
13. Condition of the groundwater monitoring wells;
14. Benchmark integrity; and
15. All operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

E.6.1.2. Types of Problems

For each item to be inspected as identified above, describe the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, cracks, eroding berm, etc.).

E.6.1.3. Inspection Frequency

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

Indicate the facility will be inspected within 24 hours of any rain fall event of 2 or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off systems. Indicate that appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

E.6.2. Repair Log:

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who made the corrected repair;
6. The date the repair was made;

7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

E.6.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the how the Permittee will take the following actions if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

E.7 Post-Closure Monitoring Plan

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting and evaluating the data gathered in accordance with the RCRA requirements.

Indicate that copies of the monitoring reports and data are maintained at the facility as part of the operating record.

E.7.1. Facility Controls

Indicate that the benchmarks used to identify the location of disposal units, solid waste management units, and units/areas covered by an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA) are surveyed at least once every five (5) years.

E.7.2. Surveys and Corrective Action

Identify the units at the facility that will be surveyed every five years. The following units need to be surveyed at least once every five years:

- Units subject to post-closure requirements per 35 Ill. Admin. Code 724.210(b)
- Solid Waste Management Units (SWMUs) with cover systems and/or engineered barriers
- Units/Areas subject to an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA).

E.7.2.1. Provide the following for the units identified in Item E.7.2:

1. A copy of the survey provided to the Illinois EPA when the unit was certified closed.
2. A copy of the survey for each unit generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.
3. Scale drawing(s) (1 inch = 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.
4. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection

and repair logs that includes the date each incident was discovered, a description of the incident & corrective action taken, and the date corrective action was completed.

5. If corrective action occurred in the same general area 2 or more times since post-closure began, discuss the actions the permittee has implemented to prevent this from happening again.

E.7.3. Leachate Collection System

Describe how the information about the leachate collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information is essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.3.1. Leachate Quality

Describe the procedures which are followed to monitor the quality of the leachate in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample analysis). Discuss if the concentrations of the constituents in the leachate have changed during the post closure period and any actions taken in response.

These samples should be collected quarterly for the first two years at which time the frequency can be decreased to semi-annually. The samples must be analyzed for the constituents described in Item E.3.1 above

1. Summary of Sample Results: Provide a summary table of the leachate sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.

E.7.3.2. Leachate Quantity

1. Provide a record of the amount of liquid removed from each leachate collection sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed
2. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LCS sumps.

E.7.3.3. Leachate Reporting

Describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.

E.7.4. Leak Detection System (LDS) 724.402, 724.403, 724.404

Describe how the information from the leak detection system for each unit identified in E.7.2 will be monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring

the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.4.1. LDS Leachate Quantity

1. Describe the procedures used to determine the volume of leachate removed from each LDS sump over a given time period. This determination must initially be made monthly. If the liquid level in a LDS sump stays below the pump operating level (and thus no leachate is removed during that time period) for two consecutive months, then the amount of liquids in the LDS sump need only be recorded quarterly. Similarly, if the liquid level in a LDS sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps need only be recorded semi-annually. Finally, if the pump operating level for an LDS sump is exceeded during the quarterly or semi-annual monitoring, then monitoring of the amount of leachate removed from that LDS sump must revert back to monthly.

2. Provide a record of the amount of liquid removed from each LDS sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:

   a. Monthly for each year for each sump since the unit was closed

   b. Annually for each sump since the unit was closed

   c. Annually for each unit since the unit was closed

3. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LDS sumps.

E.7.4.2. Action Leakage Rate (ALR)

1. Identify the Action Leakage Rate (ALR) from Section E.4 for each LDS sump, and indicate if the action leakage rate has been exceeded during the post-closure period.

2. To determine if the ALR has been exceeded, the owner or operator must convert the monthly flow rate from the monitoring data to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate for each LDS sump must be calculated monthly during the post-closure care period, unless Illinois EPA approves a different frequency pursuant to Section 724.403(c)(2).

3. Describe the response action(s) meeting the requirements of 35 Ill. Admin. Code 724.404 that will be implemented if the leachate removal rate exceeds the action leakage rate.

E.7.5. Groundwater Monitoring System

E.7.6. Gas Collection System

For units required to have a gas collection / monitoring system, describe how the information about the gas collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.6.1. Gas Quality

Describe the procedures followed to monitor the quality of the gas in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample

analysis). Discuss how the parameters (Methane, Pressure, Oxygen; and Carbon Dioxide) in the gas system have changed during the post closure period and any actions taken in response to those changes.

1. Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post closure began.

E.7.6.2. Gas Quantity

1. Provide a record of the amount of gas removed from each unit at least monthly after closure of the unit identified in E.7.2 above. The following information regarding gas generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each unit since the unit was closed
   b. Annually for each unit since the unit was closed
2. If the gas generation rates are not trending downward during the post closure period, discuss why this is not happening.

E.7.6.3. Summary of Results from the Gas Collection / Monitoring System

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.
2. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.8 Post-Closure Maintenance Plan

E.8.1. Procedures, Equipment & Materials:

Describe the preventive and corrective maintenance procedures, equipment and materials that will be required to properly maintain everything needed to provide adequate post-closure care of the unit closed as a landfill. Include the following items in the maintenance plan, as applicable:

1. Repair of security control devices;
2. Erosion damage repair;
3. Correction of settlement, subsidence and displacement;
4. Mowing, fertilization and other vegetative cover maintenance;
5. Repair of run-on and run-off control structures;
6. Maintenance of any leachate removal system(s) including the flushing of the LCS and LDS;
7. Maintenance of any gas monitoring/extraction system;
8. Replacement of groundwater monitoring wells; and
9. Surveyed benchmarks

E.8.2. Rationale

Provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned above.

E.8.3. Frequency

Provide the frequency for maintaining each of the items mentioned above if it is known. This needs to include, but not be limited to:

1. The frequency for mowing, fertilization and other vegetative cover maintenance, and
2. Annual maintenance / cleaning of pumps used in the LCS, LDS, and gas collection systems.
3. The manufacturer's recommended replacement rate for the pumps used in the LCS, LDS or gas collection systems.
4. High pressure jet flushing of the LCS & LDS collection pipes and sump every 5 years.
5. Procedures and scheduling of non-routine maintenance and change-out of equipment.

E.9 Survey Plat: 724.216

The application must include documentation that a survey plat was prepared/submitted no later than the submission of the certification of closure for each disposal unit or areas where hazardous waste is left in place. The application must also describe the wording placed on the survey plat.

- The survey plat must indicate the location and dimensions of landfill cells or other disposal units/areas with respect to permanently surveyed benchmarks and the legal boundary of the facility.
- The plat must contain a note, prominently displayed that states: (1) the land has been used to manage hazardous wastes; and (2) the owner's and operator's obligations to restrict disturbance of the units containing hazardous waste in accordance with the applicable Subpart G regulations.
- The plat must be prepared and certified using the wording at 702.126(d)(1) by a professional land surveyor.
- The survey plat must be filed with any local zoning authority or authority with jurisdiction over local land use, the IEPA, and recorded with the land titles.
- If the facility includes a RCRA disposal unit that is already certified closed, provide a copy of the survey plat for that unit.

E.10 Notice in Deed and Certification: 703.183(n), 724.216, 724.217(c), 724.219

The application must include copies, as appropriate, of the notation recorded on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

- The land has been used to manage hazardous waste.
- Use of these areas is restricted.
- A survey plat and record of the type, location, and quantity of material in the disposal units or areas have been filed with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.

- For hazardous wastes disposed prior to January 12, 1981, identify the type, location and quantity of the hazardous waste to the best of the owner or operator's knowledge and in accordance with any records the owner or operator has kept.

A certification signed by the owner or operator, that the owner or operator has properly recorded the notification must be developed after this notice has been recorded and submitted to Illinois EPA. This submittal must include a copy of the document in which the notification has been placed.

For facilities which have already filed: Provide a copy of the notice for the unit and the document in which it was placed, the required notice of or the deed, the application should contain: a certified copy of the filed notice; the document that the notice was placed in, and certification by the owner or operator that it was properly filed.

E.11 Post Closure Cost Estimate: 703.183(p), 724.244

Provide an estimate of the cost of completing the required post-closure care activities, based on current year costs, including all calculations and supporting information used in developing the estimate. The following must be used in preparing this estimate:

1. Cost estimates must be based on third party costs and cannot include the salvage value form the sales of hazardous wastes, structures or equipment present at the facility.

2. The number of years for which post-closure care must still be provided must be identified.

3. Due to the fact that inflation affects the actual value of a given amount of money over time, the year in which this cost estimate is developed must be clearly identified. It must be noted that inflation will always need to be taken into account to bring estimates from previous year up to the current year.

4. The various tasks need to carry out the required post-closure care activities must be identified as well as the cost associated with each task;

5. The amount of time/materials/efforts needed to complete each task must be provided as well as their unit costs. Justification must be provided for all values used in making these calculations;

6. An estimate of the annual cost of providing all required post-closure care activities should be developed;

7. Some post-closure care activities are not carried out on an annual basis, but at some other frequency. These activities, their frequency, and their cost must be presented.

8. The estimate for providing all required post-closure care activities must be developed using the information in Items 4 and 5 above.

A copy of the most recent post-closure care cost estimate provided to the Illinois EPA must also be provided. In general, these estimates are provided in annual reports and financial assurance documents.

E.12 Financial Assurance Mechanism for Post-Closure Care: 703.183(p), 724.245

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of those described in 724.245. Contact the Illinois EPA Bureau of Land Permit Section to obtain the proper forms and instructions.

E.13 State Mechanisms: 40 CFR 264.149, 40 CFR 264.150, 40 CFR 264.151, 40 CFR 220.14(b)(18)

If the State of Illinois assumes legal responsibility for compliance with closure, post closure, or liability requirements, or the state assures that state funds are available to cover those requirements, submit a copy of a letter from the state describing the state assumption of responsibility and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

SECTION F—CORRECTIVE ACTION

35 Ill. Adm. Code 724.201 requires that facilities seeking a RCRA permit institute corrective action, as necessary, to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit. The information identified in Items F.1 through F.3 below must be contained in the original RCRA permit application submitted by a facility to allow Illinois EPA to develop permit conditions for ensuring this requirement is met; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit.

F.1 Identification of Solid Waste Management Units (703.187(a))

Identify the solid waste management units (SWMUs) present at the facility. A SWMU includes any unit where solid waste has been managed in the past and which is not a hazardous waste management unit. Units that are SWMUs include, but are not limited to, the following:

- Landfills
- Surface impoundments
- Waste piles
- Land treatment units
- Injection wells
- Incinerators
- Tanks (including wastewater treatment units)
- Container storage areas
- Waste transfer areas
- Waste recycling operations

F.2 Characterization of the SWMUs (703.187(a))

For each solid waste management unit identified above, submit the following information:

1. Type of unit
2. Location on the topographic map required by Item B.2 of the decision guide/checklist
3. Engineering drawings and construction details as available
4. General dimensions
5. Dates when the unit was in operation
6. Description (including physical/chemical characteristics) of the materials/wastes managed in the unit
7. Quantity or volume of waste managed in the unit, if known
8. A description of: (1) the soil types present at the unit; and (2) the geology of the area where the unit is located.
9. An indication of whether the wastes managed in the unit have been removed or still remain in it.

F.3 Characterization of Releases from SWMUs (703.187(b))

Provide all available information on whether or not any releases have occurred from each of the SWMUs identified above. Reasonable efforts to identify releases must be made, even if releases have not been verified. A release may include: spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. If a determination is made that there has not been a release from a given SWMU, then a description of the efforts and information used to reach this conclusion must be provided.

The information to be provided regarding any releases from a SWMU, as available, includes:

1. Date of the release
2. Type of waste or constituent released
3. Physical and chemical characteristics of the released material
4. Quantity or volume released
5. Nature of the release (such as spill, overflow, ruptured pipe or tank, etc.).
6. Groundwater monitoring or other analytical data describing the nature/extent of the release.
7. Physical evidence of distressed vegetation or soil contamination
8. Historical evidence of releases, such as tanker truck accidents
9 Any state, local or federal enforcement actions which may address releases
10. Any public citizen complaints about the facility which could indicate a release
11. Any information showing the migration of the release.
12. A detailed description of any remedial activities taken in response to the release.

F.4 Information Required for Renewal Applications (703.187(c))

Facilities seeking a renewed RCRA permit have likely completed a substantial amount of corrective action under the original permit. Illinois EPA has only been authorized to implement the corrective action program in RCRA permits since April 1990; the USEPA portion of permits issued before this date contained corrective action requirements. For permits issued before April 1990, Illinois EPA likely does not have a complete file of corrective action efforts carried out at the facility, as such efforts were overseen by USEPA. However, for permits issued after April 1990, Illinois EPA already has a complete file of all corrective action efforts carried out to date at the facility.

A summary/description of the corrective action efforts completed to date at the facility must be provided in the application. The level of detail of this summary/description will be dependent on whether Illinois EPA oversaw these corrective action efforts and thus has a complete file of these efforts already. This summary/description will create an administrative record adequate to support the corrective action requirements eventually placed in the renewed permit and will form the foundation for determining future corrective action efforts to ensure the requirements of 35 Ill. Admin. Code 724.201 are met.

F.4.1. Required Information if USEPA Oversaw Initial Corrective Action Program

Facilities applying for a renewed RCRA permit which conducted corrective action efforts in accordance with requirements of the USEPA portion of the original RCRA permit issued to the facility must provide the following information:

1. A detailed chronology of all corrective action correspondence between USEPA and the facility, starting from the issuance of the original permit;
2. Copies of all letters received from USEPA regarding corrective action efforts, starting with the issuance of the original RCRA permit;
3. Copies of all letters and documents sent to the USEPA regarding corrective action efforts conducted in accordance with the original RCRA permit;
4. A detailed discussion of each of the SWMU identified and addressed in accordance with the provision of the facility's original RCRA permit, including:
    a. A detailed description of each unit as outlined in Item F. 2 above, including layout drawings;

b. A summary of the investigation/remediation efforts completed to date; and

c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

5. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.4.2 Required Information if IEPA Oversaw the Initial Corrective Action Program

Facilities which carried out corrective action under the requirements of the Illinois EPA portion of the original permit must provide the following information regarding corrective action efforts at the facility:

1. A chronological list of all documents submitted to Illinois EPA regarding the corrective action efforts required by the original RCRA permit and Illinois EPA's response to each submittal. For each document, provide:

   a. The name of the document;

   b. A brief discussion of the contents/purpose of the document;

   c. The date the document was submitted to Illinois EPA;

   d. The person who submitted the document

   e. A discussion of Illinois EPA's response to the document (include the date of the response and the general conclusions/requirements in the response).

2. Copies of all Illinois EPA letters, in chronological order, regarding corrective action efforts at the facility (these letters serve as important decision documents and will help to verify corrective action efforts completed to date and what must still be done to complete corrective action responsibilities at the facility.

3. A detailed discussion of each of the SWMUs identified and addressed in accordance with the facility's permit. This should include:

   a. A detailed description of each unit as outlined in Item F.2 above;

   b. A summary of the investigation/remediation efforts completed to date; and

   c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

4. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.5 Proposed Interim Measures to be Conducted: (703.187)

An applicant may propose to begin/continue interim measures for the purpose of preventing/mitigating releases from a SWMU before completing a formal RCRA Facility Investigation or Corrective Measures Program. Requests to begin/continue interim measures should contain detailed information about the proposed effort, including:

1. Background information about the unit and surrounding area (including, but not limited to, construction/operation of the unit, wastes managed in the unit; geology/hydrogeology of the area; and discussion/presentation of all sampling/analysis efforts conducted in/around the unit);

2. The objectives of the interim measure. Of special concern is how the measure will prevent/mitigate the release of concern and how it will be integrated into any necessary long-term corrective measures at the facility;

3. Information regarding the design, construction, operation and maintenance of the measure;
4. Schedules for design, construction and operation of the measure.

It must be noted that it may be necessary to complete a RCRA Facility Investigation and a Corrective Measures Study for the SWMU of concern while the interim measure is being carried out. Such efforts will be necessary if the extent of contamination at the SWMU has not been completely determined or if additional remedial efforts are needed to properly address the contamination resulting from the release in the long term.

F.6 Cost Estimate for Required Corrective Action (724.201)

35 Ill. Admin. Code 724.201 requires that permitted facilities provide financial assurance for any required corrective action. As such, the application must contain an estimate of the cost of the required corrective action efforts to be carried out at the facility.

1. If a facility proposes to conduct an interim measure as set forth in Item F.5 above, then an estimate of the cost of these measures must be provided in the application.
2. Development/presentation of a cost estimate must be carried out in accordance with Item E.5 above. This cost estimate will then form the foundation for the establishment of financial assurance for corrective action in the permit. This estimate will need to be updated, as appropriate, to reflect the cost of carrying out all approved corrective action activities at this facility.
3. As each workplan/report associated with corrective action is developed, they must contain cost estimates for carrying out the activities proposed in the workplans and then financial assurance must established for these activities once they are approved.

F.7 Financial Assurance for Corrective Action (724.201)

Adequate financial assurance must be provided in the amount developed in Item F.6 above. Establishment of this financial assurance must meet the requirements of 35 Ill. Admin. Code 724, Subpart H and Item E.6 above. Financial assurance for corrective action must be updated, as appropriate, to reflect the current corrective action cost estimate.

Instructions for RCRA Post-Closure Permit Applications

Attachment 1

Baseline List of Constituents Expected to be Present in Landfill Leachate

Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	Basis for Inclusion on List					
		40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Butanol	15,000	X	X				
N-butylbenzene						X	
Sec-butylbenzene						X	
Butyl benzyl phthalate	150	X	X				
Cadmium (total)	100	X	X	X	X		5
Calcium	1,200,000		X				
Carbofuran				X			
Carbon disulfide	6	X	X				22
Carbon tetrachloride	400	X	X	X			23
Chemical oxygen demand (COD)	10,000,000		X				
Chlordane		X		X	X		
Chloride	3,000,000		X	X	X		
Chlorobenzene	400	X	X	X		X	24
Chloroethane	400	X	X			X	25
Bis (2-chloroethoxy) methane	25	X	X				
Chloroform	400	X	X			X	26
Chloromethane	400	X	X			X	44
Bis (chloromethyl) ether	400	X	X			X	
O-chlorotoluene						X	
P-chlorotoluene						X	
Chromium (total)	50	X	X	X	X		6
Chlorodibromomethane		X				X	27
Cobalt	130	X	X	X			7
Copper	1,000	X	X	X	X		8
P-cresol		X					
Cyanide	300	X	X	X	X		
Dalapon							
DDT		X		X	X		
Dibromomethane	10	X	X			X	45
M-dichlorobenzene		X				X	
O-dichlorobenzene		X				X	30
P-dichlorobenzene		X		X			31
Dichlorodifluoromethane	450	X	X			X	
Dichloromethane		X		X		X	46

Baseline List of Constituents Expected to be Present in Landfill Leachate							
		Basis for Inclusion on List					
Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Dieldrin		X			X		
Diethyl phthalate	200	X	X				
Dimethyl phthalate	60	X	X				
Di-n-butyl phthalate	150		X				
Dinoseb		X		X			
1,4-dioxane			X				
Endothall		X		X			
Endrin		X	X				
Ethyl acetate	130		X				
Bis (2-ethylhexyl) phthalate	400		X				
Ethyl methacrylate		X					
Ethylbenzene	500	X	X	X		X	41
Ethylene dibromide (EDB)		X		X		X	29
Fluoride				X			
Fluorotrichloromethane						X	
gross alpha (pCi/l)				X			
Heptachlor		X		X	X		
Heptachlor epoxide		X		X	X		
Hexachlorobutadiene		X				X	
Hexachlorocyclopentadiene		X		X			
Iodomethane		X		X	X		48
Iron	500,000		X	X	X		
Isophorone	2,500	X	X				
Isopropylbenzene						X	
p-isopropyltoluene						X	
Lead	500	X	X	X	X		9
Lindane	25		X	X	X		
Magnesium	500,000		X				
Manganese	20,000		X	X	X		
Mercury	10	X	X	X			
Methoxychlor				X	X		
methylene chloride (Chloromethene)	46	X	X				
Naphthalene	75	X	X			X	
Nickel	1,000	X	X	X			10
Nitrate				X	X		
Nitrobenzene	120	X	X				
Oil (hexane-soluble or equivalent)					X		
Parathion		X			X		

Baseline List of Constituents Expected to be Present in Landfill Leachate							
	Predicted Values for SW Landfill (ug/l) [1,2]	Basis for Inclusion on List					
Parameter		40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Pentachlorophenol	400	X	X	X			
pH	9-May		X	X			
Phenanthrene	3	X	X				
Phenols	5,000	X	X	X	X		
Picloram				X			
Polychlorinated biphenyls (PCBs)		X		X			
Potassium	500,000		X				
N-propylbenzene						X	
Radium				X			
Selenium	50	X	X	X	X		11
Silver	50	X	X	X			12
Simazene							
Sodium	1,500,000		X	X			
strontium - 90				X			
Styrene		X		X		X	50
Sulfate	1,000,000		X	X	X		
TDS	10,000,000		X	X	X		
TOC	6,000,000		X				
tert-butylbenzene						X	
Tetrachloroethylene	300	X	X	X		X	53
Tetrahydrofuran	1,000		X				
Thallium	500	X	X	X			13
Tin	2,000	X	X				
Toluene	2,000	X	X	X		X	54
Toxaphene	2	X	X	X	X		
Trichloroethylene (or ethene)	400	X	X	X			57
Trichlorofluoromethane	150	X	X				58
Tritium				X			
Vanadium	30	X	X				14
Vinyl chloride	60	X	X	X			61
Vinyl acetate							60
Xylenes (total)	300	X	X	X			62
m-xylene	200	X	X			X	
o-xylene						X	
p-xylene						X	
Zinc	20,000	X	X	X			15

References

1 Gasper, James A. and Jeff M. Harris, Management of Leachate from Sanitary Landfills (for Browning Ferris Industries).
2 Dolan, David, Helen Keough, R.E. O'Hara and Kevin O'Leary, 1991, A Comparison of Chemical Constituents in Industrial Hazardous Wast Municipal Waste Landfill Leachates (for Waste Management of North America, Inc.).
3 From 40 CFR Part 258 Appendix I & II numbered as presented in Federal Register, Vol. 56, No. 196, October 9, 1991 pages 51032-51038

bp

Remediation Management Services Company

150 West Warrenville Road
Naperville, IL 60563

Mobile: (847)346-7112
Michelle.Knapp@bp.com

May 10, 2022

Mr. Kenneth E. Smith, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

Re: 1191150001 – Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
Permit Renewal Application – Replacement Pages
Cone of Depression (COD) Well G669/HPW61 Repairs

Dear Mr. Smith,

On behalf of BP Products North America Inc. (BPPNA), Remediation Management Services Company (RMSC) is submitting to the Illinois Environmental Protection Agency (Illinois EPA) the following items as replacement pages to Section C of the previously submitted Permit Renewal Application (Log No. B-147R2) for the former BP Wood River Refinery (Main Plant Property):

1. Condition C.8.1.5 -Page 13; and,
2. Exhibit C-1, Table 1 – Page 4.

The replacement pages are required due to the well construction and repairs conducted on Gradient Control/COD Well G669/HPW61. Enclosed with this submittal is a RCRA Permit Application Form (LPC-PA23) and completed 39(i) Certification Form.

Separate from this submittal, RMSC is submitting a Class 1* Permit Modification associated with Gradient Control/COD Well G669/HPW61.

If you have any questions or concerns regarding the information provided, please contact me at (847) 346-7112.

Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

Attachments 1-2

Enclosures: RCRA Permit Application Form (LPC-PA23)
39(i) Certification Form

cc: Amy Butler, Illinois EPA
Takako Halteman, Illinois EPA
Tom Stalcup, Mayor of the City of Wood River
Michael J. Hoffman, P.E., Wood
Kevin Wheeler, Sovereign Consulting

cc. Collinsville AMB

B-147R

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 1191150001 USEPA ID Number: ILD980700967

Site Name: BP Wood River - Main Plant Property

Physical Site Location (street, road, etc.): Amoco Cutoff Road

City: Wood River Zip Code: 62095 County: Madison

Existing RCRA Permit (if applicable): Log No. B-147R-M-17 and M-18

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II. Owner/Operator Identification

Owner Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847.346.7112

Email: michelle.knapp@bp.com

Operator Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847.346.7112

Email: michelle.knapp@bp.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number

_____

- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☐ Treatment
- ☐ Disposal
- ☐ Incineration
- ☑ Groundwater
- ☑ Corrective Action
- ☐ UIC Class I
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

Main Plant Property Permit Renewal Application Replacement Pages - COD Repairs

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Michelle Knapp

Owner Signature: _____ Date: 4/28/2022

Title: Liability Manager

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Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Michelle Knapp

Operator Signature: _____ Date: 4/28/22

Title: Liability Manager

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 28 day of April 2022.

VINCENT NG
Official Seal
Notary Public - State of Illinois
My Commission Expires Oct 7, 2025

Notary Signature: _____

My commission expires on: OCT 7, 2025

Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Print or Type): _____

Engineer Signature: _____

Illinois License No.: _____

Expiration Date of License: _____

Engineer Phone No. _____

Email: _____

Engineer Address:

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Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification
for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: BP Wood River Main Plant Property IEPA BOL No.: 1191150001

Site Address: Amoco Cutoff Road

City: Wood River State: IL Zip Code: 62095

Permit Numbers (if applicable): B-147R-M-17 and 18

Owner

Owner Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Operator

Operator Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Is this 39(i) certification for the owner or the operator?

◯Owner ◯Operator ⊘Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Joseph Sontchi	Vice President

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PERMIT SECTION

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
Michelle Knapp	Liability Manager

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if fhe following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

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Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Joseph Smith
Signature of Applicant Officer

April 29, 2022
Date

Joseph P Smith
Printed Name

Vice President
Title

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MAY 11 2022
IEPA-BOL
PERMIT SECTION

XCOPY B-147R2

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

RCRA Permit Application Form (LPC-PA23)

This form must be used for any permit application for a hazardous waste management facility regulated in accordance with RCRA, Subtitle C, including all requests to modify an existing permit. One original and three (3) copies, of all permit applications must be submitted. Attach the original and appropriate number of copies of a cover letter, any necessary plans, specifications, reports, forms, (e.g., corrective action certification form), and any other certifications etc. to fully support and describe the activities or modifications being proposed. Attach sufficient information to demonstrate compliance with all applicable regulatory requirements. Applications without this form will be deemed incomplete. Please refer to the RCRA checklist and decision guide documents for further guidance. For RCRA corrective action, this form should only be used if requesting an actual modification to a RCRA permit. A RCRA Corrective Action Certification form should be used in all other instances.

Note: Permit applications which are hand-delivered to the Bureau of Land, Permit Section must be delivered to 1021 North Grand Avenue East between the hours of 8:30 a.m. to 5:00 p.m., Monday through Friday (excluding State holidays).

Please type or print all information legibly.

I. Site Identification

Site # (Illinois EPA): 1191150001 USEPA ID Number: ILD980700967

Site Name: BP Wood River - Main Plant Property

Physical Site Location (street, road, etc.): Amoco Cutoff Road

City: Wood River Zip Code: 62095 County: Madison

Existing RCRA Permit (if applicable): Log No. B-147R-M-17 and M-18

II. Owner/Operator Identification

Owner Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

Contact Name: Michelle Knapp

Phone #: 847.346.7112

Email: michelle.knapp@bp.com

Operator Information

Name: BP Products North America, Inc.

Mailing Address:

301 Evans Avenue
Wood River, IL 62095

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PERMIT SECTION

Contact Name: Michelle Knapp

Phone #: 847.346.7112

Email: michelle.knapp@bp.com

A 39(i) certification must be submitted with information concerning the following persons or entities:

- the owner of the business entity applying for the permit;
- the operator of the business entity applying for the permit;
- each employee or officer of the owner or operator who signed the permit application or has managerial authority at the site; and
- any additional owner, operator, or officer or employee of the owner or operator from whom a certification is requested by the Illinois EPA, including any officer or employee who will be responsible for overseeing or implementing regulated activities governed by the permit.

III. Permit Application Identification

Application Type

- ☐ New Part B Permit
- ☑ Part B Permit Renewal
- ☐ Class 1 Modification
- ☐ Class 1* (prior approval required) Modification
- ☐ Class 2 Modification
- ☐ Class 3 Modification
- ☐ Additional information to supplement UIC Class I application Log Number

_____

- ☐ Remedial Action Plan Permit (RAPP)
- ☐ Sig RAPP Modification
- ☐ Non Sig RAPP Modification
- ☐ Major UIC Modification
- ☐ Minor UIC Modification

This Application Involves

- ☐ Storage
- ☑ Groundwater
- ☐ Treatment
- ☑ Corrective Action
- ☐ Disposal
- ☐ UIC Class I
- ☐ Incineration
- ☐ UIC Class V

Description of This Permit Request: (Include a brief narrative description here.)

Main Plant Property Permit Renewal Application Replacement Pages - COD Repairs

IV. SIGNATURES

Original signatures required. Signature stamps or applications transmitted electronically or by facsimile are not acceptable. All applications shall be signed by the person in accordance with 35 IAC 702.126(a).

Please check the box of the appropriate certification.

Owner

☒ I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Alternative owner certification. For remedial action plans (RAPs) permit under Subpart H of 35 IAC 703, the owner may choose to make the following certification instead of the certification above.

☐ Based on my knowledge of the conditions of the property described in the RAP and my inquiry of the person or persons that manage the system referenced in the operator's certification, or those persons directly responsible for gathering the information, the information submitted is, upon information and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Owner Name (Printed or Typed): Michelle Knapp

Owner Signature: _____ Date: 4/28/2022

Title: Liability Manager

Operator

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Operator Name (Printed or Typed): Michelle Knapp

Operator Signature: _____ Date: 4/28/22

Title: Liability Manager

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 28 day of April 20 22.

VINCENT NG
Official Seal
Notary Public - State of Illinois
My Commission Expires Oct 7, 2025

Notary Signature: _____

My commission expires on: OCT 7, 2025

Notary Seal

Engineer

I certify under penalty of law that this document and all attachment were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons that manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information.

Engineer Name (Print or Type): _____

Engineer Signature: _____

Illinois License No.: _____

Expiration Date of License: _____

Engineer Phone No. _____

Email: _____

Engineer Address:

Engineer Seal

All information submitted as part of the Application is available to the public except when specifically designated by the Applicant to be treated confidentially as a trade secret or secret process in accordance with Section 7(a) of the Environmental Protection Act, applicable Rules and Regulations of the Illinois Pollution Control Board and applicable Illinois EPA rules and guidelines.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

39(i) Certification for Operating a Waste Management Facility

Pursuant to 415 ILCS 5/39(i), prior to issuing any RCRA permit, or any permit for a waste storage site, sanitary landfill, waste disposal site, waste transfer station, waste treatment facility, waste incinerator, clean construction or demolition debris fill operation, or used tire storage site, the Illinois EPA must conduct an evaluation of the prospective owner's or operator's prior experience in waste management operations, clean construction or demolition debris fill operations, and tire storage site management. As part of that evaluation please complete and submit this form with your permit application.

This form may be completed online and saved locally before printing, signing and submitting it to the Illinois EPA at the address below. If the form is completed manually, please type or print clearly.

Illinois Environmental Protection Agency
Division of Land Pollution Control - #33
39(i) Certification
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

I. Applicant Information

Site Name: BP Wood River Main Plant Property IEPA BOL No.: 1191150001

Site Address: Amoco Cutoff Road

City: Wood River State: IL Zip Code: 62095

Permit Numbers (if applicable): B-147R-M-17 and 18

Owner

Owner Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Operator

Operator Name: BP Products North America Inc.

Street Address: 301 Evans Avenue

City: Wood River State: IL Zip: 62095

Is this 39(i) certification for the owner or the operator?

◯Owner ◯Operator ⊘Owner and operator are the same entity

II. Officers and Employees with Site Responsibility

Unless the owner and operator are the same entity, a separate 39(i) form must be submitted for both the owner and operator. Persons operating under the authority of the owner should be listed on the owner's 39(i) form and persons operating under authority of the operator should be listed on the operator's 39(i) form.

A. Officers: List the name and title of all officers of the owner or operator that will have personal involvement or active participation in the operation or management of the site or facility for which the application is submitted.

Name	Title
Joseph Sontchi	Vice President

B. Employees: List the name and title of each employee of the owner or operator that will have personal involvement or active participation in the overall operation or management of the site or facility for which the application is submitted (e.g. site managers, site engineers, and other persons who direct or control the overall day-to-day management of the operation, but not persons whose duties are exclusively limited to equipment operation, labor, or similar non-managerial functions).

Name	Title
Michelle Knapp	Liability Manager

III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified under Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and include a copy of each final administrative or judicial determination that required an affirmative response. If the information for each owner, operator, officer, and employee has not changed since the applicant's last submission of a 39(i) certification, the applicant can skip to Section III(C), below.

1) Has there been a finding that any person named in Section II violated federal, State, or local laws, regulations, standards, or ordinances in the operation of one or more waste management facilities or sites, clean construction or demolition debris fill operation facilities or sites, or tire storage sites? ○ Yes ⊘ No

2) Has any person named in Section II ever been convicted in this or another State of any crime which is a felony under the laws of this State, or convicted of a felony in a federal court; or convicted in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition? ○ Yes ⊘ No

3) Has there been a finding against any person named in Section II of gross carelessness or incompetence in handling, storing, processing, transporting or disposing of waste, clean construction or demolition debris, or used or waste tires, or a finding of gross carelessness or incompetence in using clean construction or demolition debris as fill? ○ Yes ⊘ No

B. Pending Proceedings

The applicant must answer each of the following questions for every owner or operator, and for any officer or employee identified in Section II. If the answer to any of the following questions is affirmative, the applicant must complete an Attachment A for each person for whom the answer is affirmative and provide information identified in Attachment A regarding the pending proceeding.

1. Is there any proceeding currently pending against any person named in Section II that could result in a conviction or finding described in subsection A, above? ○ Yes ⊘ No

2. Is there any proceeding currently pending against any person named in Section II that could result in the reversal of a conviction or finding described in subsection A, above? ○ Yes ⊘ No

C. Prior Application Information

If (i) the applicant has previously submitted the Attachments required pursuant to subsections A and B above and (ii) the Attachments previously submitted are still complete, true, and correct, then the applicant does not need to include Attachments with this submission if fhe following box is checked:

☐ By checking this box, I affirm that the Attachments previously submitted are still complete, true, and correct and wish to incorporate them into this Certification.

If the above box is checked, identify the application that contains the previously submitted Attachments that are complete, true, and correct.

Authorization for Release of Information

This Certification must be signed by an officer of the applicant.

The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon request of the bearer. The undersigned authorizes a review of and full disclosure of all records, or any part thereof, concerning the applicant's criminal records by and to a duly authorized agent of the Illinois Environmental Protection Agency, whether the records are of public, private, or confidential nature. The intent of this authorization is to give consent for full and complete disclosure of the applicant's criminal records.

The undersigned fully understands that any information which is developed directly or indirectly, in whole or in part, as a result of this authorization will be considered in determining whether a permit shall be issued by the Illinois Environmental Protection Agency under the Environmental Protection Act [415 ILCS 5]. The undersigned further agrees to release the Illinois State Police and the Illinois Environmental Protection Agency, its agents and designees under this release, from any and all liability which may be incurred as a result of compliance with this authorization for release of information.

Certification Statements

I certify under penalty of law that the information submitted, including information on any Attachments submitted as part of or incorporated into this Certification, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Any person who knowingly makes a false, fictitious, or fraudulent material statement, orally or in writing, to the Illinois EPA commits a Class 4 felony. A second or subsequent offense after conviction is a Class 3 felony. (415 ILCS 5/44(h))

Joseph P Smith
Signature of Applicant Officer

April 29, 2022
Date

Joseph P Smith
Printed Name

Vice President
Title

R001388

bp

Remediation Management Services Company B-147R2

cc: Collinsville
AMB

150 West Warrenville Road
Naperville, IL 60563

Mobile: (630) 386-1620
Sasa.Jazic@bp.com

October 8, 2020

Mr. Kenneth E. Smith, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RECEIVED
OCT 09 2020
IEPA-BOL
PERMIT SECTION

Re: 1191150001—Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
RCRA Log No. B-I47R2 – RCRA Permit Renewal Application

Dear Mr. Smith:

BP Products North America Inc. (BP) is submitting, for Illinois Environmental Protection Agency (Illinois EPA) approval the enclosed application for Permit Renewal for the Resource Conservation and Recovery Act (RCRA) for the BP Wood River Main Plant Property. Also enclosed is Form LPC-PA23 and a 39(i) certification, consistent with guidance provided by the Illinois EPA.

BP has followed the guidance contained in the Illinois EPA letter dated April 10, 2020. The information in the application follows the same order and format of the Illinois EPA guidance titled "Information Which Must be Provided in an Application for a RCRA Post · Closure Permit, November 2019". In accordance with the April 10, 2020 Illinois EPA letter, since the Main Plant RCRA Permit contains only corrective action requirements, the information required by Section D and Section E of this document are not applicable to this permit renewal application. As discussed with Amy Butler and Takako Halteman of the Illinois EPA, groundwater information is included in Section C of the permit renewal application, rather than Section F.4.2, as stated in the April 10, 2020 Illinois EPA letter. Also included is the completed checklist titled "RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019."

BP does not claim that any information contained in the attached application is exempt from public disclosure; BP does not request a public disclosure exemption claim and does not make a trade secret claim.

Should you have questions regarding the information provided, please contact me at (630) 386-1620.

Sincerely,

Sasa Jazic
Liability Manager
Remediation Management Services Company
An affiliate of BP Products NA Inc.

Enclosures: RCRA Permit Application Form (LPC PA-23)
39(i) Certification Form

cc: Amy Butler, Illinois EPA
Takako Halteman, Illinois EPA
Cheryl Maguire, Mayor of the City of Wood River
Michael J. Hoffman, P.E., Wood
Kevin Wheeler, Sovereign Consulting, Inc.

B-147R2 R001391 V1
cc: Collinsville

bp

Remediation Management Services Company

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

August 1, 2024

Jacqueline M. Cooperider, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RECEIVED
AUG 02 2024
IEPA-BOL
PERMIT SECTION

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
Log No. B-147R2
RCRA Administrative Record - 24D
Response to Permit NOD

Dear Ms. Cooperider:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting to the Illinois Environmental Protection Agency (Illinois EPA) the enclosed revisions to the Main Plant Property Permit Renewal Application in response to the Illinois EPA Permit NOD letter dated June 18, 2024. A Response to Comments table is enclosed listing the Illinois EPA comment and bp's response to each comment, and indicates the location (e.g. Section number, Exhibit number, and Figure number) in the revised pages where the comment is addressed the revisions that were made. Also enclosed is Form LPC-PA23 and a 39(i) certification consistent with guidance provided by the Illinois EPA.

Should you have questions regarding the information provided, please contact me at (847) 346-7112.

Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
AUG 14 2024
REVIEWER: SAB

Enclosures: RCRA Permit Application Form (LPC-PA23) and 39(i) Certification
bp Response to Illinois EPA Permit NOD Comments Dated June 18, 2024
Main Plant Property Permit Renewal Application, Revision Date: 07/29/2024

cc: Amy Butler, Illinois EPA
Takako Halteman, Illinois EPA
Omar Faruk, Illinois EPA
Shawntay Dial, Illinois EPA
Ali Al-Janabi, Illinois EPA
Norberto Gonzalez, USEPA Region V
Tom Stalcup, Mayor of the City of Wood River
Michael J. Hoffman, P.E., WSP USA Environment & Infrastructure Inc.
Starlet S. Wright, Sovereign Consulting Inc.

R001394

bp

X COPY

Remediation Management Services Company B-147R2

150 West Warrenville Road
Naperville, IL 60563

Mobile: (630) 386-1620
Sasa.Jazic@bp.com

October 8, 2020

Mr. Kenneth E. Smith, P.E.
Illinois Environmental Protection Agency
Bureau of Land, Division of Land Pollution Control
1021 North Grand Avenue East
Springfield, Illinois 62794-9276

RECEIVED
OCT 09 2020
IEPA-BOL
PERMIT SECTION

Re: 1191150001—Madison County
BP Products North America Inc. – Main Plant Property
USEPA ILD980700967
RCRA Log No. B-I47R2 – RCRA Permit Renewal Application

Dear Mr. Smith:

BP Products North America Inc. (BP) is submitting, for Illinois Environmental Protection Agency (Illinois EPA) approval the enclosed application for Permit Renewal for the Resource Conservation and Recovery Act (RCRA) for the BP Wood River Main Plant Property. Also enclosed is Form LPC-PA23 and a 39(i) certification, consistent with guidance provided by the Illinois EPA.

BP has followed the guidance contained in the Illinois EPA letter dated April 10, 2020. The information in the application follows the same order and format of the Illinois EPA guidance titled "Information Which Must be Provided in an Application for a RCRA Post · Closure Permit, November 2019". In accordance with the April 10, 2020 Illinois EPA letter, since the Main Plant RCRA Permit contains only corrective action requirements, the information required by Section D and Section E of this document are not applicable to this permit renewal application. As discussed with Amy Butler and Takako Halteman of the Illinois EPA, groundwater information is included in Section C of the permit renewal application, rather than Section F.4.2, as stated in the April 10, 2020 Illinois EPA letter. Also included is the completed checklist titled "RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019."

BP does not claim that any information contained in the attached application is exempt from public disclosure; BP does not request a public disclosure exemption claim and does not make a trade secret claim.

Should you have questions regarding the information provided, please contact me at (630) 386-1620.

Sincerely,

Sasa Jazic
Liability Manager
Remediation Management Services Company
An affiliate of BP Products NA Inc.

Enclosures: RCRA Permit Application Form (LPC PA-23)
39(i) Certification Form

cc: Amy Butler, Illinois EPA
Takako Halteman, Illinois EPA
Cheryl Maguire, Mayor of the City of Wood River
Michael J. Hoffman, P.E., Wood
Kevin Wheeler, Sovereign Consulting, Inc.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

APR 10 2020

7018 1830 0000 5290 5757

BP Products North America, Inc.
Attention: Ms. Lori Littrell
150 West Warrenville Road
Naperville, Illinois 60563

Re: 1191150001 – Madison County
BP Products North American Inc./Main Plant
ILD980700967
RCRA Log No. B-147R2
RCRA Permit
Permit Correspondence

Dear Ms. Littrell:

This letter is to remind you of the upcoming expiration of the RCRA permit for the above-referenced facility located at 301 Evans Avenue, Wood River, Illinois. The current permit expires on April 8, 2021. In accordance with 35 Ill. Adm. Code 702.142 and 703.125, a new application for a renewed permit should be submitted to Illinois EPA at least 180 days before the expiration date of the current permit, unless an alternate date is approved by Illinois EPA. This means that the renewal application for the BP Product North America-Mai Plant (BP Main Plant) permit is due on or before **October 10, 2020**.

To facilitate a timely renewal, please do not hesitate to contact the Illinois EPA Permit Section staff during the preparation of your renewal application if you need any guidance or have any questions regarding the renewal process.

Once Illinois EPA receives your renewal application, it will have sixty days to conduct a completeness review of the application in accordance with 35 Ill. Adm. Code 702.125. Illinois EPA will then notify BP Main Plant that: (1) the application is complete; (2) the application is not complete (this notification will also identify the information that must be provided to make the application complete). Illinois EPA will have sixty days to review any subsequent submittals and make a notification like the one just mentioned.

It is important that BP Main Plant provide a complete application for renewal of the subject RCRA permit in a timely manner. The date that Illinois EPA issues a renewed permit may extend past the expiration date of the current RCRA permit. 35 Ill. Adm. Code 702.125 allows for the conditions of an expired permit to continue in force, until the effective date of a renewed permit, so long as a complete application to renew the permit is submitted to Illinois EPA prior to the expiration date of the current RCRA permit. If a complete application to renew the subject RCRA permit is not submitted in this time frame, the subject RCRA permit will no longer be valid after its expiration date.

Attached are two documents to assist you in preparing your permit application: "Information Which Must be Provided in an Application for a RCRA Post-Closure Permit, November 2019", and a checklist titled "RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019." The information in the application needs to follow the same order and format of these documents. Due to the fact that your RCRA Permit contains only corrective action requirements, the information required by Sections C.1 through C.7, Section D and Section E of the above-mentioned documents are not applicable to your renewal permit application. However, information identified in Sections C-1 through C-7 should be used as a template for Section F.4.2 for groundwater.

Your renewal application must include an LPC-PA23 form signed by the owner, operator and a qualified professional engineer. Any forms you may need can be found on Illinois EPA's website at:

https://www2.illinois.gov/epa/topics/forms/land-forms/permit-forms/Pages/default.aspx

Please submit an "original" and three copies of the renewal application to Illinois EPA, Bureau of Land, Division of Land Pollution Control, Permit Section, 1021 North Grand Ave. East, Springfield, IL. 62794-9276, Attn: Permit Section Manager and send one copy directly to the following people:

U.S. EPA
Attn: James Blough
M/C LR-8J
77 West Jackson Blvd
Chicago, IL. 60604-3590

Collinsville FOS
Bureau of Land, Illinois EPA
Atten: Gina Search
2009 Mall Street
Collinsville, IL 62234

If you have any questions regarding groundwater issues, please contact Amy Butler at 217/558-4716. If you have any questions about financial assurance, please contact Bob Mathis at 217/785-7403. For all other questions regarding the permit renewal, please feel free to contact Takako Halteman, P.E. at 217/524-3274.

Sincerely,

Kenneth E. Smith

Kenneth E. Smith, P.E., Manager
Permit Section
Division of Land Pollution Control
Bureau of Land

KES:TNH \\191150001-RCRA-B147R2-CORR.docx

Attachments: Information Which Must be Provided in an Application for RCRA Post-Closure Permit, November 2019.

RCRA Post-Closure Permit Application Completeness and Technical Review Checklist, November 2019

Bcc: Bureau File
Collinsville Region
Mike Summers
Rob Watson
Takako Halteman
Amy Butler

RCRA POST-CLOSURE PERMIT APPLICATION
COMPLETENESS AND TECHNICAL REVIEW CHECKLIST
November 2019

Facility Name : _____
Log No. : _____
State ID No. : _____
USEPA No. : _____

Date Application Received : _____
Revision No. : _____
Reviewer : _____
Review Dates : _____

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A	**Forms, Certifications, Confidentiality, and Public Involvement**	**XX**	**XX**		
A.1	**RCRA Part A Application Form**				
A.2	**Certification Using the LPC-PA23 Form**				
A.2.1	Facility Certification				
A.2.2	Technical Information Certification				
A.2.3	39i Certification				
A.3	**Public Disclosure Exemption Claims and Trade Secret Claims**				
A.3.1	No information Claimed Exempt from Public Disclosure				
A.3.2	Trade Secrets Claims				
A.3.3	Exempt or Exempt In-Part Data Claims				
A.3.4	Privileged Information				
A.4	**Public Participation: Facility Mailing List & Information Repositories**				
A.4.1	Facility Mailing				
A.4.2	Identification of Repositories				
A.4.3	Contents of Repository				

R001399

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
A.4.4	Public Notice of Repository Availability				
B	**Facility Description**	XX	XX		
B.1	**General Facility Description**				
B.1.1	Operation of Facility				
B.1.2	Hazardous Waste Management Units at the Facility				
B.1.3	Solid Waste Management Units at the Facility				
B.2	**Topographic Map**				
B.2.1	Facility + 1 mile				
B.2.2	Facility + 1000 feet				
B.3	**Location Standards**				
B.3.1	Seismic Standard				
B.3.2	Floodplain Standard				
B.3.3	Facilities in the 100-year Floodplain				
B.3.3.1	Engineering Analysis and Structural/Engineering Study				
B.3.3.2	Procedures to Remove Waste				
B.3.4	Existing Facilities not in Compliance with 35 Ill. Admin Code 724.118(b)				
B.4	**Operating Record**				

R001400

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C	**Groundwater Monitoring**	**XX**	**XX**		
C.1	**Exemption from Groundwater Protection Requirements**				
C.1.1	Waste Piles				
C.1.2	Landfills				
C.1.3	No Migration				
C.2	**Interim Status Groundwater Monitoring Data**				
C.3	**Historical Hydrogeological Summary**				
C.4	**Topographic Map Requirements**				
C.5	**Contaminant Plume Description**				
C.6	**Detection Monitoring Program**				
C.6.1	Indicator Parameters, Waste Constituents, Reaction Productions to be Monitored				
C.6.2	General Monitoring Program Requirements				
C.6.3	Groundwater Monitoring System				
C.6.4	Description of Sampling and Analysis Procedures				
C.6.5	Evaluation of Groundwater Surface				
C.6.6	Background Quality				
C.6.7	Statistical Evaluations				
C.6.8	Statistically Significant Increases				
C.7	**Compliance Monitoring Program**				
C.7.1	Description of the Monitoring Program				
C.7.1.1	Waste Description				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.7.1.2	Concentration Limits				
C.7.1.3	Compliance Point				
C.7.1.4	Compliance Period				
C.7.2	Alternate Concentration Limits				
C.7.2.1	Adverse Effects on Groundwater Quality				
C.7.2.2	Potential Adverse Effects on Hydraulically Connected Surface Water Quality				
C.7.3	General Monitoring Program Requirements				
C.7.4	Groundwater Monitoring System				
C.7.5	Description of Sampling and Analysis Procedures				
C.7.6	Background Quality				
C.7.7	Statistical Evaluations				
C.7.8	Evaluation of Groundwater Surface				
C.7.9	Annual Appendix I				
C.7.10	Statistically Significant Increases				
C.8	**Corrective Action Program**				
C.8.1	Description of Corrective Action Program				
C.8.1.1	Characterization of Contaminated Groundwater				
C.8.1.2	Concentration Limits				
C.8.1.3	Compliance Point				
C.8.1.4	Compliance Period				
C.8.1.5	Construction Detail				
C.8.1.6	Effectiveness of Corrective Action				

R001402

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
C.8.2	Alternate Concentration Limits				
C.8.2.1	Adverse Effects on Groundwater Quality				
C.8.2.2	Potential Adverse Effects on Hydraulically-Connected Surface Water Quality				
C.8.3	Corrective Action Plan				
C.8.4	Groundwater Monitoring Program				
C.8.4.1	General Monitoring Program Requirements				
C.8.4.2	Groundwater Monitoring System				
C.8.4.3	Description of Sampling and Analysis Procedures				
C.8.4.4	Background Quality				
C.8.4.5	Statistical Evaluations				
C.8.4.6	Evaluation of Groundwater Surface				
C.8.4.7	Extension of Compliance Period				
C.8.4.8	Effectiveness of Corrective Action				
C.8.4.9	Evaluation of the Corrective Action Program				
C.9	**Reporting Requirements**				
D	**Procedures to Prevent Hazards**	**XX**	**XX**		
D.1	**Security**				
D.1.1	Waiver from the Security Requirements				
D.1.2	Restricting Entry to the Facility				
D.1.3	Warning Signs				
D.2	**Equipment Requirements**				

R001403

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
D.2.1	Waiver				
D.2.2	Internal Communications				
D.2.3	External Communications				
D.2.4	Emergency Response Equipment				
D.2.5	Water for Fire Control				
D.2.6	Personnel Protection Equipment				
D.2.7	Testing & Maintenance of Emergency Equipment				
D.2.7.1	Equipment Testing				
D.2.7.2	Schedule				
D.2.8	Equipment and Power Failure				
D.3	**Inspection Requirements**				
D.3.1	Inspection Log				
D.3.1.1	Items Inspected				
D.3.1.2	Types of Problems				
D.3.1.3	Inspection Frequency				
D.3.2	Repair Log				
D.3.3	24 Hour Reporting				
E	**Post-Closure Requirements**	**XX**	**XX**		
E.1	**Information Regarding the Unit(s) Closed as a Landfill**				
E.1.1	General Information Regarding the Unit to Receive Post-Closure Care				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.1.2	Geology and Hydrogeology Around/ Beneath the Unit				
E.1.3	Characterization of Waste/ Contaminated Soil Present in the Landfill Unit				
E.1.4	Initial Closure Activities				
E.1.5	Details Associated with the Closed Unit				
E.2	**Contact Person**				
E.3	**Operation of the Leachate Collection System**				
E.3.1	Quality of Leachate in the Leachate Collection System				
E.3.2	Leachate Collection System Within the Landfill				
E.3.3	Leachate Collection System Outside the Landfill				
E.3.4	Management of Leachate Collection System				
E.3.5	Summary of Leachate Management Program Conducted to Date				
E.4	**Operation of the Leak Detection System**				
E.4.1	Description of the Leak Detection System Within the Landfill				
E.4.2	Description of the Leak Detection System Outside the Landfill				
E.4.3	Management of Leachate Accumulating in the Leak Detection System				
E.4.4	Recent Operation of the Leak Detection System				
E.5	**Operation of the Gas Monitoring/ Collection System**				

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.5.1	Detailed Description of the Landfill Gas Collection System				
E.5.2	Landfill Gas Monitoring Plan				
E.5.3	Landfill Gas Disposal/ Processing System				
E.5.4	Summary of the Landfill Gas Collection/ Monitoring/ Processing Systems				
E.6	**Post-Closure Inspection Plan**				
E.6.1	Inspection Log				
E.6.1.1	Items Inspected				
E.6.1.2	Types of Problems				
E.6.1.3	Inspection Frequency				
E.6.2	Repair Log				
E.6.3	24-Hour Reporting				
E.7	**Post-Closure Monitoring Plan**				
E.7.1	Facility Controls				
E.7.2	Surveys and Corrective Action				
E.7.2.1	Provide the Following				
E.7.3	Leachate Collection System (LCS)				
E.7.3.1	Leachate Quality				
E.7.3.2	Leachate Quantity				
E.7.3.3	Leachate Reporting				
E.7.4	Leak Detection System (LDS)				
E.7.4.1	LDS Leachate Quantity				
E.7.4.2	Action Leakage Rate (ALR)				

R001406

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
E.7.5	Groundwater Monitoring System				
E.7.6	Gas Collection System				
E.7.6.1	Gas Quality				
E.7.6.2	Gas Quantity				
E.7.6.3	Summary of Results from the Gas Collection/ Monitoring System				
E.8	**Post-Closure Maintenance Plan**				
E.8.1	Procedures, Equipment & Materials				
E.8.3	Frequency				
E.9	**Survey Plat**				
E.10	**Notice in Deed and Certification**				
E.11	**Post Closure Cost Estimate**				
E.12	**Financial Assurance Mechanism for Post-Closure Care**				
E.13	**State Mechanisms**				
F	**Corrective Action (CA)**				
F.1	**Identification of Solid Waste Management Units (SWMUs)**				
F.2	**Characterization of the SWMUs**				
F.3	**Characterization of Releases from SWMUs**				
F.4	**Information Required for Renewal Applications**				
F.4.1	Required Information if USEPA Oversaw Initial Corrective Action Program				

R001407

	Section	Complete (Y/N)	Technical Adequacy (Y/N)	Location	Comments
	(1) Chronology of all CA related correspondence between USEPA & facility				
	(2) Copies of all letters received from USEPA regarding CA				
	(3) Copies of all letters regarding CA sent to USEPA				
	(4) Detailed discussion of each SWMU				
	(5) Information in Section C regarding any on-going groundwater monitoring/remediation				
F.4.2	Required Information if IEPA Oversaw Initial Corrective Action Program				
	(1) Chronology of all corrective action efforts completed to date				
	(2) Discussion of all CA related correspondence between IEPA and facility & copies of all correspondence				
	(3) Detailed discussion of each SWMU				
	(4) Information in Section C regarding any on-going groundwater monitoring/remediation effort				
F.5	**Proposed Interim Measures to be Conducted**				
F.6	**Cost Estimate for Required Corrective Action**				
F.7	**Financial Assurance for Corrective Action**				

R001408

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

Information Which Must be Provided in an Application for a RCRA Post-Closure Permit
November 2019

Introduction/Purpose

35 Ill. Admin. Code 702.121 requires facilities that have closed a hazardous waste management unit as a landfill to obtain a RCRA post-closure permit. This permit will set forth the requirements which must be met in providing the closed unit at least thirty years of post-closure care: it will also contain requirements regarding corrective action efforts for the solid waste management units of concern at the facility. This document sets forth in an organized and logical form, the information which must be provided in an application for a RCRA post-closure permit; it was developed in general accordance with 35 Ill. Admin. Code 703.214

Hazardous waste management units closed as landfills (and thus must be covered by a RCRA post-closure permit) typically fall into one of four categories:

- Hazardous waste surface impoundments that could not achieve "clean closure" and thus were closed as landfills;
- Hazardous waste surface impoundments that were operated as disposal units and closed as a landfill;
- Landfills which co-disposed of hazardous waste with municipal and non-hazardous special waste; and
- Landfills which received hazardous waste as well as non-hazardous special waste.

The key components of post-closure care of a unit closed as a landfill includes: maintenance of the final cover; operation of any leachate/gas collection system(s); and implementation of a groundwater monitoring and, as necessary, remediation system. In addition, as noted above, another other key item that must be addressed under a RCRA post-closure permit is the implementation of an appropriate corrective action program on the solid waste manage units of concern at the facility.

This document is comprised of the following six sections which identify in outline form the information which should be contained in an application for a RCRA post-closure permit:

A. Forms, Certifications, Confidentiality, and Public Involvement
B. Facility Description
C. Groundwater Monitoring
D. Procedures to Prevent Hazards
E. Post-Closure Requirements
F. Corrective Action

The forms mentioned in this document can be found on Illinois EPA's internet site (https://www2.illinois.gov/epa/Pages/default.aspx). Illinois EPA will follow the procedures set forth in 35 Ill. Admin. Code 702, 703, and 705, as well as the Illinois Environmental Protection Act, in reviewing and processing this application.

The Illinois EPA's Bureau of Land Permit Section is responsible for reviewing RCRA post-closure permit applications; these applications should be submitted to Illinois EPA at the address above. Questions regarding the development of the groundwater-related aspects of an application should be directed to the Groundwater Unit of the Permit Section while questions related to other aspects of the application should be directed to the RCRA Unit of the Permit Section. The general telephone number for both the Groundwater Unit and the RCRA Unit is 217/524-3300.

Table of contents – The Table of Contents should be a list of sections in the permit application, including a list of Acronyms, Attachments, Tables and Figures. This information will be of assistance, Illinois EPA or someone from the general public, during the review of the permit application

SECTION A--FORMS, CERTIFICATIONS, CONFIDENTIALITY, and PUBLIC INVOLVEMENT

A.1 RCRA Part A Application Form: 702.121, 702.123, 702.126(a) and (d),703.181

The Part A application must be complete and consistent with the Part B application. 703.181 specifies the contents of a Part A application. Signatures must be provided for both the owner and operator of the facility as described in Item A.2.1 below (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility).

A.2 Certification Using the LPC-PA23 Form: (703.182)

A completed LPC-PA23 form must be included in the application (this form is available on Illinois EPA's internet site). Completion of this form should ensure the requirements of A.2.1 and A.2.2 below are met.

A.2.1. Facility Certification: 702.121, 703.182, 702.126

Applications must be accompanied by a certification as specified in 702.126(d) signed by authorized representatives of both the owner and operator of the facility (of special concern is when the landowner(s) of a site are different from the company operating the hazardous waste facility). Authorized representatives of an owner or operator which must complete and sign this certification are as follows: (1) for a corporation, a principal executive officer (at least at the level of vice-president); (2) for a partnership or sole proprietorship, a general partner or the proprietor, respectively; (3) for a municipal, state, Federal, or other public Agency, either a principal executive officer or ranking elected official. If the application is not signed by representatives other than those just described, information must be provided indicating that the person is authorized to sign RCRA permit applications for the owner or operator.

A.2.2. Technical Information Certification: 703.182, Illinois Professional Engineering Act

Technical data, such as design drawings, specifications and engineering studies, must be certified (sealed) by a qualified Professional Engineer licensed to practice in the State of Illinois in accordance with Ill. Rev. Stat., par. 5101, Sec. 1 and par. 5119, Sec. 13.1. Work required to be conducted in developing an application or work required to be conducted for compliance with the RCRA regulations may also be subject to other laws governing professional services, such as the Illinois Professional Land Surveyor Act of 1989, the Professional Engineering Practice Act of 1989, the Professional Geologist Licensing Act, and the Structural Engineering Licensing Act of 1989. All work that falls within the scope and definitions of these laws must be performed in compliance with them. The Illinois EPA may refer any discovered violation of these laws to the appropriate regulating authority.

A.2.3. 39i Certification: Section 39 (i) of Environmental Protection Act

Section 39, Paragraph (i) of the Illinois Environmental Protection Act requires that Illinois EPA conduct an evaluation of prospective owner's or operator's prior experience in waste management operations before it issues a RCRA permit. This paragraph goes on to state that the Illinois EPA may deny such a permit if the prospective owner or operator or any employee or officer of the prospective owner or operator has a history of:

1. Repeated violations of federal, State, local laws, regulations, standards, or ordinances in the operation of waste management facilities; or
2. Conviction in this or another State of any crime which is a felony under the laws of this State, or conviction of a felony in a federal court, or conviction in this or another state or federal court of any of the following crimes: forgery, official misconduct, bribery, perjury, or knowingly submitting false information under any environmental law, regulation, or permit term or condition; or
3. Proof of gross carelessness or incompetence in handling, storing, processing, transporting, or disposing of waste.

Illinois EPA has created a form (available on its internet site) which applicants (the owner and the operator) must use to provide it with the information necessary to make the evaluation described above.

A.3 Public Disclosure Exemption Claims and Trade Secret Claims:
Section 7 of the Act; 2 Ill. Adm. Code Part 1828; 35 Ill. Adm. Code Part 130

Note: A.3.2 thru A.3.5 below are only applicable if an applicant desires to request a public disclosure exemption claim or trade secret claim. Any documents submitted that are not properly marked and justified will not be regarded as exempt and will be released to the public upon request.

A.3.1. No Information Claimed Exempt from Public Disclosure

If no information in the application is claimed exempt from public disclosure, the applicant should clearly state this in the cover letter and this subsection of the application. This will release any disclaimers on drawings, plans etc. that are included in the application.

A.3.2. Trade Secrets Claims

This claim should be asserted if any portion of the application is regarded as trade secret pursuant to 35 Ill. Adm. Code 130. To assert this claim

1. Provide a claim and justification letter;
2. Stamp each page in red ink "TRADE SECRET" that is to be exempt.
3. Provide a version for public review which does not include the trade secret information.

A.3.3. Exempt or Exempt In-Part Data Claims: 2 Ill. Adm. Code 1828.401

This claim should be asserted if any portion of the application is regarded as exempt or exempt in part pursuant to 2 Ill. Adm. Code 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the exemption is requested.
3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.3.4. Privileged Information: 2 Ill. Adm. Code 1828.401

This claim should be asserted if any portion of the submittal is regarded as privileged and meets the definition of privileged information pursuant to 1828.401. To assert this claim:

1. Provide a claim and justification letter;
2. Appropriately mark those portions of the application for which the claim is requested.

3. Provide a version of the application for public review which does not contain the information for which the exemption is requested.

A.4 Public Participation: Facility Mailing List & Information Repositories:
Environmental Protection Act, Section 39(d), 35 Ill.Amin. Code 703.193, 703.248, 705.163

A.4.1. Facility Mailing List:

The Facility Mailing List required to be established and maintained in 35 Ill. Adm. Code 705.163(a) is a list of all entities who must be notified of any permit-related activities at a RCRA permitted facility. The application must include the most-recent list the facility has; this list must identify its last revision date and be provided as an attachment to the application. A printed copy and an electronic copy in MS Word format must be provided.

The list must be updated and resubmitted to the IEPA as needed to include individuals who have interacted with the facility such as: those attending the pre-application meeting, respondents to mailings, and those attending the public meeting when a permit modification is requested. IEPA will review and approve all updates prior to using the mailing list. Mailing lists originally developed by IEPA are available from IEPA's RCRA community involvement coordinator.

A.4.2. Identification of Repositories:

It is important that information regarding a RCRA permitted hazardous waste management facility be available to the local citizens for review. Thus, all information submitted to IEPA in furtherance of a RCRA permit application, (with the exception of trade secrets), must be made available to the public at the office of the County Board or governing body of the municipality and also in another location in the host community (or nearest community to the facility) no later than the date the permit application is submitted to IEPA. Provide the name, address, contact person, phone number, and business hours for each repository.

Note: The community repository may not be located at the facility and must be available to the community for review and copying of application documents after regular office hours. Public libraries are recommended repository locations.

A.4.3. Contents of Repository:

The repository contents must include all information submitted to IEPA in furtherance of a RCRA permit application (with the exception of trade secrets). The applicant is required to maintain, verify and update the contents of the repositories throughout the application process. Each time information is submitted to Illinois EPA, a copy must also be placed in the repository. Placement of a given submittal in the repository should be documented in the cover letter transmitting the submittal to Illinois EPA.

Repositories must be well-organized and kept up to date. A comprehensive inventory of all documents in the repository should be maintained, as well as a brief description of each document listed in the inventory. The applicant should visit each repository on a regular basis to ensure its organization is maintained.

A.4.4. Public Notice of Repository Availability:

The applicant must provide written notice of the repositories' availability for public review to everyone on the facility mailing list; this notice must include all of the following information:

1. Identification and address or map of the facility and the hazardous waste management operations that the permit application addresses;

2. A statement that permit application materials have been prepared and are available for community members to review and copy at the repository.
3. The location and business hours of the repository.
4. A statement that the applicant will update the repository materials periodically during the Illinois EPA's review of the permit application.
5. The name, address and telephone number of the applicant's contact person to address questions regarding the application or to be added to the facility's mailing list for future permit activities.
6. The following statement "For general information on the hazardous waste management permit program in Illinois, please contact" then provide the address of the Illinois EPA RCRA Community Involvement Coordinator.

This notice must be made no later than the date the permit application is submitted to the Illinois EPA. Documentation that the public notices were made must be included in the application. Specifically provide a copy of the letter sent to individuals on the approved facility mailing list. Indicate the date the letter was sent, and the revision date of the mailing list used for the mailings.

SECTION B--FACILITY DESCRIPTION

B.1 General Facility Description: 702.123, 703.183(a), 703.183(n), 703.183(s)

B.1.1. Operation of Facility:

Provide the following information about the facility:

1. Identify the owner and operator of the facility as well as the address and size of the facility;
2. Describe the facility in general, its operations, and the specific activities conducted by the applicant that require a permit under RCRA, including the nature of the business.
   a. Commercial facilities should identify the types of industry served;
   b. On-site facilities should briefly describe the process(es) involved in the generation of hazardous waste.
3. A legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.
4. The Tax Property Identification Number(s) of the land which comprises the facility. If more than one Property Identification Numbers are associated with the facility, a scaled drawing showing the boundaries of each parcel within the facility must be provided.

B.1.2. Hazardous Waste Management Units at the Facility

Identify and briefly describe the hazardous waste management units at the facility.
Note: More information about these units will be provided in Section E of the application.

B.1.3. Solid Waste Management Units at the Facility

Identify and briefly describe the solid waste management units at the facility which are the focus of the RCRA corrective action program at the facility.
Note: More information about these units will be provided in Section F of the application.

B.2 Topographic Map: 702.123(g), 703.183(s), 703.184, 703.185(c), 703.185(d), 724.195, 724.197

B.2.1. Facility + 1 mile:

Provide a topographic map (or Quadrangle map) that extends at least 1 mile beyond the property boundaries. This map must depict the legal boundaries of the facility and surrounding land uses.

B.2.2. Facility + 1000 feet:

Provide a topographic map that shows the layout of the facility and the surrounding area a distance of 1,000 feet outside the facility's property line. This map must be at a scale of 1 inch equal to not more than 200 feet. Ground surface contours must be shown on the map; the contour interval must be sufficient to clearly show the pattern of surface water flow in the vicinity of and from each hazardous waste management unit at the facility (a two foot interval should be used if the ground surface relief at the facility is less than 20' and a five foot interval should be used if the relief is greater than 20').

Multiple maps may be submitted to meet this requirement if necessary. The map(s) should contain/identify the following:

Map Requirements: Facility + 1,000 ft	
Map Orientation (north arrow)	Areas in the 100-year flood plain
Map Date .	Flood control or drainage barriers
Scale	Run-on/run-off control systems
Legal boundaries of the facility	Fire control facilities
Surrounding land uses	A wind rose
Access controls	Hazardous waste management units
Buildings and Structures	Solid waste management units
Storm drains	Equipment required by Item D.2 below
Sewers: storm, sanitary and process	Surface waters including intermittent streams
Any waste injection or groundwater withdrawal wells (both on-site and off-site)	

If multiple maps are used, a discussion of how the various maps meet the above requirements must be provided. In addition, if an applicant feels that some of these requirements cannot be met for some reason or are not applicable, then sufficient information must be provided in the application to support this position. Finally, with appropriate supporting justification/discussion in the application, the applicant may vary from the above requirements if what is provided meets the general intent of these requirements.

B.3 Location Standards: 703.184, 724.118

B.3.1 Seismic Standard:

Identify any hazardous waste management units within 200 feet (61 meters) of a fault which has had displacement during Holocene time.

B.3.2. Floodplain Standard:

Document whether or not the facility is located within a 100-year floodplain. Provide the source of this data as well as a copy of the relevant flood map produced by the National Flood Insurance Program (NFIP). Appropriate calculations/maps must be provided when NFIP maps are not available.

B.3.3. Facilities in the 100-year Floodplain

Facilities within the 100-year floodplain must provide the following information regarding procedures in place to prevent its flooding:

B.3.3.1. Engineering Analysis and Structural/Engineering Study.

Provide the following regarding information to demonstrate that flooding of the hazardous waste management units will not occur:

1. An engineering analysis that identifies and evaluates the various hydrodynamic and hydrostatic forces expected to result at the site as a consequence of a 100-year flood;
2. A structural or other engineering study that shows how the design of the hazardous waste management units and flood protection devices at the facility will prevent flooding of the units.

B.3.3.2. Procedures to Remove Waste

In lieu of B.3.3.1, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. This information must include:

1. Timing of movement relative to flood levels, including estimated time to move the waste, to show that such movement can be completed before floodwaters reach the facility.
2. The location(s) to which the waste will be moved, and a demonstration that those facilities are eligible to receive hazardous waste in accordance with 35 Ill. Admin. Code 702, 703, 724 and 725;
3. The planned procedures, equipment, and personnel to be used, and the means to ensure that such resources will be available in time for such use;
4. The potential for accidental discharge of waste during movement.

B.3.4. Existing Facilities Not in Compliance with 35 Ill. Admin. Code 724.118(b)

Provide a plan showing how the facility will be brought in compliance and a schedule for compliance with 35 Ill. Admin. Code 724.118(b). A variance petition regarding this plan/schedule to come into compliance with 35 Ill. Admin. Code 724.118(b) must be filed concurrently with the Illinois Pollution Control Board.

B.4 Operating Record: 724.173

The Permittee must keep and maintain a written operating record that includes all the records, reports, notifications, and data required by 35 Ill. Admin. Code 724.173 and the conditions in this permit for the entirety of the post-closure care period. Identify the location where the Operating Record is maintained at the facility. Describe the procedures used to record the following information described in 724.173 in the facility's operating record (as such information becomes available) during the post-closure period:

1. Records of inspections, and repairs
2. Monitoring, testing, analytical data, and corrective action data when required,
3. All closure and post-closure cost estimates,
4. Annual certification that a program is in place to reduce the volume/toxicity of hazardous waste generated at the facility.

Separate documents may be used to compile this information, provided the requirements of 724.173 are met. A description of where the operating record will be maintained must also be provided.

SECTION C—GROUNDWATER MONITORING

C.1 Exemption from Groundwater Protection Requirements: 703.185, 724.190(b)

If a waiver from the 35 Ill. Admin. Code 724, Subpart F groundwater monitoring requirements is requested, the applicant must demonstrate one of the following conditions applies to the facility or exempted under 724.101.

C.1.1. Waste Piles: **724.190(b)(2) and (5)**

The waste pile has been designed and operated to meet conditions specified in 724.350(c).

C.1.2. Landfill: **724.190(b)(2)**

The landfill has been designed and operated to meet conditions specified herein.

C.1.3. No Migration: **724.190(b)(4)**

No potential for migration of liquid from a regulated unit to the uppermost aquifer exists during the active life of the regulated unit (including the closure period) and the post closure period. Predictions must be based on assumptions maximizing the rate of liquid migration.

C.2 Interim Status Groundwater Monitoring Data: 703.185(a)

The applicant must provide, by reference, the location of a summary of the groundwater monitoring data obtained during the interim status period.

C.3 Historical Hydrogeological Summary: 703.185(b), 620.210

The applicant must provide an identification of the uppermost aquifer and aquifers hydraulically interconnected beneath the facility property. Include groundwater classification, flow direction and rate, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area). A table of hydraulic properties must be submitted which includes at a minimum permeability, sieve analysis, porosity, hydraulic conductivities, etc.

C.4 Topographic Map Requirements: 703.183(s), 703.185(c)

The applicant must provide on the map required in 703.183(s) a complete legal description of the property boundary along with the following additional information:

The waste management area, the property boundary, the proposed point of compliance, the proposed groundwater monitoring zone (if applicable), the proposed location of groundwater monitoring wells and the information required in 703.185(b)

C.5 Contaminant Plume Description: 703.185(d), 721-Appendix I

The applicant must provide a description of any plume of contamination detected in the groundwater originating from a regulated unit. Identify the concentrations of Part 721, Appendix I constituents (throughout the plume or the maximum concentration of each Appendix I constituent) for the plume of contamination delineated on the topographic map.

Note: The monitoring program for a given unit must be established based on the monitoring data from the facility and be appropriate for the groundwater conditions beneath the regulated unit.

Only complete the monitoring program section which is currently appropriate for the facility.
C.6: Detection, C.7: Compliance, C.8: Corrective action

C.6 Detection Monitoring Program: 703.185(f), 724.198

If the presence of hazardous constituents has not been detected in the groundwater at the time of permit application, the applicant must provide sufficient information, supporting data and analyses to establish a detection monitoring program which meets the requirements of 724.198.

A detection monitoring program must include at a minimum the ability to monitor for specific indicator parameters based upon the type and characteristics of waste(s) managed at the facility and to maintain a complete and accurate record and statistical evaluation of all groundwater monitoring data.

C.6.1. Indicator Parameters, Waste Constituents, Reaction Products to be Monitored: 703.185(f)(1), 724.198(a)

The applicant must provide a list of indicator parameters, waste constituents or reaction products to be used in providing a reliable indication of the presence of hazardous constituents in the groundwater.

C.6.2. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.6.3. Groundwater Monitoring System: 703.185(f)(2), 724.197(a) & (b), 724.198(b)

The detection monitoring system must be installed at the established compliance point and comply with 724.197(a) & (b). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.6.4. Description of Sampling and Analysis Procedures: 703.185(f)(4), 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.6.5. Evaluation of Groundwater Surface: 724.197(f), 724.198(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The applicant must determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.6.6. Background Quality: 703.185(f)(3), 724.197(g), 724.198(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, reestablish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.6.7. Statistical Evaluations: 703.185(f)(4), 724.197(h), 724.198(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.6.8. Statistically Significant Increases: 724.198(f) & (g)

Using methods required in item C.6.7, the applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater. If such evidence exists, specific measures of retesting and Illinois EPA notification must be provided.

C.7 Compliance Monitoring Program: 703.185(g), 724.199

If the presence of hazardous constituents has been detected in the groundwater at the point of compliance at the time of permit application, The applicant must submit sufficient information, supporting data and analyses to establish a compliance monitoring program which meets the requirements of 724.199.

C.7.1. Description of the Monitoring Program: 724.199(a)

The program will be used to determine if compliance standards have been achieved by a regulated unit.

C.7.1.1. Waste Description: 703.185(g)(1), 724.193(a), 724.199(a)(1)

The applicant must provide a list of hazardous constituents for groundwater that are reasonably expected to be in or derived from waste(s) in the regulated unit.

C.7.1.2. Concentration Limits: 703.185(g)(4), 724.194(a), 724.199(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for the hazardous constituents in groundwater.

C.7.1.3. Compliance Point: 724.195, 724.199(a)(3)

The applicant must provide a discussion addressing the compliance point including rationale for location of groundwater monitoring wells utilized to delineate the compliance point.

C.7.1.4. Compliance Period: 724.196, 724.199(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.7.2. Alternate Concentration Limits: 703.185(g)(4), 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.7.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater quality.

C.7.2.2. Potential Adverse Effects on Hydraulically Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and potential adverse effects on hydraulically connected surface water quality.

C.7.3. General Monitoring Program Requirements: 703.185(g)(5), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197. Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. he program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.7.4. Groundwater Monitoring System: 724.197(a), (b) & (c), 724.199(b)

The compliance monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b) and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft bgs): well depth, screen interval, ground surface, and stick-up.

C.7.5. Description of Sampling and Analysis Procedures: 703.185(g)(6), 724.197(d) & (e), 724.199(c)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C.7.6. Background Quality: 724.197(g)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.7.7. Statistical Evaluations: 703.185(g)(6), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.7.8 Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation must take place each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.7.9. Annual Appendix I: 724.199(g)

The applicant must provide procedures for the Annual Appendix I sampling event. Samples from all monitoring wells at the compliance point must be analyzed for all constituents listed in Appendix I at least annually to determine whether additional hazardous constituents are present in the uppermost aquifer.

C.7.10. Statistically Significant Increases: 724.199(h) & (i)

Using methods required in C.7.7, The applicant must evaluate the existence of statistically significant evidence of contamination in the groundwater of the point of compliance. If such evidence exists, specific measures of retesting and IEPA notification must be met.

C.8 Corrective Action Program: 703.185(h), 724.191(a)(2) & (3), 724.200

If hazardous constituents have been measured in the groundwater which exceed the concentration limits established under 724.194, Table 1, or if groundwater monitoring conducted at the waste boundary indicates the presence of hazardous constituents from the facility in groundwater over background concentrations, The applicant must submit sufficient information supporting data and analyses to establish a corrective action program which meets the requirements of 724.200.

C.8.1. Description of Corrective Action Program: 703.185(h), 724.200

The program will be used to demonstrate the effectiveness of a corrective action measure.

C.8.1.1. Characterization of Contaminated Groundwater: 703.185(h)(1), 724.200(a)(1)

The applicant must include a characterization of the contaminated groundwater, including concentrations.

C.8.1.2. Concentration Limits: 703.185(h)(2), 724.194(a), 724.200(a)(2)

The applicant must provide a discussion addressing the appropriate concentration limits for groundwater for each of the hazardous constituents.

C.8.1.3. Compliance Point: 724.195, 724.200(a)(3)

The applicant must provide a discussion addressing the compliance point.

C.8.1.4. Compliance Period: 724.196, 724.200(a)(4)

The applicant must provide a discussion addressing the compliance period.

C.8.1.5. Construction Detail: 703.185(h)(3)

The applicant must provide detailed plans and an engineering report describing the corrective action to be taken, including all aspects of any groundwater and/or product removal/treatment system.

C.8.1.6 Effectiveness of Corrective Action: 703.185(h)(4), 724.200(d) & (g)

The applicant must describe how the groundwater monitoring program will assess the adequacy of the corrective action.

C.8.2. Alternate Concentration Limits: 724.194(b)

In situations where the Illinois EPA determines, based on information and supporting data provided by the applicant, a constituent will not pose a substantial hazard an alternate concentration limit can be established.

C.8.2.1. Adverse Effects on Groundwater Quality: 724.193(b)(1), 724.194(b)(1)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on groundwater.

C.8.2.2. Potential Adverse Effects on Hydraulically-Connected Surface Water Quality: 724.193(b)(2), 724.194(b)(2)

The applicant must provide information and supporting data addressing any proposed alternate concentration limit and adverse effects on hydraulically connected surface water quality.

C.8.3. Corrective Action Plan: 703.185(h), 724.200(b), 724.200(c), 724.200(e)

In addition to the other requirements of 724.200, The applicant must provide and describe a corrective action program to remove or treat in place hazardous waste constituents in groundwater between the point of compliance and the downgradient facility boundary, or beyond the facility boundary where necessary to protect human health and the environment.
The corrective action program must begin corrective action within a reasonable time period after the groundwater protection standard is exceeded considering the extent of contamination.

C.8.4. Groundwater Monitoring Program: 703.185(h)(4), 724.192, 724.200(d)

The groundwater monitoring program must be as effective as the program required under C.7 above in determining compliance with groundwater protection standards and in determining the success of a corrective action program.

C.8.4.1. General Monitoring Program Requirements: 703.185(e), 724.197

The applicant must provide detailed plans and an engineering report describing the proposed groundwater monitoring program to be implemented to meet the requirements of 724.197.

Groundwater monitoring systems must be developed to provide a sufficient number of wells for the regulated unit(s), constructed in a manner to provide representative samples from the uppermost aquifer. The program must include appropriate procedures for sampling, analyzing and evaluating groundwater quality.

C.8.4.2. Groundwater Monitoring System: 724.197(a) & (b), 724.200(d)

The corrective action monitoring system must be installed at the established compliance point as specified by 724.197(a)(2), 724.197(b), and 724.197(c). All groundwater monitoring wells must be installed at appropriate locations and depths to yield representative groundwater samples and be cased in a manner capable of maintaining the integrity of the monitoring well bore hole.

The applicant must reference, by location, boring logs and well completion reports (including a cross reference if necessary). A table of wells must be submitted identifying the well ID# and measurements for the following in both mean sea level (MSL) and feet below ground surface (ft. bgs): well depth, screen interval, ground surface, and stick-up.

C.8.4.3. Description of Sampling and Analysis Procedures: 724.197(d) & (e)

The applicant must provide a description of sampling and analysis procedures including at a minimum procedures and techniques for sample collection, sample preservation and shipment, and analytical procedures and chain of custody control. The sampling and analytical methods must be appropriate for groundwater sampling and accurately measure hazardous constituents in groundwater samples. Alternative methods must be included for contingency basis.

C8.4.4. Background Quality: 724.197(g), 724.199(c)

The applicant must provide an evaluation of background groundwater quality and if necessary, re-establish background based on the historical data gathered over the active life of the permit using a trend analysis.

C.8.4.5. Statistical Evaluations: 703.185(f), 724.197(h), 724.199(d)

The applicant must provide a demonstration that the current statistical method remains appropriate or justify a new method to be used for statistical evaluation of data.

C.8.4.6. Evaluation of Groundwater Surface: 724.197(f), 724.199(e)

The applicant must provide procedures for the evaluation of the groundwater surface at the facility. A determination of the groundwater surface elevation each time the groundwater is sampled. The owner or operator shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually.

C.8.4.7. Extension of Compliance Period: 724.200(f)

The applicant must provide a discussion addressing the extension of the compliance period. The compliance period during which the groundwater protection standard applies shall be extended until the applicant demonstrates that the groundwater protection standard of 724.192 has not been exceeded for three consecutive years.

C.8.4.8. Effectiveness of Corrective Action: 724.200(g)

The applicant must provide a discussion addressing the evaluation and reporting of the effectiveness of the corrective action program to the Illinois EPA. The written reports must be submitted semi-annually.

C.8.4.9. Evaluation of the Corrective Action Program: 724.200(h)

The applicant must provide a discussion addressing any determination that the corrective action program no longer satisfies the requirements of 724.200.

C.9. Reporting Requirements: 724.197(j)

The applicant must provide a discussion addressing groundwater monitoring data collected and the maintenance of the data in the facility operating record.

SECTION D--PROCEDURES TO PREVENT HAZARDS

D.1 Security: 703.183(d), 724.114

The owner or operator must prevent the unknowing entry, and minimize the possibility for the unauthorized entry, of persons or livestock onto the unit(s) closed as landfills. Unless a waiver is granted, the facility must have either a 24-hour surveillance systems, or a barrier and a means to control entry as set forth in Item D.1.2 below.

D.1.1. Waiver from the Security Requirements:

Facilities seeking a waiver from the security requirements must provide information demonstrating that:

1. Physical contact with the waste, structures or equipment within the active portion of the facility will not injure unknowing or unauthorized persons or livestock which may enter the active portion of a facility; and

2. Disturbance of the waste or equipment, by the unknowing or unauthorized entry of persons or livestock onto the active portion of a facility, will not cause a violation of the requirements of 724.

D.1.2. Restricting Entry to the Facility

Describe the means used to restrict entry the facility

1. 24-Hour Surveillance System. Describe the 24-hour surveillance system (e.g., television monitoring or surveillance by guards or facility personnel) at the facility that continuously monitors and controls entry onto the active portion of the facility; or

2. Barrier and Controlled Entry: Describe the artificial or natural barrier system (e.g., a fence in good repair or a fence combined with a cliff), which completely surrounds the active portion of the facility; and the means to control entry, at all times, through the gates or other entrances to the active portion of the facility (e.g., an attendant, television monitors, locked entrance or controlled roadway access to the facility).

D.1.3. Warning Signs

Identify the locations of all warning signs on a scale drawing of the facility. A sign with the legend, "Danger - Unauthorized Personnel Keep Out", must be posted at each entrance to the active portion of a facility, and at other locations, in sufficient numbers to be seen from any approach to this active portion. The sign must be legible from a distance of at least 25 feet. Existing signs with a legend other than "Danger - Unauthorized Personnel Keep Out" may be used if the legend on the sign indicates that only authorized personnel are allowed to enter the active portion, and that entry onto the active portion can be dangerous.

D.2. Equipment Requirements: 703.183, 724.132, 724.133, 724.134, 724.135

All facilities must have the equipment and procedures listed in D.2.2 thru D.2.8 below in place unless the applicant submits a waiver request as identified in D.2.1 below. The location within the facility of the equipment described in this section must be shown on the drawings required in Section B.2.2 above.

D.2.1. Waiver

Facilities may seek a waiver from any or all of the equipment/procedure requirements below. To obtain a waiver, the applicant must demonstrate that none of the hazards posed at the facility would require the particular type of equipment/procedure at issue.

D.2.2. Internal Communications

Describe the internal communications or alarm system for providing immediate emergency instruction (voice or signal) to facility personnel.

D.2.3. External Communications

Describe the device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police departments, fire departments, state or local emergency response teams.

D.2.4. Emergency Response Equipment

Describe the following emergency response equipment present at the facility: portable fire extinguishers; fire control equipment, spill control equipment; and decontamination equipment.

D.2.5. Water for Fire Control

Provide a statement signed by an independent fire control professional, or the responsible fire department, certifying that the facility has water at adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems. The document must include an original signature from the fire control professional or responsible fire department.

D.2.6. Personnel Protection Equipment

Describe the procedures, structures, and clothing equipment used to protect personnel from undue exposure to hazardous waste.

D.2.7. Testing & Maintenance of Emergency Equipment

Demonstrate that all facility communications or alarm systems, fire protection equipment, spill control equipment and decontamination equipment, where required, is tested, maintained, and calibrated, as necessary to assure its proper operation in time of emergency.

D.2.7.1. Equipment Testing:

Identify all emergency equipment and describe how the equipment is tested, maintained, and calibrated.

D.2.7.2. Schedule

Provide a testing and maintenance/calibration schedule for all communications, monitoring, safety, spill control, decontamination, and emergency equipment.

D.2.8. Equipment and Power Failure

Describe the procedures, structures, and equipment used to mitigate the effects of equipment failure and power outage.

D.3 Inspection Requirements: 703.183(e), 724.115

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record.

D.3.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must also include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

D.3.1.1. Items Inspected

Identify each item to be inspected at the facility in order to comply with the RCRA requirements. these items include, all RCRA regulated units, monitoring equipment, safety and emergency equipment, security and communication devices, and operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

D.3.1.2. Types of Problems

Identify the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, eroding dike).

D.3.1.3. Inspection Frequency:

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

D.3.2. Repair Log

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who makes the corrected repair;
6. The date the repair was made;
7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

D.3.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the procedures to be followed if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

SECTION E--POST-CLOSURE REQUIREMENTS

See 703.183(m), 703.203(f), 703.204(h), 703.207(e), 724.218, 724.297(b) and (c), 724.328(b), 724.328(c)(1)(B), 724.380(c), 724.410(b)

E.1 Information Regarding the Unit(s) Closed as a Landfill

The foundation for developing an appropriate post-closure care program for a unit closed as a landfill is a thorough understanding of the unit, focusing on its surroundings, construction, operation and closure.

E.1.1. General Information Regarding of the Unit to Receive Post-Closure Care

Identify the unit(s) at the facility which were closed as landfills to which the post-closure requirements of 35 Ill. Admin. 724, Subpart G apply. Among other things, provide:

1. A scaled drawing showing the location and boundaries of the unit within the facility;
2. A copy of Illinois EPA's letter accepting certification of closure of the unit as a landfill;
3. The date that the post-closure care period for the unit began; and
4. A certified copy of the survey plat and post-closure notices filed in accordance with 35 Ill. Admin. Code 724, Subpart G or 725, Subpart G with the county in which the facility is located.

E.1.2. Geology and Hydrogeology Around/Beneath the Unit

Provide a detailed description of the geology and hydrogeology around/beneath the unit. Of special concern is the presence of silt, sand or other permeable zones around and beneath the unit which, if not properly addressed, could be a conduit for the migration of leachate or landfill gas away from the landfill. This description should be supplemented with boring logs, drawings and cross-sections.

E.1.3. Characterization of Waste/Contaminated Soil Present in the Landfill Unit

Provide a description of the type, quantity and characteristics of the waste and/or contaminated soil remaining in the unit.

E.1.4. Initial Closure Activities

Provide a detailed description, as appropriate, of the following initial activities carried out in closing the unit as a landfill:

1. Removal of waste and contaminated soil;
2. Stabilization of material remaining in the unit; and
3. Use of structural fill material to establish final contours.

E.1.5. Details Associated with the Closed Unit

Provide a detailed description, as-built drawings, cross-sections, and scaled drawings of the overall unit that includes/shows the following. Of special concern is the vertical elevations associated with each component of the unit. Note: the specific information regarding any leachate collection system, leak detection system and/or gas management system present in the landfill that must be described/shown is identified in Sections E.3 thru E.5 below.

1. The soils underlying the unit;

2. The bottom liner system of the unit (if any is present);
3. A description of the base of the unit if it has no constructed liner system;
4. Any permeable zones around or beneath the landfill and a description of the procedures used to seal off these zones;
5. Any cut-off walls or slurry walls constructed outside the landfill boundaries to address migration of leachate or landfill gas from the landfill;
6. The final cover system over the unit;
7. The final contours established for the unit; and
8. The run-on and run-off control systems of the unit.

E.2 Contact Person

Provide the name, address and phone number of the person or office to contact about the unit during the post-closure care period. A copy of the post-closure permit and associated approved permit modifications must be maintained by this person/office; a copy of these documents must also be maintained at the facility subject to the permit.

E.3 Operation of the Leachate Collection System

Note: This section need only be addressed if a leachate collection system is present in the landfill unit.

E.3.1. Quality of Leachate in the Leachate Collection System

1. The leachate needs to be analyzed for the parameters listed below, and the results of annual analyses conducted on representative samples of leachate must be provided in the permit application. This will give an indication of the potential contaminants in a subsurface release from the unit to the groundwater. The leachates need to be analyzed for:
   a. Those constituents for which a public or food processing water supply standard has been established in 35 Ill. Admin. Code 302;
   b. Those constituents for which a groundwater quality standard has been established in 35 IAC 620;
   c. The 51 organic chemicals in drinking water described in 40 CFR 141.40.
   d. Any other contaminants expected to be present in the leachate, based on the characteristics of the waste and materials present in the unit.

   A list of all the above contaminants is provided as Attachment 1 to this document. This list may be reduced if information is provided indicating that certain listed contaminants are not expected to be present in the leachate.

2. If the list of analytes has been reduced, provide an analysis for all constituents listed in E.3.1.1 each time the post-closure permit is renewed. Compare the reduced list, to the full list. If no new parameters are detected, the application can propose to resume analyzing leachate for the previously approved reduced list. If any new parameters are detected, they must be added to the reduced list and the list of groundwater monitoring parameters.

3. If there is more than one leachate sump but the application does not propose to analyze the leachate from each sump, provide justification for how the leachate sample(s) are considered "representative" for a given landfill.

4. Describe the procedures used to collect, handle, and analyze the leachate samples discussed above. All such efforts must be carried out in accordance with procedures approved/established by Illinois EPA or USEPA.

E.3.2. Leachate Collection System Within the Landfill

1. Identify the general components of the leachate collection system within the landfill (includes the filter layer, leachate collection layer, leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps, leachate collection wells, leachate removal pumps or other equipment used to remove leachate, manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leachate collection system within the landfill. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Identify the contours of the top of the liner system including any leachate collection trenches; the elevation of the lateral leachate collection pipes; the screened interval of any leachate collection wells or monitoring points; and the elevation of the bottom of the leachate collection sumps, wells, manholes and clean-outs.

3. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system within the landfill. Specifically:
   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram; and
   c. Describe the operational function and capabilities of each piece of equipment.

4. If the landfill was designed to meet the requirements of 35 Ill. Admin. Code 724.401, then an engineering report must be provided demonstrating that the system was constructed and will be operated in such a manner to prevent the leachate depth over the top liner from exceeding one foot. Appropriate calculations must be provided as part of this demonstration along with justification of all assumed parameters and of the numerical techniques used in making the demonstration.

5. If it was not necessary for the landfill to meet the requirements of 35 Ill. Admin. Code 724.401, then information must be provided regarding the maximum leachate levels which will be present at the leachate removal points and throughout the landfill. An engineering report/analysis of the leachate levels which will be present in the landfill must be provided as well as information from past operations of the leachate collection system which will verify the projected levels.

E.3.3. Leachate Collection System Outside the Landfill

1. Identify the general components of the leachate collection system which allow for the removal and of the leachate and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:
   a. Provide a detailed description of the procedures used to install the components of leachate collection system mentioned above;
   b. Provide specifications, piping and instrumentation diagram, and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.
   c. Identify the sample point(s) used to collect leachate samples on the piping and instrumentation diagram.

d. Indicate the locations of the leachate collection system sampling points on a scale drawing of each landfill. Identify the sample points by both the facility and Illinois EPA identification numbers for each sample point.

2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:

   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;

   b. Identify each piece of equipment on a piping and instrumentation diagram; and

   c. Describe the operational function and capabilities of each piece of equipment.

E.3.4. Management of Leachate Collection System (LCS)

Describe how the LCS is managed. Discuss how all parts of the leachate collection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depicts the overall leachate collection system, from the pump within each leachate collection sump/well to the leachate accumulation tank. For each leachate collection sump/well, identify:

   a. The approximate elevation of the bottom of the sump or landfill at that location,

   b. The leachate elevation which activates the pump in each sump or extraction well,

   c. The leachate level which activates the pump within the sump/well,

   d. The leachate elevation when the pump shuts off, and

   e. A description of the instrumentation in place so that the amount of leachate removed from a given sump/well over a given time period can be determined.

2. Describe the procedures which will be followed to document/record all aspects of the management of the leachate collection system(s). At a minimum, the results of leachate quality analyses and the amount of leachate removed from a given sump/well each month must be documented in the operating record.

3. Describe how the collected leachate will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.3.5. Summary of Leachate Management Program Conducted to Date

Provide information addressing the items in Section E.3.4 regarding the leachate management program implemented during the past ten years. This information should discuss the efficiency of the existing leachate management program or identify deficiencies which must be addressed to ensure leachate is adequately managed in the landfill.

E.4 Operation of the Leak Detection System: 724.402, 724.403 and 724.404

This subsection must be addressed if a Leak Detection System (LDS) is present in the landfill. The LDS must be capable of detecting, collecting and removing leaks through the upper liner system at the earliest practicable time throughout all areas of the landfill. The LDS must be constructed of a drainage layer along with sumps and pumps of sufficient size to collect and remove liquids from the sump and prevent liquids from backing up into the drainage layer.

1. Each landfill unit must have its own set of LDS sumps.

2. Each LDS sump and associated removal system must be designed so that volume of liquid in the LDS sump can be measured and as well as the volume of leachate removed from the sump.

E.4.1. Description of the Leak Detection System Within the Landfill

Provide an engineering report describing how the leak detection system was constructed and will be operated to ensure the requirements of 35 Ill. Admin. Code 724.401 are met. Among other things, this report must:

1. Identify the general components of the leak detection system within the landfill (includes the drainage layer, the leachate collection trenches, the leachate collection pipes, leachate level monitoring locations, leachate collection sumps; manholes, clean-outs, etc.).

2. Provide a detailed description of the procedures used to construct the leak detection system. Provide specifications and as-built drawings (plan view, detail and cross-sectional) of the installed system. Information of special importance includes: the contours of the top of the liner system; the elevation of the leachate collection pipes; and the elevation of the bottom of the leachate collection sumps, manholes and clean-outs.

3. Provide detailed information regarding all equipment associated with the leak detection system (pumps, monitoring equipment, etc.) within the landfill. Specifically:
   a. Provide information regarding the make, model and specifications of each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational functions and capabilities of each piece of equipment.

4. Provide the pump operating level for each LDS sump within each landfill unit. This is the maximum level of leachate which can accumulate in each LDS sump before the pump within the sump is activated and leachate is removed from the sump.
   a. This level can be no more than the depth of leachate that can accumulate within the LDS sump without allowing any leachate to back-up into the drainage layer.
   b. This level must also minimize the hydraulic head on the liner of the LDS sump.
   c. Development of the pump operating level for each LDS sump should also take into account the pump activation level and the sump dimensions.

5. Provide the action leakage rate (ALR) (in gallons per acre per day) for each LDS sump. The action leakage rate is the maximum design flow, modified by a factor of safety, that the LDS can remove without the fluid head on the bottom liner exceeding 1 foot. The action leakage rate must include an adequate factor of safety to allow for uncertainties in the:
   a. Design; construction; layout and operation of the system;
   b. Characteristics of the waste and leachate in the landfill;
   c. Likelihood and amounts of other sources of liquids in the LDS and
   d. Proposed response actions

Examples of uncertainties/concerns with the LDS include decreases in the flow capacity of the system over time resulting from siltation and clogging, rib layover and creep of synthetic components of the system, and overburden pressure.

E.4.2. Description of the Leak Detection System Outside the Landfill

1. Identify the general components of the leak detection system which allow for the removal of the leachate from the landfill and its storage on-site (includes the piping from each leachate pump to the top of each leachate sump/well, the piping and associated appurtenances which transfer the leachate to a final storage tank, any pump stations needed in this transfer, and the tank where the leachate is eventually stored). In addition:
   a. Provide a detailed description of the procedures used to install the components of leak detection system mentioned above.
   b. Provide specifications and as-built drawings (plan view, detail, elevations and cross-sectional) of these components.
2. Provide detailed information regarding all equipment (pumps, monitoring equipment, etc.) associated with the leachate collection system outside the landfill. Specifically:
   a. Provide (as appropriate) the make, model and specifications for each piece of equipment;
   b. Identify each piece of equipment on a piping and instrumentation diagram;
   c. Describe the operational function and capabilities of each piece of equipment.

E.4.3. Management of Leachate Accumulating in the Leak Detection System

Describe how the LDS is managed. Discuss how all parts of the leak detection system are operated.

1. Provide piping and instrumentation diagrams and other schematics which depict the overall leak detection system, from the pump within each leachate collection sump to the leachate accumulation tank. For each leak detection sump/well, identify:
   a. The approximate elevation of the bottom of the landfill at that location,
   b. The pump operating level,
   c. The leachate level which activates the pump within the sump/well, and
   d. The leachate elevation when the pump shuts off.
2. Describe the procedures which will be followed to document/record all aspects of the management of the LDS. At a minimum, the permittee needs to provide documentation of the amount of leachate removed from a given LDS sump over a set time period, and any exceedances of the action leakage rate in the operating record.
3. Describe how the leachate collected in the LDS will ultimately be managed and provide copies of the permits in place to take the leachate to an off-site facility for treatment or disposal.

E.4.4. Recent Operation of the Leak Detection System

Provide information addressing the items discussed in Section E.4.3 regarding the operation of the LDS during the past ten years. This information should discuss the efficiency of the existing LDS or identify deficiencies which must be addressed to ensure system is operating properly.

E.5 Operation of the Gas Monitoring/Collection System

This subsection must be addressed if the closed unit has a landfill gas monitoring/collection system.

E.5.1. Detailed Description of the Landfill Gas Collection System

The following information needs to be provided regarding any landfill gas collection system at the facility (in addition to drawings, it is also important to include text describing the various aspects of this system and the chronological history of the installation of this system).

1. A map and detailed drawings showing the location of the collection points and the layout and construction details of the collection system.

2. A description and specifications for all machinery, compressors, flares, piping and appurtenances in the system.

3. A piping and instrumentation diagram as well as other schematics to depict the system's operation.

4. A description of how the landfill gas collection system operates. Describe the information which will be monitored, evaluated and recorded regarding the operation of the system. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

5. Documentation or assurance that the gas collection system meets the following standards:
   a. The system is designed and will be operated such that the limits described in 35 IAC 811.311(a)(1), (a)(2) and (a)(3) will not be exceeded;
   b. The gas collection system will transport gas to a central point or points for processing for beneficial uses or disposal in accordance with the requirements of 35 IAC 811.312;
   c. The gas collection system has been designed to function for the entire design period;
   d. All materials and equipment used in construction of the system have been rated by the manufacturer as safe for use in hazardous or explosive environments and shall be resistant to corrosion by constituents of the landfill gas;
   e. The gas collection system has been designed to withstand all landfill operating conditions, including settlement;
   f. Provisions have been made for collecting and draining gas condensate to a management system meeting the requirements of 35 IAC 811.309;
   g. The gas collection system will not compromise the integrity of the liner, leachate collection or cover systems; and
   h. The gas collection system shall be equipped with a mechanical device, such as a compressor, capable of withdrawing gas, or has been designed so that a mechanical device can be easily installed.

6. A description of the criteria that will be used to determine when operation of the gas collection system may be discontinued.

7. A description of the testing procedures that will be used to assure that the lines from the collection points to the gas processing or disposal facility are air tight.

8. Identify where condensate in the system will be collected and then stored prior to shipment off-site for treatment or disposal. Include a description of all equipment associated with collection and storage of the condensate.

E.5.2. Landfill Gas Monitoring Plan

Provide the following information regarding the landfill gas monitoring system's ability to monitor the buildup and composition of landfill gas.

1. A narrative and plan sheets describing the most likely paths of migration for gas generated by the unit and demonstrating that the proposed gas monitoring program will detect any gas buildup and/or migration.

2. Detailed drawings and material specifications of the four types of gas monitoring devices required (i.e., devices within the waste unit, below ground devices around the unit, air ambient monitoring devices and continuous air monitoring devices within buildings) on site or near the facility if there is an indication of gas.

3. A map showing the locations of the below ground monitoring devices and the continuous air monitoring devices.

4. Documentation that the various types of below ground gas monitoring devices:
   a. Are placed at intervals and elevations within the waste to provide a representative sampling of the composition and buildup of gases within the unit.
   b. Are placed around the unit at locations and elevations capable of detecting migrating gas from the ground surface to the lowest elevation of the liner system or the top elevation of the groundwater, whichever is higher.
   c. Are constructed from materials that will not react with or be corroded by the landfill gas.
   d. Have been designed and constructed to measure pressure and allow collection of a representative sample of gas.
   e. Are constructed and maintained to minimize gas leakage.
   f. Do not interfere with the operation of the liner, leachate collection system or delay the construction of the final cover system.

5. A description of the procedures and prerequisite weather conditions for performing ambient air monitoring including the location standards for placement of the monitoring devices and maximum wind speed.

6. A description (narrative or graphic) of the location of the continuous air monitoring devices inside the buildings within the facility (and nearby buildings if applicable).

7. A schedule specifying the frequency and minimum duration of gas monitoring.

8. Identification of the parameters that samples from each type of monitoring device will be analyzed.

9. A description of the procedures which will be used to collect and analyze the various air samples to be obtained as part of the landfill gas monitoring program.

E.5.3. Landfill Gas Disposal/Processing System

The following information must be provided regarding the gas disposal system or gas processing system at this facility. These systems can be either an on-site or an off-site facility.

1. For on-site facilities (either flare systems or facilities which process the gas for beneficial use) the following information must be provided:
   a. A map showing the location of the facility;

b. Engineered drawings showing the layout and details of landfill gas processing and disposal system, including compressors, blowers, raw gas monitoring systems, devices used to control the flow of gas from the unit, flares, gas treatment devices, air pollution control devices and monitoring equipment;

c. A copy of the approved air discharge permit or, if the permit is pending, a copy of the air discharge permit application required by 35 Ill. Admin. Code 200 through 245; and

d. A list of the parameters and constituents for which the gas shall be monitored.

2. For off-site processing facilities the following information must be provided:

a. A list of the parameters and constituents for which the gas shall be monitored;

b. A description of the means by which the gas shall be conveyed from the landfill to the off-site processing facility; and

c. Documentation that the off-site processing facility meets the following requirements:

(1) The solid waste disposal facility will contribute less than 50 percent of the total volume of gas accepted by the gas processing facility. (Otherwise, the processing facility must be considered a part of the solid waste management facility); and

(2) The gas processing facility is sized to handle the expected volume of gas.

E.5.4. Summary of the Landfill Gas Collection / Monitoring / Processing Systems

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.

2. Summarize the operation of the landfill gas collection, monitoring, and processing systems during the past ten years. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.6 Post-Closure Inspection Plan

Describe the procedures followed to inspect/ensure the functionality of everything needed to provide adequate post-closure care of the unit closed as a landfill at the facility in accordance with the RCRA requirements.

Copies of the inspection log and repair log that are used to document inspections and repairs at the facility in accordance with the RCRA requirements must be provided as part of the permit application.

Indicate that copies of the inspection log and repair log are maintained at the facility as part of the operating record and where they are located.

E.6.1. Inspection Log

An inspection log must be maintained which includes all of the items listed below. The log must include the date and time of each inspection, the name of the inspector, notation of the observations made, and the date of any repairs or remedial actions.

E.6.1.1. Items Inspected

The plan must identify each item to be inspected in order to comply with the RCRA requirements. These include, but not necessarily limited to:

1. All RCRA regulated units;

2. Monitoring equipment;

3. Safety and emergency equipment;
4. Security control devices;
5. Erosion damage;
6. Cover settlement, subsidence and displacement;
7. Vegetative cover condition;
8. Integrity of run-on and run-off control measures;
9. Cover drainage system functioning;
10. Leachate collection and removal system;
11. Leak detection system;
12. Gas monitoring/extraction system;
13. Condition of the groundwater monitoring wells;
14. Benchmark integrity; and
15. All operating and structural equipment that are vital to prevent, detect, or respond to environmental or human health hazards.

E.6.1.2. Types of Problems

For each item to be inspected as identified above, describe the types of problems (e.g. malfunctions or deterioration) the inspector must look for during an inspection (e.g. inoperable sump pump, leaking fitting, cracks, eroding berm, etc.).

E.6.1.3. Inspection Frequency

Identify the inspection frequency for each item in the log. In addition, provide justification for the inspection frequency proposed for each item. (This justification should be separate from the actual inspection log.). The frequency of inspection needs to be based on the rate of possible deterioration of equipment and the probability of an environmental or human health incident if the deterioration, malfunction, or operator error goes undetected between inspections.

Indicate the facility will be inspected within 24 hours of any rain fall event of 2 or more inches in 24 hours to detect evidence of any of deterioration, malfunctions, or improper operation of run-on and run off systems. Indicate that appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed.

E.6.2. Repair Log:

The repair log must be used to schedule and record repairs (deterioration, or malfunction of equipment or structures) revealed by an inspection of the items listed in the inspection log. The repair log must include the following items:

1. The item needing repair;
2. The problem identified during the inspection that needs repair;
3. The date the inspection took place;
4. The name of the person who conducted the inspection;
5. The name of the person who made the corrected repair;
6. The date the repair was made;

7. The efforts carried out in making the repair;
8. Any other appropriate comments.

Most repairs should be made at the time it is determined to be necessary and all repairs should be made within 24 hours. The timeliness of the repair is dependent on the potential impact the problem needing repair may have on protecting human health, the environment, and the safe operation of the facility.

E.6.3. 24 Hour Reporting (702.152(f), 703.245(b))

Describe the how the Permittee will take the following actions if an inspection reveals any noncompliance with the permit which may endanger health or the environment: 1) report the required information about the incident orally within 24 hours from the time the Permittee becomes aware of the circumstances, and 2) provide a written description of the incident within 5 days of the time the Permittee becomes aware of the circumstances.

E.7 Post-Closure Monitoring Plan

Describe the monitoring to be conducted during the post-closure care period, including, as applicable, the procedures for conducting and evaluating the data gathered in accordance with the RCRA requirements.

Indicate that copies of the monitoring reports and data are maintained at the facility as part of the operating record.

E.7.1. Facility Controls

Indicate that the benchmarks used to identify the location of disposal units, solid waste management units, and units/areas covered by an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA) are surveyed at least once every five (5) years.

E.7.2. Surveys and Corrective Action

Identify the units at the facility that will be surveyed every five years. The following units need to be surveyed at least once every five years:

- Units subject to post-closure requirements per 35 Ill. Admin. Code 724.210(b)
- Solid Waste Management Units (SWMUs) with cover systems and/or engineered barriers
- Units/Areas subject to an Environmental Land Use Controls (ELUCs) or the Uniform Environmental Covenants Act (UECA).

E.7.2.1. Provide the following for the units identified in Item E.7.2:

1. A copy of the survey provided to the Illinois EPA when the unit was certified closed.
2. A copy of the survey for each unit generated every five years since the unit was closed that shows the horizontal and vertical extent of the unit, drainage control structures, leachate collection wells, and groundwater monitoring wells.
3. Scale drawing(s) (1 inch = 200ft) and cross sections that identify those areas of the cover system or engineered barrier that have changed 1 foot or more in elevation since the unit was closed.
4. If corrective action was required in response to a release, damage to the cover system, settlement, erosion, stressed vegetation, or damage to a leachate well, groundwater monitoring well, or benchmark since post-closure care began, identify the date and location of the corrective action on the scale drawings required above. Also, provide copies of the inspection

and repair logs that includes the date each incident was discovered, a description of the incident & corrective action taken, and the date corrective action was completed.

5. If corrective action occurred in the same general area 2 or more times since post-closure began, discuss the actions the permittee has implemented to prevent this from happening again.

E.7.3. Leachate Collection System

Describe how the information about the leachate collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information is essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.3.1. Leachate Quality

Describe the procedures which are followed to monitor the quality of the leachate in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample analysis). Discuss if the concentrations of the constituents in the leachate have changed during the post closure period and any actions taken in response.

These samples should be collected quarterly for the first two years at which time the frequency can be decreased to semi-annually. The samples must be analyzed for the constituents described in Item E.3.1 above

1. Summary of Sample Results: Provide a summary table of the leachate sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Indicate if any of the leachate analyses detected a parameter for which the groundwater is/was not being analyzed and the actions taken if this occurred.

E.7.3.2. Leachate Quantity

1. Provide a record of the amount of liquid removed from each leachate collection sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed
2. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LCS sumps.

E.7.3.3. Leachate Reporting

Describe the procedures followed to electronically report the quality and quantity of leachate generated at the facility to the Illinois EPA.

E.7.4. Leak Detection System (LDS) 724.402, 724.403, 724.404

Describe how the information from the leak detection system for each unit identified in E.7.2 will be monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring

the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.4.1. LDS Leachate Quantity

1. Describe the procedures used to determine the volume of leachate removed from each LDS sump over a given time period. This determination must initially be made monthly. If the liquid level in a LDS sump stays below the pump operating level (and thus no leachate is removed during that time period) for two consecutive months, then the amount of liquids in the LDS sump need only be recorded quarterly. Similarly, if the liquid level in a LDS sump stays below the pump operating level for two consecutive quarters, the amount of liquids in the sumps need only be recorded semi-annually. Finally, if the pump operating level for an LDS sump is exceeded during the quarterly or semi-annual monitoring, then monitoring of the amount of leachate removed from that LDS sump must revert back to monthly.

2. Provide a record of the amount of liquid removed from each LDS sump (in gallons) at least monthly after closure of the unit identified in E.7.2 above. The following information regarding leachate generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each sump since the unit was closed
   b. Annually for each sump since the unit was closed
   c. Annually for each unit since the unit was closed

3. If the leachate generation rates are not trending downward during the post closure period, discuss why this is not happening. Provide information regarding precipitation rates during the post-closure period, as well as groundwater elevations relative to the invert of the LDS sumps.

E.7.4.2. Action Leakage Rate (ALR)

1. Identify the Action Leakage Rate (ALR) from Section E.4 for each LDS sump, and indicate if the action leakage rate has been exceeded during the post-closure period.

2. To determine if the ALR has been exceeded, the owner or operator must convert the monthly flow rate from the monitoring data to an average daily flow rate (gallons per acre per day) for each sump. The average daily flow rate for each LDS sump must be calculated monthly during the post-closure care period, unless Illinois EPA approves a different frequency pursuant to Section 724.403(c)(2).

3. Describe the response action(s) meeting the requirements of 35 Ill. Admin. Code 724.404 that will be implemented if the leachate removal rate exceeds the action leakage rate.

E.7.5. Groundwater Monitoring System

E.7.6. Gas Collection System

For units required to have a gas collection / monitoring system, describe how the information about the gas collection system for each unit identified in E.7.2 is monitored, evaluated, and recorded. Frequent evaluation of this information will be essential in ensuring the system is operating effectively and will also give insight into any adjustments that need to be made to the operations of the system.

E.7.6.1. Gas Quality

Describe the procedures followed to monitor the quality of the gas in the unit on a regular basis during the post-closure care period (including sample collection, sample handling and sample

analysis). Discuss how the parameters (Methane, Pressure, Oxygen; and Carbon Dioxide) in the gas system have changed during the post closure period and any actions taken in response to those changes.

1. Summary of Sample Results: Provide a summary table of the gas sampling results for each unit since post closure began for that unit. Identify the concentration for each parameter detected in each sampling event.
2. Parameter Comparison: Describe the parameter thresholds used to adjust the gas collection system to improve overall efficiency of the system. Describe any major gas system upgrades/ overhauls since post closure began.

E.7.6.2. Gas Quantity

1. Provide a record of the amount of gas removed from each unit at least monthly after closure of the unit identified in E.7.2 above. The following information regarding gas generation rates needs to be provided both in table form and graphically:
   a. Monthly for each year for each unit since the unit was closed
   b. Annually for each unit since the unit was closed
2. If the gas generation rates are not trending downward during the post closure period, discuss why this is not happening.

E.7.6.3. Summary of Results from the Gas Collection / Monitoring System

1. Describe the procedures followed to document/record information associated with the operation of the landfill gas collection, monitoring, and processing systems in the operating record.
2. Summarize the operation of the landfill gas collection, monitoring, and processing systems since the unit was closed. Describe any adjustments to the design or operation of the systems since the unit was closed.

E.8 Post-Closure Maintenance Plan

E.8.1. Procedures, Equipment & Materials:

Describe the preventive and corrective maintenance procedures, equipment and materials that will be required to properly maintain everything needed to provide adequate post-closure care of the unit closed as a landfill. Include the following items in the maintenance plan, as applicable:

1. Repair of security control devices;
2. Erosion damage repair;
3. Correction of settlement, subsidence and displacement;
4. Mowing, fertilization and other vegetative cover maintenance;
5. Repair of run-on and run-off control structures;
6. Maintenance of any leachate removal system(s) including the flushing of the LCS and LDS;
7. Maintenance of any gas monitoring/extraction system;
8. Replacement of groundwater monitoring wells; and
9. Surveyed benchmarks

E.8.2. Rationale

Provide the rationale which will be used to determine the need for corrective maintenance activities for each of the items mentioned above.

E.8.3. Frequency

Provide the frequency for maintaining each of the items mentioned above if it is known. This needs to include, but not be limited to:

1. The frequency for mowing, fertilization and other vegetative cover maintenance, and
2. Annual maintenance / cleaning of pumps used in the LCS, LDS, and gas collection systems.
3. The manufacturer's recommended replacement rate for the pumps used in the LCS, LDS or gas collection systems.
4. High pressure jet flushing of the LCS & LDS collection pipes and sump every 5 years.
5. Procedures and scheduling of non-routine maintenance and change-out of equipment.

E.9 Survey Plat: 724.216

The application must include documentation that a survey plat was prepared/submitted no later than the submission of the certification of closure for each disposal unit or areas where hazardous waste is left in place. The application must also describe the wording placed on the survey plat.

- The survey plat must indicate the location and dimensions of landfill cells or other disposal units/areas with respect to permanently surveyed benchmarks and the legal boundary of the facility.
- The plat must contain a note, prominently displayed that states: (1) the land has been used to manage hazardous wastes; and (2) the owner's and operator's obligations to restrict disturbance of the units containing hazardous waste in accordance with the applicable Subpart G regulations.
- The plat must be prepared and certified using the wording at 702.126(d)(1) by a professional land surveyor.
- The survey plat must be filed with any local zoning authority or authority with jurisdiction over local land use, the IEPA, and recorded with the land titles.
- If the facility includes a RCRA disposal unit that is already certified closed, provide a copy of the survey plat for that unit.

E.10 Notice in Deed and Certification: 703.183(n), 724.216, 724.217(c), 724.219

The application must include copies, as appropriate, of the notation recorded on the deed to the facility property, or on some other instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

- The land has been used to manage hazardous waste.
- Use of these areas is restricted.
- A survey plat and record of the type/location/quantity of material in the disposal units or areas have been filed with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.

- For hazardous wastes disposed prior to January 12, 1981, identify the type, location and quantity of the hazardous waste to the best of the owner or operator's knowledge and in accordance with any records the owner or operator has kept.

A certification signed by the owner or operator, that the owner or operator has properly recorded the notification must be developed after this notice has been recorded and submitted to Illinois EPA. This submittal must include a copy of the document in which the notification has been placed.

For facilities which have already filed: Provide a copy of the notice for the unit and the document in which it was placed, the required notice of or the deed, the application should contain: a certified copy of the filed notice; the document that the notice was placed in, and certification by the owner or operator that it was properly filed.

E.11 Post Closure Cost Estimate: 703.183(p), 724.244

Provide an estimate of the cost of completing the required post-closure care activities, based on current year costs, including all calculations and supporting information used in developing the estimate. The following must be used in preparing this estimate:

1. Cost estimates must be based on third party costs and cannot include the salvage value form the sales of hazardous wastes, structures or equipment present at the facility.

2. The number of years for which post-closure care must still be provided must be identified.

3. Due to the fact that inflation affects the actual value of a given amount of money over time, the year in which this cost estimate is developed must be clearly identified. It must be noted that inflation will always need to be taken into account to bring estimates from previous year up to the current year.

4. The various tasks need to carry out the required post-closure care activities must be identified as well as the cost associated with each task;

5. The amount of time/materials/efforts needed to complete each task must be provided as well as their unit costs. Justification must be provided for all values used in making these calculations;

6. An estimate of the annual cost of providing all required post-closure care activities should be developed;

7. Some post-closure care activities are not carried out on an annual basis, but at some other frequency. These activities, their frequency, and their cost must be presented.

8. The estimate for providing all required post-closure care activities must be developed using the information in Items 4 and 5 above.

A copy of the most recent post-closure care cost estimate provided to the Illinois EPA must also be provided. In general, these estimates are provided in annual reports and financial assurance documents.

E.12 Financial Assurance Mechanism for Post-Closure Care: 703.183(p), 724.245

Provide a copy of the established financial assurance mechanism for post-closure care of the facility. The mechanism must be one of those described in 724.245. Contact the Illinois EPA Bureau of Land Permit Section to obtain the proper forms and instructions.

E.13 State Mechanisms: 40 CFR 264.149, 40 CFR 264.150, 40 CFR 264.151, 40 CFR 220.14(b)(18)

If the State of Illinois assumes legal responsibility for compliance with closure, post closure, or liability requirements, or the state assures that state funds are available to cover those requirements, submit a copy of a letter from the state describing the state assumption of responsibility and including the facility EPA ID number, name, address, and amounts of liability coverage or funds for closure or post-closure care that are assured by the state, together with a letter requesting that the state's assumption of responsibility be considered acceptable.

SECTION F—CORRECTIVE ACTION

35 Ill. Adm. Code 724.201 requires that facilities seeking a RCRA permit institute corrective action, as necessary, to protect human health and the environment for all releases of hazardous waste or constituents from any solid waste management unit at the facility, regardless of the time at which waste was placed in the unit. The information identified in Items F.1 through F.3 below must be contained in the original RCRA permit application submitted by a facility to allow Illinois EPA to develop permit conditions for ensuring this requirement is met; only the information in Item F.4 below needs to be submitted by facilities seeking a renewed RCRA permit.

F.1 Identification of Solid Waste Management Units (703.187(a))

Identify the solid waste management units (SWMUs) present at the facility. A SWMU includes any unit where solid waste has been managed in the past and which is not a hazardous waste management unit. Units that are SWMUs include, but are not limited to, the following:

- Landfills
- Surface impoundments
- Waste piles
- Land treatment units
- Injection wells
- Incinerators
- Tanks (including wastewater treatment units)
- Container storage areas
- Waste transfer areas
- Waste recycling operations

F.2 Characterization of the SWMUs (703.187(a))

For each solid waste management unit identified above, submit the following information:

1. Type of unit
2. Location on the topographic map required by Item B.2 of the decision guide/checklist
3. Engineering drawings and construction details as available
4. General dimensions
5. Dates when the unit was in operation
6. Description (including physical/chemical characteristics) of the materials/wastes managed in the unit
7. Quantity or volume of waste managed in the unit, if known
8. A description of: (1) the soil types present at the unit; and (2) the geology of the area where the unit is located.
9. An indication of whether the wastes managed in the unit have been removed or still remain in it.

F.3 Characterization of Releases from SWMUs (703.187(b))

Provide all available information on whether or not any releases have occurred from each of the SWMUs identified above. Reasonable efforts to identify releases must be made, even if releases have not been verified. A release may include: spilling, leaking, pumping, pouring, emitting, emptying, discharging, injecting, escaping, leaching, dumping or disposing into the environment. If a determination is made that there has not been a release from a given SWMU, then a description of the efforts and information used to reach this conclusion must be provided.

The information to be provided regarding any releases from a SWMU, as available, includes:

1. Date of the release
2. Type of waste or constituent released
3. Physical and chemical characteristics of the released material
4. Quantity or volume released
5. Nature of the release (such as spill, overflow, ruptured pipe or tank, etc.).
6. Groundwater monitoring or other analytical data describing the nature/extent of the release.
7. Physical evidence of distressed vegetation or soil contamination
8. Historical evidence of releases, such as tanker truck accidents
9. Any state, local or federal enforcement actions which may address releases
10. Any public citizen complaints about the facility which could indicate a release
11. Any information showing the migration of the release.
12. A detailed description of any remedial activities taken in response to the release.

F.4 Information Required for Renewal Applications (703.187(c))

Facilities seeking a renewed RCRA permit have likely completed a substantial amount of corrective action under the original permit. Illinois EPA has only been authorized to implement the corrective action program in RCRA permits since April 1990; the USEPA portion of permits issued before this date contained corrective action requirements. For permits issued before April 1990, Illinois EPA likely does not have a complete file of corrective action efforts carried out at the facility, as such efforts were overseen by USEPA. However, for permits issued after April 1990, Illinois EPA already has a complete file of all corrective action efforts carried out to date at the facility.

A summary/description of the corrective action efforts completed to date at the facility must be provided in the application. The level of detail of this summary/description will be dependent on whether Illinois EPA oversaw these corrective action efforts and thus has a complete file of these efforts already. This summary/description will create an administrative record adequate to support the corrective action requirements eventually placed in the renewed permit and will form the foundation for determining future corrective action efforts to ensure the requirements of 35 Ill. Admin. Code 724.201 are met.

F.4.1. Required Information if USEPA Oversaw Initial Corrective Action Program

Facilities applying for a renewed RCRA permit which conducted corrective action efforts in accordance with requirements of the USEPA portion of the original RCRA permit issued to the facility must provide the following information:

1. A detailed chronology of all corrective action correspondence between USEPA and the facility, starting from the issuance of the original permit;
2. Copies of all letters received from USEPA regarding corrective action efforts, starting with the issuance of the original RCRA permit;
3. Copies of all letters and documents sent to the USEPA regarding corrective action efforts conducted in accordance with the original RCRA permit;
4. A detailed discussion of each of the SWMU identified and addressed in accordance with the provision of the facility's original RCRA permit, including:
    a. A detailed description of each unit as outlined in Item F. 2 above, including layout drawings;

b. A summary of the investigation/remediation efforts completed to date; and

c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

5. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.4.2 Required Information if IEPA Oversaw the Initial Corrective Action Program

Facilities which carried out corrective action under the requirements of the Illinois EPA portion of the original permit must provide the following information regarding corrective action efforts at the facility:

1. A chronological list of all documents submitted to Illinois EPA regarding the corrective action efforts required by the original RCRA permit and Illinois EPA's response to each submittal. For each document, provide:

   a. The name of the document;

   b. A brief discussion of the contents/purpose of the document;

   c. The date the document was submitted to Illinois EPA;

   d. The person who submitted the document

   e. A discussion of Illinois EPA's response to the document (include the date of the response and the general conclusions/requirements in the response).

2. Copies of all Illinois EPA letters, in chronological order, regarding corrective action efforts at the facility (these letters serve as important decision documents and will help to verify corrective action efforts completed to date and what must still be done to complete corrective action responsibilities at the facility.

3. A detailed discussion of each of the SWMUs identified and addressed in accordance with the facility's permit. This should include:

   a. A detailed description of each unit as outlined in Item F.2 above;

   b. A summary of the investigation/remediation efforts completed to date; and

   c. A discussion of any investigation/remediation efforts which must still be carried out to complete corrective action responsibilities for the unit.

4. The information in the appropriate portions of Section C (Groundwater Monitoring) of this document regarding any on-going groundwater monitoring/remediation program being carried out at the facility.

F.5 Proposed Interim Measures to be Conducted: (703.187)

An applicant may propose to begin/continue interim measures for the purpose of preventing/mitigating releases from a SWMU before completing a formal RCRA Facility Investigation or Corrective Measures Program. Requests to begin/continue interim measures should contain detailed information about the proposed effort, including:

1. Background information about the unit and surrounding area (including, but not limited to, construction/operation of the unit, wastes managed in the unit; geology/hydrogeology of the area; and discussion/presentation of all sampling/analysis efforts conducted in/around the unit);

2. The objectives of the interim measure. Of special concern is how the measure will prevent/mitigate the release of concern and how it will be integrated into any necessary long-term corrective measures at the facility;

3. Information regarding the design, construction, operation and maintenance of the measure;

4. Schedules for design, construction and operation of the measure.

It must be noted that it may be necessary to complete a RCRA Facility Investigation and a Corrective Measures Study for the SWMU of concern while the interim measure is being carried out. Such efforts will be necessary if the extent of contamination at the SWMU has not been completely determined or if additional remedial efforts are needed to properly address the contamination resulting from the release in the long term.

F.6 Cost Estimate for Required Corrective Action (724.201)

35 Ill. Admin. Code 724.201 requires that permitted facilities provide financial assurance for any required corrective action. As such, the application must contain an estimate of the cost of the required corrective action efforts to be carried out at the facility.

1. If a facility proposes to conduct an interim measure as set forth in Item F.5 above, then an estimate of the cost of these measures must be provided in the application.

2. Development/presentation of a cost estimate must be carried out in accordance with Item E.5 above. This cost estimate will then form the foundation for the establishment of financial assurance for corrective action in the permit. This estimate will need to be updated, as appropriate, to reflect the cost of carrying out all approved corrective action activities at this facility.

3. As each workplan/report associated with corrective action is developed, they must contain cost estimates for carrying out the activities proposed in the workplans and then financial assurance must established for these activities once they are approved.

F.7 Financial Assurance for Corrective Action (724.201)

Adequate financial assurance must be provided in the amount developed in Item F.6 above. Establishment of this financial assurance must meet the requirements of 35 Ill. Admin. Code 724, Subpart H and Item E.6 above. Financial assurance for corrective action must be updated, as appropriate, to reflect the current corrective action cost estimate.

Instructions for RCRA Post-Closure Permit Applications

Attachment 1

Baseline List of Constituents Expected to be Present in Landfill Leachate

Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	Basis for Inclusion on List					
		40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Butanol	15,000	X	X				
N-butylbenzene						X	
Sec-butylbenzene						X	
Butyl benzyl phthalate	150	X	X				
Cadmium (total)	100	X	X	X	X		5
Calcium	1,200,000		X				
Carbofuran				X			
Carbon disulfide	6	X	X				22
Carbon tetrachloride	400	X	X	X			23
Chemical oxygen demand (COD)	10,000,000		X				
Chlordane		X		X	X		
Chloride	3,000,000		X	X	X		
Chlorobenzene	400	X	X	X		X	24
Chloroethane	400	X	X			X	25
Bis (2-chloroethoxy) methane	25	X	X				
Chloroform	400	X	X			X	26
Chloromethane	400	X	X			X	44
Bis (chloromethyl) ether	400	X	X			X	
O-chlorotoluene						X	
P-chlorotoluene						X	
Chromium (total)	50	X	X	X	X		6
Chlorodibromomethane		X				X	27
Cobalt	130	X	X	X			7
Copper	1,000	X	X	X	X		8
P-cresol		X					
Cyanide	300	X	X	X	X		
Dalapon							
DDT		X		X	X		
Dibromomethane	10	X	X			X	45
M-dichlorobenzene		X				X	
O-dichlorobenzene		X				X	30
P-dichlorobenzene		X		X			31
Dichlorodifluoromethane	450	X	X			X	
Dichloromethane		X		X		X	46

Baseline List of Constituents Expected to be Present in Landfill Leachate							
		Basis for Inclusion on List					
Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Dieldrin		X			X		
Diethyl phthalate	200	X	X				
Dimethyl phthalate	60	X	X				
Di-n-butyl phthalate	150		X				
Dinoseb		X		X			
1,4-dioxane			X				
Endothall		X		X			
Endrin		X	X				
Ethyl acetate	130		X				
Bis (2-ethylhexyl) phthalate	400		X				
Ethyl methacrylate		X					
Ethylbenzene	500	X	X	X		X	41
Ethylene dibromide (EDB)		X		X		X	29
Fluoride				X			
Fluorotrichloromethane						X	
gross alpha (pCi/l)				X			
Heptachlor		X		X	X		
Heptachlor epoxide		X		X	X		
Hexachlorobutadiene		X				X	
Hexachlorocyclopentadiene		X		X			
Iodomethane		X		X	X		48
Iron	500,000		X	X	X		
Isophorone	2,500	X	X				
Isopropylbenzene						X	
p-isopropyltoluene						X	
Lead	500	X	X	X	X		9
Lindane	25		X	X	X		
Magnesium	500,000		X				
Manganese	20,000		X	X	X		
Mercury	10	X	X	X			
Methoxychlor				X	X		
methylene chloride (Chloromethene)	46	X	X				
Naphthalene	75	X	X			X	
Nickel	1,000	X	X	X			10
Nitrate				X	X		
Nitrobenzene	120	X	X				
Oil (hexane-soluble or equivalent)					X		
Parathion		X			X		

Baseline List of Constituents Expected to be Present in Landfill Leachate							
		Basis for Inclusion on List					
Parameter	Predicted Values for SW Landfill (ug/l) [1,2]	40 CFR 258 App. II	Expected In Leachate	35 IAC Part 620	35 IAC Part 302	40 CFR Part 141.40	40 CFR 258 App. I [3]
Pentachlorophenol	400	X	X	X			
pH	9-May		X	X			
Phenanthrene	3	X	X				
Phenols	5,000	X	X	X	X		
Picloram				X			
Polychlorinated biphenyls (PCBs)		X		X			
Potassium	500,000		X				
N-propylbenzene						X	
Radium				X			
Selenium	50	X	X	X	X		11
Silver	50	X	X	X			12
Simazene							
Sodium	1,500,000		X	X			
strontium - 90				X			
Styrene		X		X		X	50
Sulfate	1,000,000		X	X	X		
TDS	10,000,000		X	X	X		
TOC	6,000,000		X				
tert-butylbenzene						X	
Tetrachloroethylene	300	X	X	X		X	53
Tetrahydrofuran	1,000		X				
Thallium	500	X	X	X			13
Tin	2,000	X	X				
Toluene	2,000	X	X	X		X	54
Toxaphene	2	X	X	X	X		
Trichloroethylene (or ethene)	400	X	X	X			57
Trichlorofluoromethane	150	X	X				58
Tritium				X			
Vanadium	30	X	X				14
Vinyl chloride	60	X	X	X			61
Vinyl acetate							60
Xylenes (total)	300	X	X	X			62
m-xylene	200	X	X			X	
o-xylene						X	
p-xylene						X	
Zinc	20,000	X	X	X			15

References

1 Gasper, James A. and Jeff M. Harris, Management of Leachate from Sanitary Landfills (for Browning Ferris Industries).
2 Dolan, David, Helen Keough, R.E. O'Hara and Kevin O'Leary, 1991, A Comparison of Chemical Constituents in Industrial Hazardous Waste Municipal Waste Landfill Leachates (for Waste Management of North America, Inc.).
3 From 40 CFR Part 258 Appendix I & II numbered as presented in Federal Register, Vol. 56, No. 196, October 9, 1991 pages 51032-51038

1191150001 – Madison County
BP Products North America Inc/Main Plant
B-147R2
RCRA Adm. Record

BP Products North American Inc./Main Plant (Log No: B-147R2) ADMINISTRATIVE RECORD Index for Draft Permit Decision	
Date	**E-Mail**
9-18-24	Email to BP confirming the size of total land area
8-13-24	Email to BP confirming the site address
7-29-24	Email from BP sending the electronic copy of NOD response and revised renewal application
7-18-24	Email to BP asking to share any work completed so far regarding NOD
7-8-24	Email to BP approving the time extension
7-3-24	Email from BP requesting a two-week time extension
6-26-24	Email to BP requesting to include the summary of the corrective action efforts to be completed part in the permit renewal application
6-24-24	Email to BP sending the updated mailing list
6-18-24	Email from BP requesting to include Michelle Knapp in the electronic distribution list while sending NOD
6-12-24	Email to BP sending the draft copy of Listed BOD for renewal application
5-22-24	Email to BP asking to discuss the KMPH removal from BP Main Plant Corrective Action Permit
4-18-24	Email from BP question on KMPH removal from BP Main Plant Corrective Action Permit

Faruk, Omar

From: Faruk, Omar
Sent: Wednesday, May 22, 2024 2:29 PM
To: Knapp, Michelle
Cc: Halteman, Takako; Butler, Amy
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Michelle,

Hope you are doing well. Can we discuss the removal of Kinder Morgan property from BP permit renewal application **on Friday (5/24/2024)**, with Amy, Takako, and myself? Thank you.

Omar

From: Samson, Curtis <Curtis.Samson@Illinois.gov>
Sent: Wednesday, May 1, 2024 12:03 PM
To: Knapp, Michelle <Michelle.Knapp@bp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Faruk, Omar <Omar.Faruk@Illinois.gov>; Sovis, Visal <Visal.Sovis@Illinois.gov>
Subject: RE: Permit mod for bp Wood River Main Plant Facility

Michelle,
Takako and I had a discussion about the best course of action. To remove Kinder Morgan would require a Class III application. However, since Kinder Morgan has been issued its permit (RCRA Log No. B-214) and BP's permit renewal application is still under review, it would be best to submit an addendum to the permit renewal application.

Omar Faruk is now the permit project manager and he has also been assigned the corrective action duties for the facility. I plan to remain to be involved. Omar is cc'd in this email.

Thanks,
Curtis

From: Knapp, Michelle <Michelle.Knapp@bp.com>
Sent: Wednesday, May 1, 2024 11:44 AM
To: Samson, Curtis <Curtis.Samson@Illinois.gov>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: [External] FW: Permit mod for bp Wood River Main Plant Facility

Curtis,

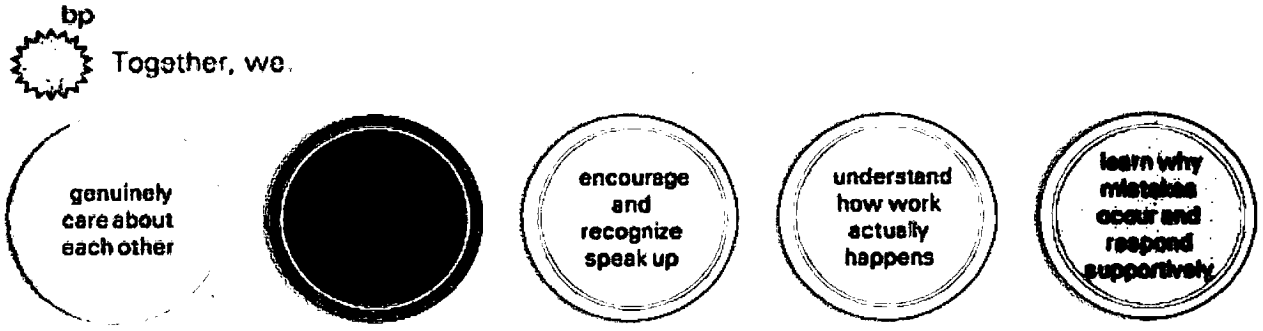
I'm just following up on this.
Can you let us know what we need to submit as far as a permit mod to remove KM from the current MP permit?

Thanks,
Michelle

From: Knapp, Michelle
Sent: Thursday, April 18, 2024 10:05 AM
To: Samson, Curtis <Curtis.Samson@Illinois.gov>
Cc: Wright, Starlet (Sovereign Consulting) <swright@sovcon.com>; Michael Hoffman <michael.hoffman@wsp.com>
Subject: Permit mod for bp Wood River Main Plant Facility

Curtis,
Now that Kinder Morgan has their own RCRA Corrective Action permit, bp needs to take action to remove the Kinder Morgan property from the bp Main Plant Corrective Action Permit.
Can you let us know what class of permit submittal will be required for this?
Thanks,
Michelle

Michelle Knapp
Liability Manager
BP Remediation Management
847-346-7112



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Faruk, Omar

From: Faruk, Omar
Sent: Wednesday, June 12, 2024 11:20 AM
To: Knapp, Michelle; Wright, Starlet; Hoffman, Michael
Cc: Halteman, Takako; Butler, Amy
Subject: Listed NOD for BP Permit Renewal Application

Good morning everyone,

Hope you are doing well. As you aware, IEPA is trying to make a good progress on backlogs for BP projects. Now the priority is BP permit renewal application, with the objective of submitting the final application by September 30, 2024. The Listed NOD will be mailed out by the end of this week. In the meantime, please find a draft copy of the Listed NOD to allow BP to begin work ahead of time.

The following comments are provided as part of the Illinois EPA's technical review of BP Products North America, Inc.'s (BP) Post Closure permit renewal application (renewal application) dated October 8, 2020 and received by the Illinois EPA on October 9, 2020.

1. General Comment:
   a. Provide a list of acronyms for the permit renewal application.
   b. Send a complete/updated copy of the renewal application to USEPA Region V, Attn: Norberto Gonzalez, M/C LR-8J, 77 West Jackson Blvd, Chicago, IL 60604-3590. This was required in the Illinois EPA's letter to BP dated April 10, 2020 (Log No. B-147R2-Correspondence).
   c. Section C and Section F, and associated figures, tables, and exhibits, must be updated to reflect the current groundwater corrective action program.
      i. For those permit modification requests which have been submitted to the Illinois EPA for review and have not yet been responded to, BP should clearly incorporate those requests into the application instead of making note of their submittal. It is recommended the facility refer to a specific modification submittal, outline the request, and ask those specific changes be approved.
      ii. A revised Section C must be provided which reflects the Illinois EPA approved modifications to the program since submittal of the application.
      iii. Revisions must also include removal of the Kinder Morgan property from Area 12, while clearly describing the retained portion where BP retains ownership and responsibility.
      iv. The corrective action for groundwater in the introduction to Section C should no longer be referred to as "interim".
2. Exhibit A-1b, Hazardous Waste Permit Part A Form:
   a. Item #4; add the current RCRA permit (B-147R-M-17 and M-18) to the list of environmental permits.

b. Figure for Item #10; revise the aerial photograph of the facility clearly delineating all existing structures (label all structures); existing treatment, storage, and disposal areas (label all SWMUs); and sites of future treatment, storage, and disposal areas.

3. Exhibit A-2, LPC-PA23 Form and 39(i) Certification:

   a. Update the information on the 39(i) Certification, Section B for the new liability manager.

4. Exhibit A-4, Public Notice Letter:

   a. Update the contact information for the public application inquires, as the current address (Sasa Jazic, BP Products North America Inc, 150 West Warrenville Road, Naperville, IL 60563, (630) 386-1620) is outdated.

5. Exhibit B-1:

   a. Provide Pages 3 and 4 of the legal description of the facility developed and certified by a professional land surveyor licensed to practice in Illinois.

6. Section B.2.2:

   a. Revise the Facility + 1000 feet topographic map to include all the information listed in Illinois EPA's Guidance Document (i.e., map date, access controls, contour map interval, storm drains, flood control or drainage barriers). Provide justification if any of the required items are not applicable. Provide an updated wind rose for this site, the one in the application appears to be outdated (dated March 3, 2007).

7. Section C.3:

   a. Revise Section C.3 to also identify the groundwater classification.

8. Section C.4:

   a. The figures provided in Section B and/or Section C are intended to meet the requirements of 35 IAC 703.183(s) and 35 IAC 703.185(c). Specifically:

      i. Figures B-5A, B-5B, and B-5C, Exhibits B-1 through B-3, and Exhibit C-1 are adequate to meet the requirements of 35 IAC 703.183(s), with the exceptions listed in Comment 8.b below; and

      ii. Figures C-1 through C-5 and Exhibit C-1 meet the requirements of 35 IAC 703.183(s), with the exceptions listed in Comment 8.b below.

   b. Revise Section C.4 to meet the remaining requirements of 35 IAC 703.183(s). The facility must provide additional information to present the following:

      i. Include or reference the groundwater flow rate and flow direction, and the basis for such identification (i.e., the information obtained from hydrogeologic investigations of the facility area).

      ii. An updated Water Well Survey (WWS) must be completed, and a new or revised map provided to meet the requirements for depiction of any injection and withdrawal wells both on-site and off-site, as required by 35 IAC 703.183(s).

9. Section C.8:

a. Figures C-4 and C-5 must be revised as it does not present the subsurface required to be addressed by BP beneath the Kinder Morgan property. It is recommended a cross-section be added to the figure.

10. Section C.8.1.1 and Figure C-5:

a. Figure C-5 shows exceedances at Groundwater Management Zone (GMZ) Boundary wells measured in 2018 and 2019. The boundary of a GMZ is intended to define the extent of a GMZ and groundwater quality at these wells should be at or below the Class I Groundwater Quality Standards (GQSs). Submit an additional figure to show any exceedances present over the last three (3) years of sampling. Continued exceedances at boundary wells will likely result in the requirement for additional corrective action.

11. Section C.8.1.5:

a. Update Cone of Depression (COD) well information to reflect changes since the time of the submittal; and

b. Boring logs and well completion reports (WCRs) for individual COD wells and information regarding COD well components are missing from Exhibit C-2. This information must be provided.

12. Section C.8.4:

a. The information provided in Section C.8.4 and Exhibit C-1 is adequate to describe the groundwater monitoring program, with the exception of peristaltic pumps. Section 2.2 of Exhibit C-1 must be revised to remove peristaltic pumps from the groundwater sampling procedure.

13. Appendix C of Exhibit C-1:

a. Appendix C of Exhibit C-1, Groundwater Monitoring Well Boring Logs and Well Construction Reports, contains only the title page for the appendix. Provide the missing information.

14. Section C.8.4.5 and Exhibit C-3:

a. A review of Exhibit C-3 has determined the statistical evaluation as proposed cannot be approved as proposed. Ultimately, Class I GQSs must be met and the trend analysis is used as a tool to aid in determining the effectiveness of the corrective action. Either remove the proposal for statistical evaluations to be conducted or address the deficiencies within a revised Section C.8.4.5 and/or Exhibit C-3 to meet the following deficiencies:

i. Add a more detailed description of the statistical method as the permit application and details within it will serve as the basis for the methodology to be approved for the program.

ii. Indicate the most current version of the software will be used.

iii. It is common to use one-half the detection limit for non-detect results. Explain the proposal for using the detection limit when parameters are present below the laboratory detection limit.

iv. It is stated higher detection limits were reported for many Constituents of Concern (COCs) during more recent sampling events. The potential for inconsistency with detection limits, and the resulting values used for statistical evaluations, appears to be high. Statistical evaluations may not be appropriate for trend analysis in this situation. Explain where and why the detection limits are higher and demonstrate why this is an appropriate approach for the evaluations.

v. The table in Exhibit C-3 should be revised to clearly indicate the identified wells in column 2 are statistically analyzed for all COCs listed in the table. The table could be misinterpreted as G005 is only analyzed for the antimony, G006 is only analyzed for arsenic, etc.

vi. If statistical evaluation will continue to be proposed, the request to report the results every 5 years should be incorporated into the text in Section C.8.4.5 or reference to where in the revised Section C it is requested.

15. Section C.8.4.6:

a. Update Section C.8.4.6 to reflect changes since the time of the submittal.

16. Section C.8.4.8:

a. The requested change in the frequency for reporting of statistical evaluations should be reflected in the revised Section C.

17. Section C.8.4.9:

a. Revise Section C.8.4.9 to reflect the statistical approach being proposed.

18. Section C.8.4.9:

a. Revise Section C.9 to reflect the frequency for the statistical approach being proposed.

19. Section F.4.2:

a. Provide a chronological list in a table format of all the corrective action letters sent to the Illinois EPA regarding corrective action and the Illinois EPA's response to those letters. A separate table for each Land Reuse Area is acceptable. The table should contain the information requested in the Illinois EPA's Guidance Document.

b. Provide any necessary updates to the information in Exhibit F-1 to provide a historical summary of the bioremediation pilot studies. This exhibit should document the progression of the bioremediation pilot systems serving as the corrective actions for LNAPL since shutdown of the hydrocarbon recovery system. The time frame must include the progression of the systems to date and must include, but not be limited to, the information submitted in annual updates to Attachment C of the current permit.

c. Provide copies of the following letters, in chronological order, as a new attachment to the renewal application:

i. All "no further action" letters from the Illinois EPA to the facility for each applicable Land Reuse Area.

ii. A copy of the certified ELUC for each applicable Land Reuse Area.

20. Section F.4.2.2.2:

a. Provide the total size of Area 2 in the detailed description of unit.

21. Section F.4.2.3.2:

a. Provide the screening interval during field screening investigation from November 2002 to July 2003.

22. Section F.4.2.11.2:
    a. Update the discussions of Area 12 in Section F to reflect Kinder Morgan has been issued a RCRA permit on March 4, 2024 (Log No. B-214), which requires to complete corrective action at its facility.

23. Section F.6:
    a. Revise Exhibit F-2 based on the following comments:
        i. Match the labor costs under "COD System Operation & Well Evaluation/ Rehabilitation" on Pages 1 and 2. Also, correct the labor costs under "Bioremediation Pilot Systems Operation" on Pages 1 and 2.

        ii. Check for consistency between the task objective for Area 5, mentioning four remediation areas, and the current corrective action activities detailed in F.4.2.5, which lists five remediation areas.

        iii. Correct the inconsistency between the task objective for Area 6 in Exhibit F-2, referring to seven remediation areas, and the current corrective action activities listed in F.4.2.5, which outline five remediation areas.

        iv. Provide a third-party cost quote from a laboratory BP uses to carry out everything listed out in the "laboratory fees" category on Page 56 of Exhibit F-1.

        v. Provide the clarification regarding the labor categories (P6, T4, etc.) and the selection of specific expertise levels for each task.

KMPH removal from BP Main Plant

1. Section B.1.1: Provide the description of KMPH property and removal from the BP Renewal Application in this section. Add the following text:

   An approximate 118.25-acre three-dimensional parcel above elevation 408 feet above mean sea level (ft-MSL), as shown in figure () and legal description contained in Exhibit () is not part of the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area at and below elevation 408 ft-MSL remains part of the facility and is subject to BP's Part B Permit.

2. Exhibit B1: In the legal description, exclude the parcel of land acquired by the KMPH and provide missing pages 3 and 4. This must contain 3-dimensional descriptions.

3. Section B.2.2: Facility + 1000 feet Topographic map with surrounding land use should be excluded from this map (Figure B-5B).

4. Section F: Proposed Land Reuse Area Boundaries (Figures-2) needs revised to remove upper portion now owned by KMPH. A cross-sectional map is needed. BP could provide a Figure 2A and 2B.

5. Section F.4.2.11.2: Revise the description to reflect KM has the permit now, and add the following the text (provided as an example):

a. KM Phoenix Holdings LLC (KMPH) is responsible for RCRA Corrective action activities above elevation 408 MSL at the former BP Wood River Terminal (South Tank Farm), Land Reuse Area 12, and those portions of the following areas that were included in the purchase: 4, 5, 10, 11, 13, 17 and 19.

b. BP (the Permittee) retains ownership and responsibility for RCRA Corrective Action activities at and below elevation 408 ft-MSL.

c. BP and KMPH recognize that the post-closing conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closing conditions, operations, and activates at the property retained by the BP, or its successors could impact property owned and/or operated by KMPH or its successors.

d. In the event that post-closing activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by BP, KMPH will be responsible for the environmental impacts and Corrective Action activities that result.

e. In the event that post-closing activities at the property retained by BP impact the overlying and/or adjacent property owned by KMPH, BP will be responsible (if determined to be the result of BP's activities) for the environmental impacts and Corrective Action activities that result.

If you have question, please reach out to us. Thank you everyone for your cooperation.

Regards,
Omar Faruk
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

Faruk, Omar

From: Faruk, Omar
Sent: Monday, June 24, 2024 1:29 PM
To: Knapp, Michelle; Wright, Starlet; Hoffman, Michael
Cc: Halteman, Takako; Butler, Amy
Subject: Updated mailing list for the BP Main Plant Renewal Permit Application
Attachments: Exhibit A-3 Mailing List Updated 2024.docx

Good afternoon Michelle, Starlet and Michael,

Please find the attached updated mailing list to be used in the renewal permit application. And let me know if you have any questions. Thank you.

Regards,
Omar Faruk
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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Faruk, Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Wednesday, July 3, 2024 1:48 PM
To: Faruk, Omar; Butler, Amy; Halteman, Takako
Cc: Knapp, Michelle; Hoffman, Michael
Subject: [External] Re: Request for summary of remaining Corrective Actions for Draft Permit
Attachments: ILWR240703 MP NOD Response Extension Request.pdf

Hi Omar,

Please see attached 2-week time extension request for our response to the NOD letter; hard copies of this letter will be mailed today.

Thank you,

Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
www.sovcon.com

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, June 26, 2024 12:29 PM
To: Knapp, Michelle <michelle.knapp@bp.com>; Starlet Wright <swright@sovcon.com>; Hoffman, Michael <michael.hoffman@wsp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: RE: Request for summary of remaining Corrective Actions for Draft Permit

Michelle,

We are looking for a brief summary of corrective action efforts still to be completed at each area in table format. The following table, previously used in the BP Riverfront draft permit, would be helpful. Also, please find the attached word file regarding NOD letter. And let me know if you have any questions. Thank you.

SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

A brief summary of corrective action efforts still to be completed at each parcel, as of June 2023, is presented by the table below.

Parcel/ SWMUs Present in Parcel	Corrective Action Efforts to be Completed
Parcel A—Butene Polymerization Waste	Groundwater in the upper most aquifer in the vicinity of this parcel must be investigated and remediated as necessary to meet the corrective action requirements.

Parcel/ SWMUs Present in Parcel	Corrective Action Efforts to be Completed
Area/SWMU 4	
Parcel B—Light Oils Dock/ SWMU 6; SWMU 10	Groundwater in the vicinity of this parcel must be investigated and remediated as necessary to meet the corrective action requirements.
Parcel C—Former Channel Seep Area/ SWMU 14	Corrective action for all media, including continued LNAPL Recovery, must be carried out to meet the corrective action requirements.
Parcel D—Closed Disposal Facility Landfill/SWMU 1	Corrective action activities, including leachate management; groundwater monitoring and maintenance of the phytoremediation system must be continued.
Parcel E—Pond 1 Landfill	Post-closure care being carried out in accordance with Section III of this permit must be continued.
Parcel F—Temporary Surge Pond/ SWMU 3	Current conditions report and groundwater investigation workplan for this parcel must be submitted. Corrective action must be carried out in accordance with the Phase II/ III Work Plan (approved on August 9, 2001 by Illinois EPA) and meet the corrective requirements.
Parcel G— Mississippi River Seep Area (MRSA)/ SWMU 13	Land Reuse Investigation activities in accordance with IEPA's January 22, 2013 letter are in progress. MRSA Corrective Action Reports are being submitted as part of the Quarterly Riverfront Corrective Action Reports. Any remaining corrective action activities must be carried out to meet the corrective action requirements.

Omar

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Wednesday, June 26, 2024 11:52 AM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; STARLET Wright <swright@sovcon.com>; Hoffman, Michael <michael.hoffman@wsp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: [External] RE: Request for summary of remaining Corrective Actions for Draft Permit

Omar,
We are a little unclear on what you are looking for.
Do you have a template that we could use to build the table for this site?

Also, do you have a word document of the NOD letter that you can send us? We will use this to create a table with each deficiency and how/where we have addressed each one.

Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, June 26, 2024 7:28 AM
To: Knapp, Michelle <michelle.knapp@bp.com>; STARLET Wright <swright@sovcon.com>; Hoffman, Michael <michael.hoffman@wsp.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>; Butler, Amy <Amy.Butler@Illinois.Gov>
Subject: Request for summary of remaining Corrective Actions for Draft Permit

Good morning Michelle, Starlet, Michael,

Currently, the renewal permit application is in the drafting stage. IEPA requires a summary of corrective actions that are still pending completion to be included in the draft permit. It would be great to provide us a table of detailing these corrective actions. Thank you.

Regards,
Omar Faruk
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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Faruk, Omar

From: Faruk, Omar
Sent: Tuesday, August 13, 2024 1:59 PM
To: Starlet Wright
Subject: RE: Address confirmation

Thanks starlet.

From: Starlet Wright <swright@sovcon.com>
Sent: Tuesday, August 13, 2024 1:56 PM
To: Knapp, Michelle <michelle.knapp@bp.com>; Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: [External] Re: Address confirmation

Omar,

Also, the zip code is 62095.

Thanks,

Starlet S. Wright

Senior Project Manager

email: swright@sovcon.com

mobile: 813-767-1959

Sovereign Consulting Inc.

www.sovcon.com

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Tuesday, August 13, 2024 1:53 PM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; Starlet Wright <swright@sovcon.com>
Subject: RE: Address confirmation

Omar,
301 Evans Ave is correct.
Let me know if you need anything else.
Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Tuesday, August 13, 2024 1:19 PM

To: Knapp, Michelle <michelle.knapp@bp.com>; STARLET Wright <swright@sovcon.com>
Subject: Address confirmation

Good afternoon Michelle, Starlet,

Do you confirm me which one is correct address -

In the 39i form, the site address is 301 Evans Avenue, Wood River, IL 62905. But in the mailing list, it mentions that 309 Evans Avenue, Wood River, IL 62905.

I believe, 301 Evans Avenue, Wood River, IL 62905 is right. But want to confirm with you. Thank you.

Regards,
Omar Faruk, EIT
Environmental Protection Engineer
RCRA Unit
Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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Faruk, Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Friday, September 20, 2024 3:10 PM
To: Knapp, Michelle; Faruk, Omar
Subject: [External] Re: BP Main Plant area
Attachments: MP RCRA Permit Renewal App_Exhibit B-1_Facility Legal Description.pdf

Omar,

The surveyors confirmed 561.30 acres is correct, noting that the legal description was re-recorded at the County in 2015, adding a little area. The incorrect legal description area on the second page was from before the 2015 correction. The surveyors have corrected page 2 of the attached file. Do we need to mail a hard copy replacement page for this single page from Exhibit B-1?

Thanks,

Starlet S. Wright
Senior Project Manager
email: swright@sovcon.com
mobile: 813-767-1959
Sovereign Consulting Inc.
www.sovcon.com

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Wednesday, September 18, 2024 11:41 AM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; Starlet Wright <swright@sovcon.com>
Subject: RE: BP Main Plant area

Omar,
Our surveyors are in the field today, but will look into it this afternoon.
I hope to have something back to you on this tomorrow.
Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, September 18, 2024 8:54 AM
To: Knapp, Michelle <michelle.knapp@bp.com>; STARLET Wright <swright@sovcon.com>
Subject: BP Main Plant area

Michelle, Starlet,

Could you please confirm the correct acreage for the BP Main Plant area so that we can update the facility boundary information in the draft permit application? For your convenience, I've attached and highlighted the pics (from the legal description in Section B). Thank you.

Regards,
Omar Faruk, EIT
Environmental Protection Engineer

RCRA Unit, Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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DOCUMENT 21

From:	Halteman, Takako
To:	Faruk, Omar
Subject:	FW: bp--Wood River
Date:	Tuesday, September 10, 2024 11:29:00 AM
Attachments:	Wood River IEPA Aug 2022 Meeting Slides - 8-1-2022r1.pdf

From: Knapp, Michelle
Sent: Tuesday, August 2, 2022 11:23 AM
To: Butler, Amy ; Halteman, Takako ; Watson, Rob ; Rawe, Kimberly ; Samson, Curtis ; Wheeler, Kevin ; Hoffman, Michael ; Kirkman, Andrew ; Montoy, Jorge ; ODonnell, David ; Kuehnel, John
Cc: Dial, Shawntay D.
Subject: [External] RE: bp--Wood River
Here are the slides that we will go through on today's call.
Thanks,
Michelle
-----Original Appointment-----
From: Knapp, Michelle
Sent: Friday, June 03, 2022 8:34 AM
To: Knapp, Michelle; Butler, Amy; Halteman, Takako; Watson, Rob; Rawe, Kimberly; Samson, Curtis; Wheeler, Kevin; Hoffman, Michael; Kirkman, Andrew; Montoy, Jorge; ODonnell, David; Kuehnel, John
Cc: Dial, Shawntay D.
Subject: bp--Wood River
When: Tuesday, August 02, 2022 1:00 PM-4:00 PM (UTC-06:00) Central Time (US & Canada).
Where: Microsoft Teams Meeting
Illinois EPA,
The bp team is looking forward to our meeting next week. Please see attached meeting agenda, and let me know if you have any questions or additional topics you would like to discuss.
Thanks,
Michelle
Please save the date for a bp Wood River discussion.
I will send a detailed agenda prior to the meeting date.
Thanks,
Michelle

Microsoft Teams meeting

Join on your computer or mobile app
Click here to join the meeting

Join with a video conferencing device
417074486@poly.bp.com
Video Conference ID: 121 413 767 9
Alternate VTC instructions

Or call in (audio only)

+1 312-667-7206,,84862144# United States, Chicago

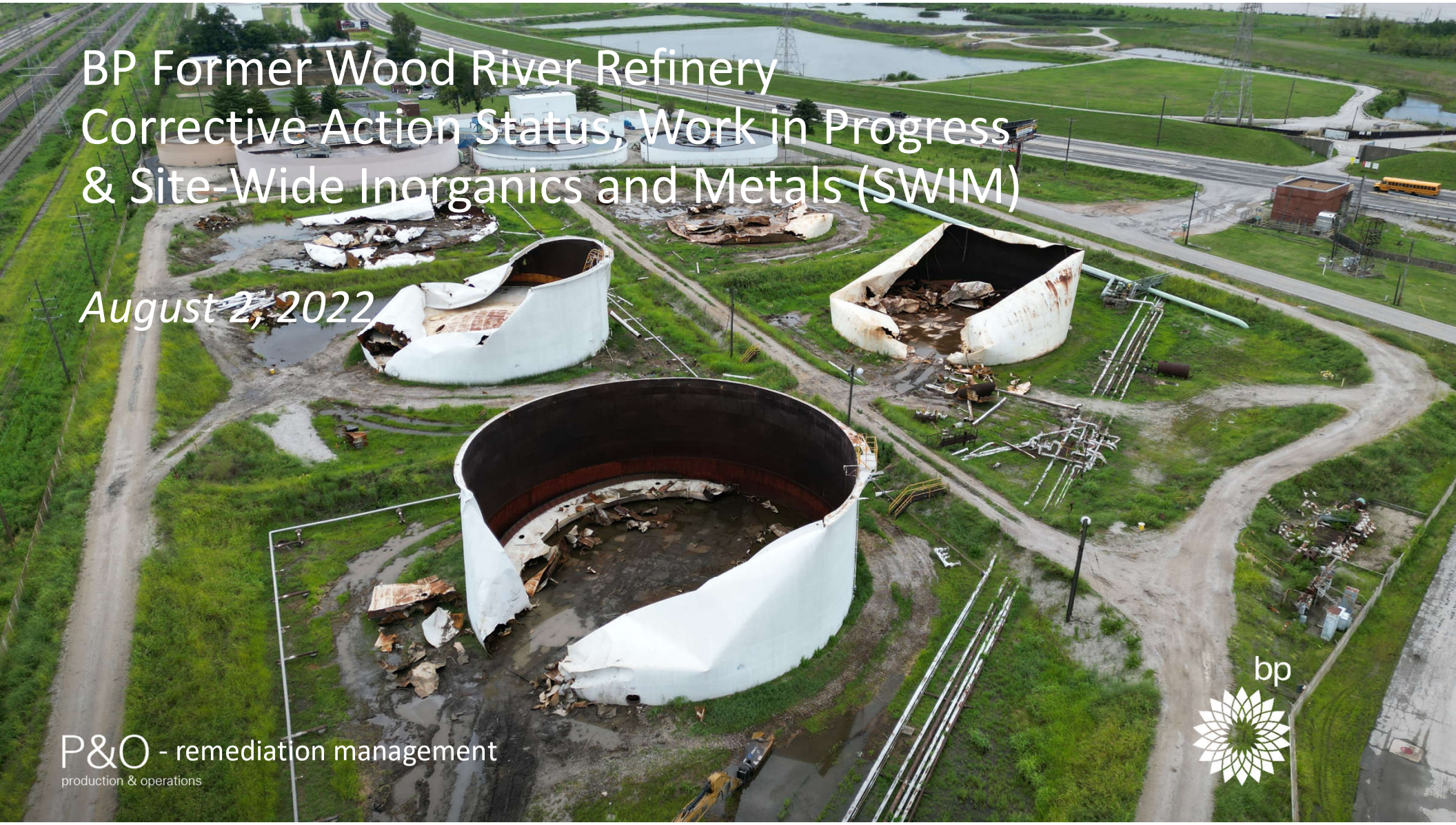
Phone Conference ID: 848 621 44#
Find a local number | Reset PIN

Alternate numbers: Azerbaijan +994 124046000 | Oman +968 22839499

Learn More | Meeting options

BP Former Wood River Refinery Corrective Action Status, Work in Progress & Site-Wide Inorganics and Metals (SWIM)

August 2, 2022



P&O - remediation management
production & operations

bp

R001474

Meeting Purpose & Attendees

The purpose of this meeting is to review and discuss the progress of corrective action at the BP Former Wood River Refinery (Main Plant and Riverfront facilities), with the goal to:

1) *Review list of priorities for path forward and necessary feedback from Illinois EPA;*
2) *Discuss the results of the Site-Wide Inorganics & Metals (SWIM) report; and,*
3) *Discuss the status and schedule of other work in progress.*

Attendees

Amy Butler (Illinois EPA)
Rob Watson (Illinois EPA)
Takako Halteman (Illinois EPA)
Curtis Samson (Illinois EPA)
Kimberly Rawe (Illinois EPA)

Michelle Knapp (BP)
Andrew Kirkman (BP)
Kevin Wheeler (Sovereign)
David O'Donnell (Sovereign)
Michael Hoffman (Wood)
John Kuehnel (Arcadis)

P&O

R001475

Agenda

- Safety Moment
- 2022 Priorities & Requested Feedback from Agency
  - *COD Upgrades Status & Feedback*
  - *Groundwater Optimization Plans & Permit Modifications*
  - *Riverfront Activities (LOD, Pond 1 Landfill, Permit renewal)*
  - *Class 1* Permit Mod for SSI reporting, and Approval for Well Replacements*
- 2022 Site Infrastructure Projects
  - *KTF & Main Plant Building Decommissioning*
  - *CDF Evaluation & Riverfront Surge Pond Upgrades*
- Site-Wide Inorganics & Metals (SWIM) Report
  - *Scope Summary, Data Analysis & Site-Specific Background*
  - *Recommendations for Analysis & Compliance Demonstration*
- Main Plant Groundwater Remedy Progression – Requested Feedback
  - *Tier 3 VI evaluation*
- Meeting Wrap-up and Next Steps
  - *Technology Demonstration*
  - *Action Items*

P&O

R001476

Safety Moment—Near Miss on Well Abandonment

Why this topic

At Wood River, we have spent considerable efforts recently abandoning inactive, unused wells.

We will use this incident shared by others to review and improve safety procedures for future well abandonments.

What happened?

During well abandonment work, a hose connection failed, and grout was released striking a worker in the face and body.

Safety glasses prevented eye contact and grout contact with face did not result in injury.

WHIP check was in place and held.



P&O

R001477

Safety Moment—Learning from Incidents

Why did it happen?

- Chicago fitting adjacent to 90 deg elbow failed
- Plugging observed at 90 deg elbow.
- Plugging likely associated with low. temperatures and/or inadequate mixing.
- O ring deformed.
- Worker in exclusion zone when failure occurred.
- Operator not aware of plugging - pressure gauge not in line of sight and does not provide reliable data while grout is flowing.

What can we learn?

- Maintain exclusion zones – keep out of the **Line of Fire**. Consider protective barriers.
- PPE and WHIP check prevented incident from being worse.
- Ensure adequate mixing, especially in cold temperatures, and that mixing trough and lines are clean at the end of each project.
- Inspect condition of o rings and connections
- Consider design and layout features and that may reduce risk (e.g., 45 deg elbow instead of 90, placement of pressure gauge and mixing tank).



P&O

R001478

2022 Priorities & Requested Feedback

R001479

CoD Well Upgrades & RCRA Permits

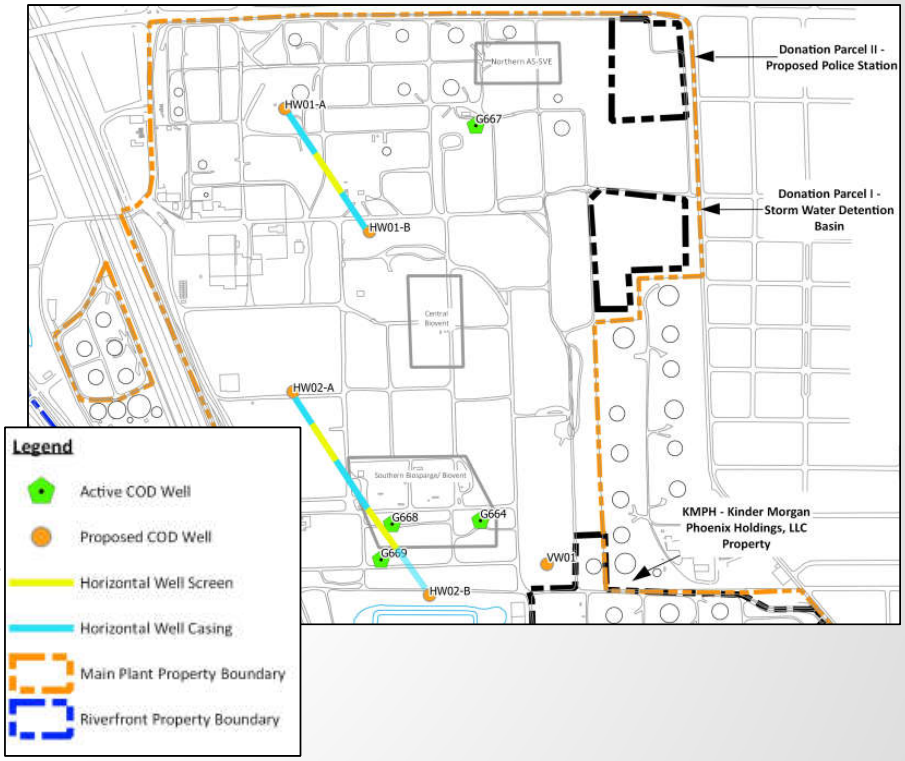
CoD Well System Upgrade Goal

Replace aging well system with new wells to provide ability to achieve system design flow, minimize costly redevelopments, and add redundancy

CoD Well System Upgrade Status

- Preliminary design completed
- Bids solicited for vertical and horizontal CoD well installations, and electrical connection
- Finalizing conveyance line RFP for infrastructure connections
- Anticipate drilling to commence in August pending Illinois EPA approval and resource availability

Awaiting feedback from Agency on Basis of Design before contracting.



P&O

R001480

Light Oils Dock Evaluation Update

Light Oils Dock (LOD) Evaluation goal

Further final remedy to address benzene impacts in groundwater in an area where it is difficult to achieve hydraulic control due to river fluctuation impact

LOD Evaluation

- In support of remedy evaluation, conducted delineation
  - Completed 8 direct-sensing, UVOST and Hydraulic Profiling Tool (HPT) borings to characterize remaining impacts and soil stratigraphy surrounding LOD-6
  - Subsequently collected discrete soil samples for LNAPL GC-FID analysis to compare to UVOST results and support development of technology evaluation scope
- Next step to conduct pre-design work scope to evaluate aquifer physical parameters for application
  - Sparge/injection pressure determination
  - Are any pre-approvals by Agency required
  - Planned 2023 implementation



P&O

R001481

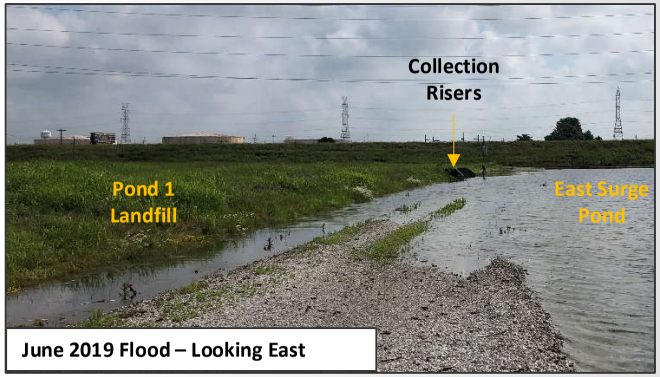
Pond 1 Landfill Liquid Evaluation

Pond 1 Evaluation Goal

Investigate causes and propose solution to high liquid levels in containment

Pond 1 Landfill Evaluation Status

- Analytical sampling of leachate/water
- Continued liquid pumping via vac-truck for transport to WWTP
- Manual gauging and automated datalogging of liquid levels in landfill, adjacent ponds, and river
- Survey of landfill transect (for comparison to as-built)
- Detailed inspection of landfill cover and perimeter
- Video scoping of Riser pipes and Cleanouts
- Planning for pump test to assess hydraulic communication and volume to be managed



June 2019 Flood – Looking East

Pending Activities

- Geophysical EM-survey of landfill cap/cover to assess moisture content
- Pump test of Primary and Secondary sumps at sustained rates

Liquid Disposal Options for Discussion

- Transport to WWTP via vac-truck
- Pump to Riverfront lift stations for transfer to WWTP (previously approved by Illinois EPA Water Group)
- Pump to Surge Ponds (after WWTP bypass) to mix with municipal sewage

R001482

Well Integrity Management Program Update

Integrity Management Program Goal

- Continuous improvement in well maintenance program to support accurate results from gauging and sampling and to better inform site compliance and remedial decisions

Main Plant

- 8 wells identified / 6 resolved: redeveloped 1, alternate bladder pump used at 5
- Proposed well replacement for remaining 2 wells (G078 and G85L)

Riverfront

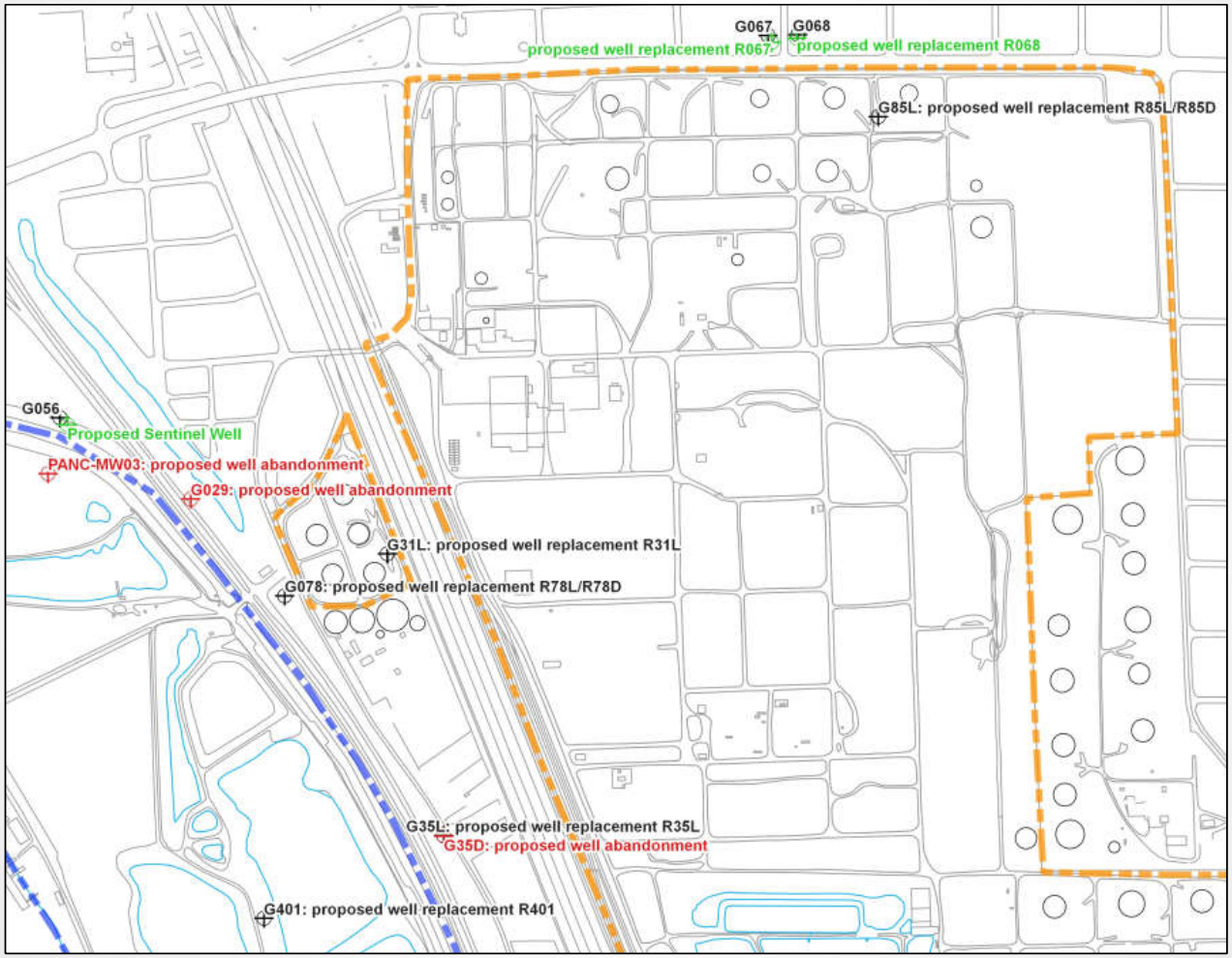
- 21 wells identified / 14 resolved: obstructions removed from 2, redeveloped 5, alternate bladder pump used at 7
- Proposed well replacement for 4 wells (G31L, G35L, G401, and G403)
- Proposed well abandonment for 3 wells (G35D, G029, and PANC-MW03)

- All potential well integrity issues identified in 2021 have been investigated, and wells are fit for purpose except for the 9 wells pending Illinois EPA approval for replacement or abandonment.
- Well maintenance activities are ongoing as part of our comprehensive sitewide well integrity management program.
- bp has eliminated the use of peristaltic pumps and Waterra pumps from the low-flow sampling procedure in the sitewide OMM Manual.
- Violation Notice L-2022-00099: CCA received from Illinois EPA on July 26; bp to discuss CCA discrepancies with Chris Cahnovsky.

P&O

R001483

Identified Well Status Update & Path Forward



R001484

Status of High Priority Permit Items

Groundwater Optimization Plan Approvals & Permit Modifications

- Optimized gauging and sampling networks
- Modified analyte lists and sampling frequencies
- bp is reviewing and updating the associated well lists
- How would the Agency like the Permit modification request structured?

Main Plant RCRA Permit Class 1* Mod for 5-Yr Statistically Significant Increase (SSI) Reporting

- Riverfront included in draft renewal Permit

Riverfront RCRA Permit Renewal Status

- Includes 5-Yr SSI Reporting Frequency
- Proposed revisions to corrective action schedules (next slide)

KMPH RCRA Permit Status

- Tank 293 requirements
- bp RCRA Permit modification to remove KMPH / Area 12 elements

P&O

R001485

Proposed Riverfront Corrective Action Timelines (pending IEPA feedback)

Riverfront Corrective Action			
Parcel (In Priority Order)	**Parcel Status/current use**	**Next Steps**	**Proposed Timeline for IEPA submittals**
Parcel B (LOD)	NFA for soil only	Further investigation and characterization activities followed by proposed pilot/remedy for benzene impacts in perched and UMA GW	Remedy report to IEPA TBD based on LOD discussion
Parcel C (FCSA)	Recoverable LNAPL removal substantially complete; LNAPL removal system IRM shut down in 2014	Complete investigation activities for LRI	LRI to IEPA in 3Q2023
Parcel G (MRSA)	IRM in place (sheet pile wall and collection system)	Land reuse investigation	LRI to IEPA in 4Q 2023
Other: SWMU 7	Pending investigation	Complete characterization/investigation and propose remedy	Remedy report to IEPA in 4Q 2023
Parcel F (TSB)	Operational surge pond	Complete Current Conditions Report (additional investigation as necessary)	CCR to IEPA 2Q 2024 (This is a proposed one year extension from the current deliverable date of 6/30/2023)
Parcel I (WSP)	Operational surge pond	Complete Current Conditions Report (additional investigation as necessary)	CCR to IEPA 2Q 2024 (This is a proposed one year extension from the current deliverable date of 6/30/2023)

P&O

R001486

2022 Site Infrastructure Priorities

R001487

Decommissioning Projects Underway

Multiple decommissioning and demolition projects have been initiated at the site to address potential HSSE issues associated with aging infrastructure and improve access for remediation

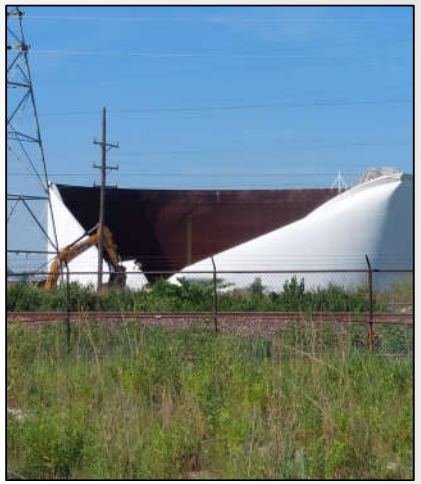
Korea Tank Farm (KTF, Area 9) Decommissioning

- Demolition and removal of 5 aboveground storage tanks
- 2 of 5 aboveground storage tanks have been demolished
- Remainder of tanks and piping to be demolished by end of September 2022
- Following decommissioning activities, bp will finalize the LRI Report and Pilot Testing Workplan for Area 9

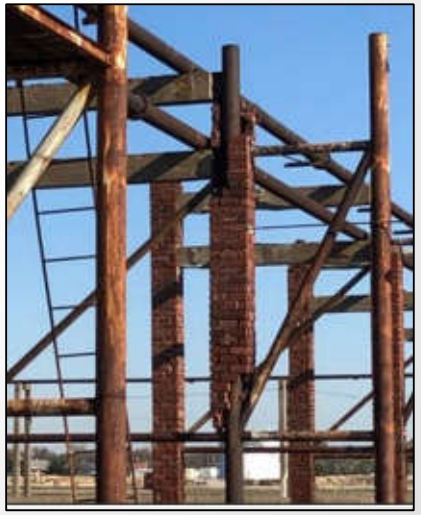
Main Plant Buildings & Piperack Decommissioning

- Demolition and removal of buildings 5, 11, 12, 16 and North/South pipe rack section
- Buildings 5, 11, 12, 16 asbestos abatement, lead paint removal, and universal waste removal complete
- Building 11, 12 and 16 demolition complete
- Remainder of buildings and piping to be demolished by the end of September 2022









bp

P&O

R001488

Riverfront Upgrade Projects

Multiple projects are underway at the Riverfront in support of safe, reliable, compliant, and sustainable operations

Closed Disposal Facility (CDF) Activities

- A multidisciplinary team has undertaken a comprehensive review to determine the most appropriate plantings for an upcoming Phytoremediation system optimization program and improve existing conditions to maximize tree health and improve overall system performance includes:
  - Tree ring study
  - Groundwater and soil analysis
  - Soil moisture investigation
  - Drainage improvement upgrades



P&O

R001489

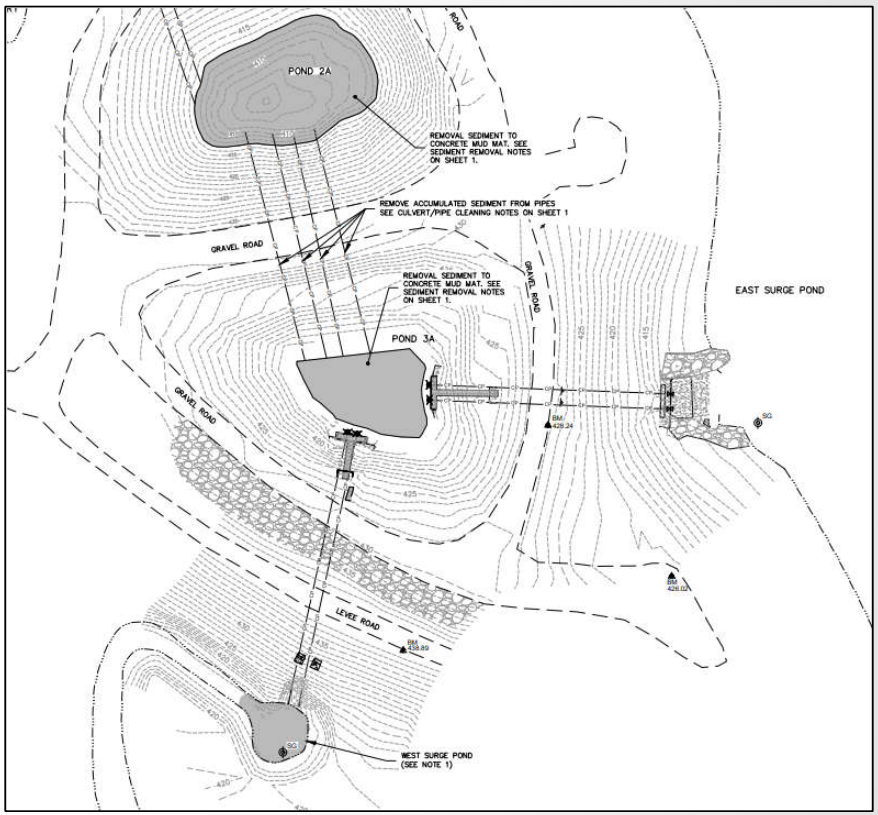
Riverfront OM&M Activities

Riverfront Surge Pond Upgrade Project

Maintenance notification submitted to Agency in April 2022

- Scope includes:
  - Replace East Surge Pond pumps (pump water to Pond 2a from the ESP)
  - Designs completed & bids solicited for scope below:
    - Remove sediment in 2a, 3a, and WSP
    - Replace culverts from ESP to 3a and WSP to 3a
    - Repair wildlife damage to WSP and install barrier to prevent future damage
    - Improve drainage from CDF to the WSP by replacing grate and installing a check valve





P&O

R001490

Site-Wide Inorganics & Metals (SWIM)

R001491

SWIM Scope of Work Summary

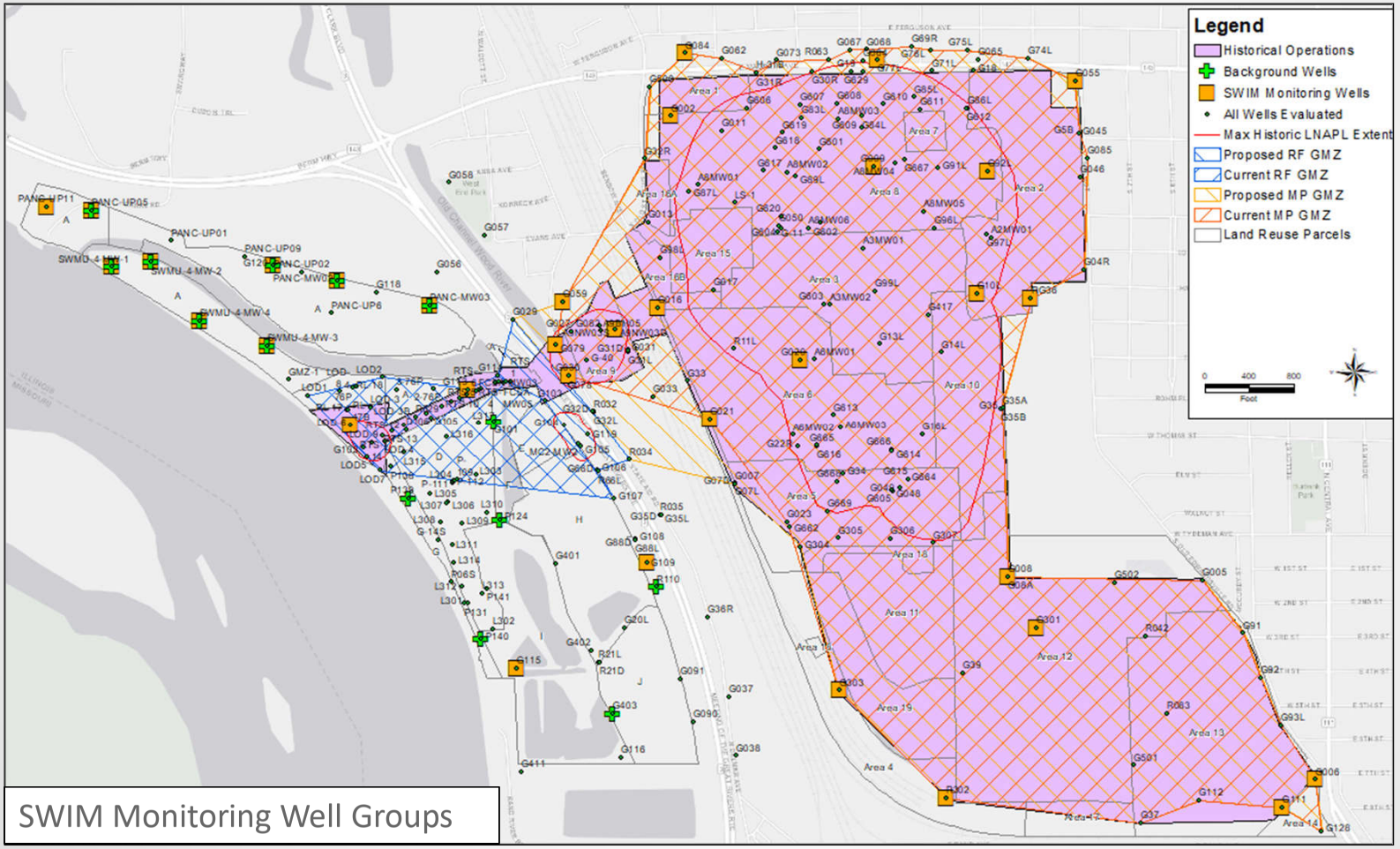
- Evaluation conducted in accordance with 2018 *Site-Wide Inorganics and Metals Evaluation Workplan*
- Purpose: To evaluate dissolved and total metals and other inorganic compounds in groundwater Site-Wide (MP & RF)
  - Historical groundwater monitoring results identified sporadic arsenic and inorganic concentrations (spatial and temporal) above Class 1 GQS
  - USGS research identifies elevated background arsenic in Illinois groundwater near Mississippi River (Warner, et.al. 2003)
  - 2018 SWIM report documented elevated regional arsenic concentrations in Madison County, IL groundwater
  - Goal of evaluation to improve understanding of site inorganics in groundwater based on regional vs. Site conditions
    - *Determine site-specific background concentrations as applicable for comparison to on-Site conditions*
    - *Emphasis on arsenic and lead as primary inorganic COC*
- Scope of Work included:
  - Redeveloped SWIM program wells to remove sediments that could influence results and improve hydraulic communication
  - Monitoring/Sampling of well groups based on location, area use, and petroleum impacts
    - *Operational Areas, Non-operational Areas, and Background*
  - Statistical analysis and comparison of well group datasets
  - Determination of site-specific background concentration for arsenic

P&O

Reference: Warner, et.al., Arsenic in Illinois Groundwater – Community and Private Supplies. U.S. Geological Survey-Resources Investigation Report 03-4103. July 2003.

R001492

SWIM Well Groupings



SWIM Monitoring Well Groups

R001493

SWIM Results & Data Analysis

- Arsenic & Lead in Operational Area wells were generally higher than Non-Operational wells and above GQS:

Q3 2021 SWIM event 95% UCL

Areas	Total Arsenic	Dissolved Arsenic	Total Lead	Dissolved Lead	Wells used in Calculation
Operational	73.19	68.59	15.96	5.44	19 wells
Non-Operational	30.87	30.33	3.37	ND	16 wells
Class 1 GQS	10	10	7.5	7.5	

Notes: All units in micrograms per Liter (µg/L). ND = Not Detected

- Other inorganic compounds (total) were generally lower than Class 1 GQS:

	Barium	Chromium	Lead	Nickel
Main Plant 95% UCL	545.5	73.71	2.53	27.09
Class 1 GQS	2,000	100	7.5	100

All results in µg/L.

	Barium	Chloride	Lead
Riverfront 95% UCL	334.5	34,124	0.235
Class 1 GQS	2,000	200,000	7.5

All results in µg/L.

- Well redevelopment did not significantly impact groundwater results
  - *Neither geochemistry nor COC concentrations*
- Lead results greater than GQS generally correspond to Operational Areas of Site
- Arsenic results greater than GQS were more sporadic, spatially and temporally
- Arsenic and other inorganics not being mobilized from operational areas of site based on area comparison

P&O

R001494

SWIM – Site-Specific Background Concentration

- EPA's ProUCL software was utilized to evaluate the Background Well dataset to determine an appropriate site-specific background concentration based on 95% UCL:
  - Total Arsenic – 37 ug/L
  - Dissolved Arsenic – 39 ug/L
  - *These values are below the historic GQS of 50 ug/L*

- GMZ Boundary Well (current & proposed) average arsenic concentrations were compared to these background concentrations
  - Note that the current GMZ wells include wells located between MP and RF with hydrocarbon impacts that affect geochemistry and arsenic concentrations

Total Arsenic GMZ Well Networks 95% UCL Summary

Total Arsenic (µg/L)	Q2 2021	Q4 2020
Current MP	20.03	13.79
Proposed MP	12.61	13.09
Current RF*	64.79	87.31
Proposed RF	21.56	18.6

* Used 95% Chebyshev(Mean, Sd) UCL

BP ID	IEPA ID	Sample Date	Fraction	Constituent	Results (ug/L)
P-24	P124	5/6/2021	Total	Arsenic	8.2
P-39	P139	5/6/2021	Total	Arsenic	1.1
P-40	P140	5/6/2021	Total	Arsenic	1.3
PANC-MW02	PANC-MW02	9/20/2021	Total	Arsenic	3
PANC-MW03	PANC-MW03	5/5/2021	Total	Arsenic	14.9
PANC-UP05	PANC-UP05	9/13/2021	Total	Arsenic	0.84
PAND-UP08	G120	9/14/2021	Total	Arsenic	4.7
RL-10R	R110	4/27/2021	Total	Arsenic	0.75
RL-22R	G403	5/4/2021	Total	Arsenic	1
SWMU1-MW01	G101	5/6/2021	Total	Arsenic	35.6
SWMU4-MW01	SWMU4-MW1	9/14/2021	Total	Arsenic	79.4
SWMU4-MW02	SWMU4-MW2	9/14/2021	Total	Arsenic	2.7
SWMU4-MW03	SWMU4-MW3	9/14/2021	Total	Arsenic	1.2
SWMU4-MW04	SWMU4-MW4	9/14/2021	Total	Arsenic	3.1
			95% Chebyshev UCL for Total Arsenic		37
BP ID	**IEPA ID**	**Sample Date**	**Fraction**	**Constituent**	**Results (ug/L)**
P-24	P124	5/6/2021	Dissolved	Arsenic	6.9
P-39	P139	5/6/2021	Dissolved	Arsenic	1.1
P-40	P140	5/6/2021	Dissolved	Arsenic	0.79
PANC-MW02	PANC-MW02	9/20/2021	Dissolved	Arsenic	2
PANC-UP05	PANC-UP05	9/13/2021	Dissolved	Arsenic	0.37
PAND-UP08	G120	9/14/2021	Dissolved	Arsenic	4.3
RL-10R	R110	4/27/2021	Dissolved	Arsenic	0.74
RL-22R	G403	5/4/2021	Dissolved	Arsenic	0.81
SWMU1-MW01	G101	5/6/2021	Dissolved	Arsenic	33.8
SWMU4-MW01	SWMU-4-MW-1	9/14/2021	Dissolved	Arsenic	83.5
SWMU4-MW02	SWMU-4-MW-2	9/14/2021	Dissolved	Arsenic	2.3
SWMU4-MW03	SWMU-4-MW-3	9/14/2021	Dissolved	Arsenic	1.1
SWMU4-MW04	SWMU-4-MW-4	9/14/2021	Dissolved	Arsenic	1.8
			95% Chebyshev UCL for Total Arsenic		39

P&O

R001495

SWIM – Inorganics Compliance Demonstration

- Statistical evaluation of inorganics was based on the 95% UCL meaning that 1 out of every 20 samples would be expected to exceed this criteria
- To account for natural variability in background inorganics concentrations, bp proposes that compliance should be based on the 95% UCL for the GMZ well network with no individual GMZ well exceeding the Class 1 GQS during 3 or more consecutive sampling events
  - bp proposes to utilize the evaluated site-specific background concentration of arsenic (36 ug/L) as the groundwater Remedial Objective (RO)
  - bp proposes to utilize the Class 1 GQS for all other inorganic constituents
- These values ensure groundwater criteria are protective of inorganics in groundwater at the Site, while accounting for inorganic variability
  - Proposed abutment of the MP and RF GMZ boundaries would also eliminate GMZ wells exhibiting hydrocarbon impact that can influence results of inorganics
- bp requests feedback from the Agency on the proposed site-specific background RO or alternate methodology for determination

P&O

R001496

Main Plant Groundwater Remedy—Requested Feedback

P&O

R001497

Petroleum Vapor Intrusion (PVI) Evaluation

- Feedback is needed from the Illinois EPA to clarify PVI remedial objectives to advance the Groundwater Remedy at the Main Plant
  - In the 2018 *Remedial Action Selection Report and Main Plant Remedy Roadmap* (RASRR) the indoor air exposure, or vapor intrusion (VI), pathway was identified as a remedial driver for protection of potential receptors
  - In the 2019 *Revised Indoor Inhalation Route Evaluation and Workplan* submitted for the Main Plant, Site-wide evaluation of PVI pathway was presented to demonstrate protection of receptors under current conditions
  - To advance the final groundwater remedy, the PVI pathway needs to be further evaluated for future conditions to identify the impact on necessary source reductions

Pathway:	PVI	Surface Water	Potable Use Groundwater
POE:	Main Plant property boundary	Table lake (north of Forebay) and/or Former Channel at Riverfront	Sentinel Wells (>500' from nearest potable supply wells)
POC:	Main Plant GMZ Wells	Monitoring wells to be proposed between Main Plant and surface water	Main Plant GMZ Wells
Remedial Objective:	Site-specific TACO Tier 3	SWQS 35 IAC 302 or Class 2 GQS if not included in SWQS	Class 1 GQS until MEP is achieved; then site-specific TACO Tier 2 at POC and Class 1 GQS at POE
Model/Calculation:	USEPA PVIScreen Model (consistent w/ API BioVapor)	From regulations	TACO Tier 2 calculations (R26), after meeting MEP

P&O

R001498

PVI Evaluation (cont.)

- TACO Tier 1 Indoor Air Pathway Screening Criteria include specific assumptions on pathway
  - Assumes basements have concrete walls and floors (does not account for dirt floor crawlspaces)
  - Does not account for biodegradation of hydrocarbons in soil gas

- Little, Daisy, Nazaroff (LDN) model revises Johnson & Ettinger model to account for dirt floors
  - Does not account for biodegradation of hydrocarbons in soil gas

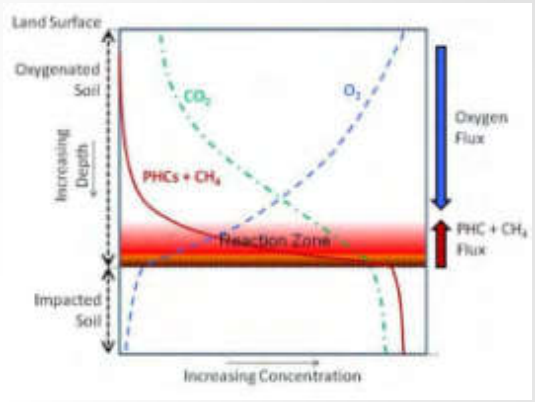
- The PVIScreen model (USEPA) is an evolution of the BioVapor model (API) referenced in TACO
  - Accounts for biodegradation of hydrocarbons in soil gas during transport
  - PVIScreen adds Monte Carlo simulations to BioVapor for sensitivity analysis
  - Use of PVIScreen or BioVapor model would be a TACO Tier 3 evaluation



P&O

R001499

Tier 3 PVI Evaluation (cont.)



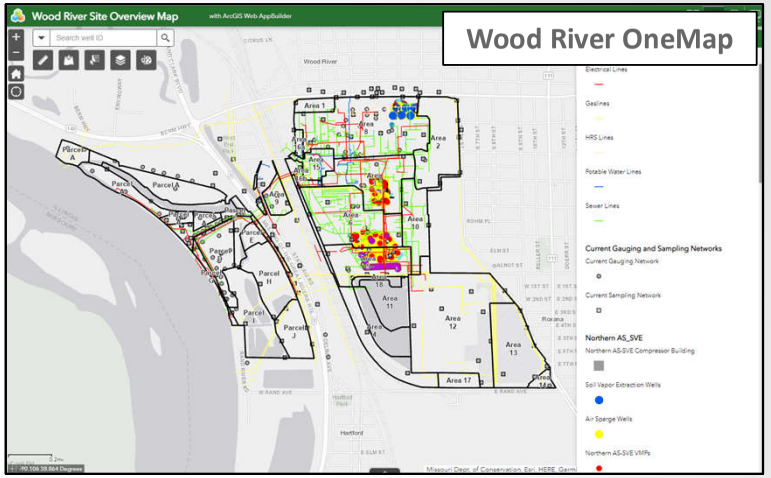
- bp is proposing to submit a TACO Tier 3 PVI evaluation proposal
  - To propose utilizing the USEPA PVIScreen model
  - Would account for dirt floor basement/crawlspace
  - Would include biodegradation of hydrocarbons in soil gas
  - Would include site specific (Tier 2) inputs for depth to water and soil conditions (i.e., foc)
  - Other model inputs would be in accordance with TACO defaults
- The Tier 3 PVI proposal would include a scope to investigate and document actual soil gas conditions at the Main Plant to support and calibrate the model
  - Soil gas monitoring and sampling through nested vapor monitoring points
  - Conduct monitoring in non-source areas with and without surficial clay layer, to mimic potential off-site conditions
- What is the regulatory process and typical timeline for evaluation and approval of Tier 3 proposals (CORE)?
  - After soil gas monitoring and modeling results submittal, what is the typical timeline for Agency review and approval?
  - How are approved Tier 3 PVI ROs documented in the RCRA Permit?

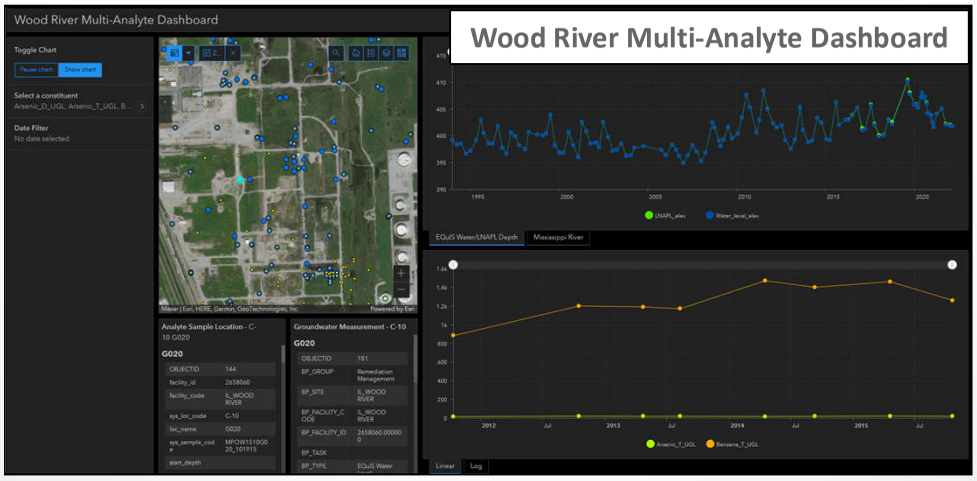
P&O

R001500

Meeting Wrap-Up

- Technology Demonstration
  - OneMap
  - Remediation Dashboards
- Action Items Review
- Follow-up Communications Schedule (next meeting)





R001501

DOCUMENT 22

From:	Halteman, Takako
To:	Faruk, Omar
Subject:	FW: BP Wood River discussion
Date:	Tuesday, September 10, 2024 11:40:00 AM
Attachments:	Wood River IEPA March 2022 Meeting Slides - 3-22-22 MMK).pdf

From: Knapp, Michelle
Sent: Wednesday, March 23, 2022 9:22 AM
To: Wheeler, Kevin ; Hoffman, Michael ; Montoy, Jorge ; Kirkman, Andrew ; Butler, Amy ; Samson, Curtis ; Watson, Rob ; Rawe, Kimberly
Cc: Halteman, Takako ; Search, Gina
Subject: [External] RE: BP Wood River discussion

IEPA team,

Thanks for your time, feedback, and insight on the call yesterday to help us advance remedial objectives at Wood River. Additionally, we will continue to strive to maintain safe and compliant operations at the site.

We will get back to you in the next couple of weeks with the additional information requested for the CoD well replacement CA submittal in order to advance that project.

I've attached a copy of the meeting slides that we went through; hopefully these will be helpful, especially for those that missed the end of the call due to technology issues.

I will work with Amy to schedule a meeting in May to discuss the other topics that we did not get to in the meeting yesterday.

Thanks,

Michelle

-----Original Appointment-----
From: Knapp, Michelle
Sent: Wednesday, February 02, 2022 3:33 PM
To: Knapp, Michelle; Wheeler, Kevin; Hoffman, Michael; Montoy, Jorge; Kirkman, Andrew; Butler, Amy; Samson, Curtis; Watson, Rob; Rawe, Kimberly
Cc: Halteman, Takako; Search, Gina
Subject: BP Wood River discussion
When: Tuesday, March 22, 2022 1:30 PM-3:30 PM (UTC-06:00) Central Time (US & Canada).
Where: Microsoft Teams Meeting

Illinois EPA team,

I'm adding 30 minutes to this meeting as a placeholder if needed for a deeper discussion on hydraulic control.

Thanks

Michelle

Illinois EPA team,

I have attached the planned agenda.

We are looking forward to talking with you.

Let me know if you have any questions at this time.

Thanks

Michelle

Illinois EPA team,

We look forward to discussing the bp Wood River property with you next month.

We will send out a detailed agenda as we get closer to the date, but we anticipate discussing:

1) Response to comments on the Remedial Action Selection Report and Roadmap,
2) Bioremediation system performance, and
3) CoD well project design

If time permits, we can also spend some time discussing the topics below:

1) Groundwater optimization and GMZ abutment proposal
2) SWIM (Site-wide Inorganics Monitoring) investigation and recommendations, and
3) Go forward plan for area/parcel specific LRI reports

Let me know if you have any questions or need any additional information at this time.
Thanks,
Michelle

Microsoft Teams meeting

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Video Conference ID: 124 766 456 7
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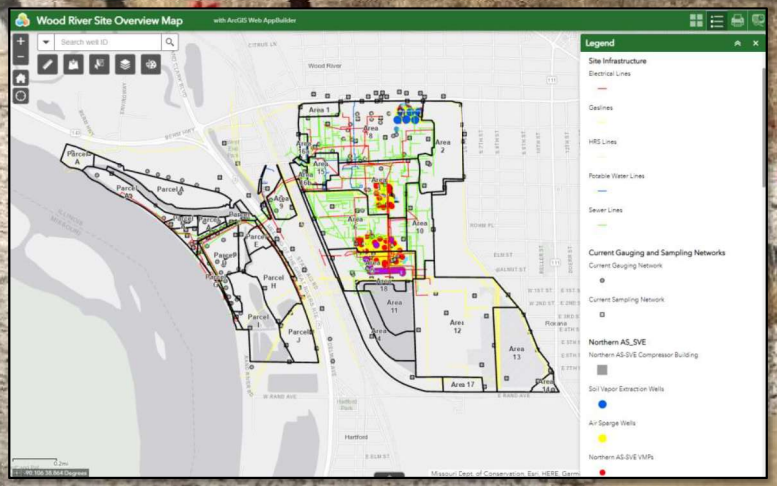
CoD Well System Upgrades, Corrective Action Status & Remedial Action Selection Report and Roadmap

March 22, 2022



P&O - remediation management
production & operations

bp

R001505

Meeting Purpose & Attendees

The purpose of this meeting is to review and discuss the progress of corrective action at the BP Former Wood River Refinery (Main Plant and Riverfront facilities), with the goal to:

1) Review the proposed COD Well System Upgrade project;

2) Provide Illinois EPA an update on status of interim remedy performance and ongoing activities;

3) Discuss BP's response to comments on the RASRR and the path forward to the Groundwater Remedy Implementation Plan.

Attendees

Amy Butler (Illinois EPA)
Takako Halteman (Illinois EPA)
Kimberly Rawe (Illinois EPA)
Curtis Samson (Illinois EPA)
Gina Search (Illinois EPA)
Rob Watson (Illinois EPA)

Michelle Knapp (BP)
Andrew Kirkman (BP)
Kevin Wheeler (Sovereign)
Jorge Montoy (Sovereign)
Michael Hoffman (Wood)

P&O

R001506

Agenda

- Safety Moment
- CoD Well System Upgrade Project
  - *Objectives & Configuration*
  - *Next Steps*
- Status of Bioremediation System Performance
  - *Original Pilot Systems & Expansion System Performance*
  - *Passive Bioventing at Original Central Biovent Pilot Area*
  - *LNAPL Removal IRM*
- RASSR Response to Comments & Path Forward
  - *Point of Exposure, Point of Compliance, and Remediation Objectives*
  - *Requested Clarification of Questions*
- Other topics (GW Optimization; GMZ Abutment; SWIM; Well Integrity Management program; LRI Reporting)
- Meeting Wrap-up and Next Steps

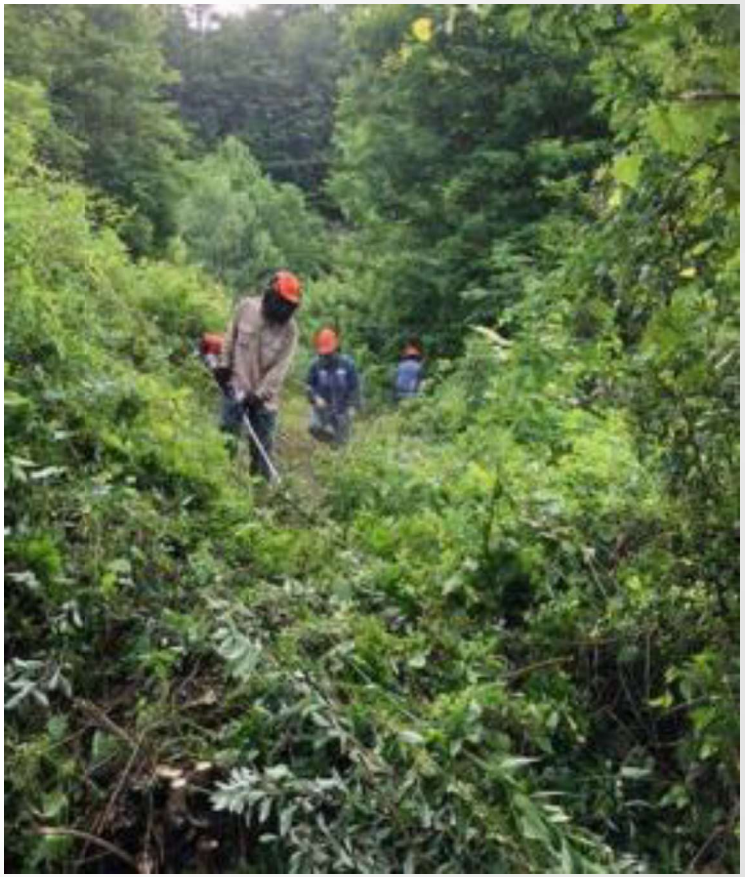
P&O

R001507

Safety Moment—Landscaping Safety

Why this topic

- This is a timely topic with spring on its way and the commencement of mowing activities both at bp Wood River and at home
- Although mowing is accountable for **6400 injuries per year**, most which require surgery and hospitalization, in the US. (Source: "*Incidence, Distribution, and Cost of Lawn-Mower Injuries in the United States, 2006-2013*" 2018, Johns Hopkins University**), it is considered by many to be a routine activity; therefore, landscapers may not be properly trained, hazards are not fully understood, and jobs are not properly risk assessed**
- bp RM in the US had **3 reported incidents** involving landscaping activities in 2021
- At bp Wood River we mow and manage other landscaping activities over approximately **400 acres of varied terrain with a multitude of obstacles**



P&O

R001508

Safety Moment—bp incidents 2021

- A contractor was mowing and weed trimming at a site with 3-4 feet of vegetation growth. Mowing was being done with a single “brush hog” machine, and two workers were conducting weed trimming on foot with string trimmers along the fence line. A mowed path was created along the perimeter of the site to provide access for workers on foot and to create a buffer zone from flying debris between the mower and weed trimmers.
- A supervisor drove a pickup truck onto the site to check progress. The truck was using the mowed path, which was narrower than normal. One of the weed trimmers had to restring the machine and was kneeling in the mowed path to complete this task. The driver was turning around a corner of un-mowed grass and did not see the worker. The truck bumper struck the worker’s back, and a front tire rolled over the worker’s foot.. Medical evaluation indicated a lower lumbar sprain that resulted in medical treatment and days away from work.



P&O

R001509

Safety Moment—bp incidents 2021

- A contractor was using a UTV (utility task vehicle) to perform weed spraying activities at a site. The UTV driver was simultaneously conducting reconnaissance for areas to be treated with herbicide while driving the UTV on an off-road, uneven path that was increasing in grade alongside a drainage channel. With attention divided between reconnaissance and driving, the driver did not notice the increase in slope or the UTV position in relation to the edge of the channel.
- The front downhill (passenger) side tire of UTV entered the drainage swale, the driver attempted to correct direction, and the UTV tipped over 90 degrees and came to rest on its passenger side. The driver was wearing a seat belt and was able to self-administer first aid (band-aid) to a hand



- Landscaper was completing grounds maintenance utilizing a tractor with brush hog attachment when they struck an abandoned fire valve sticking up from the ground.
- The tractor's fuel tank was damaged, causing a spill of diesel fuel to the ground. The landscaper utilized their spill kit with plastic sheets and absorbent pads to contain the spill.

P&O

R001510

Safety Moment—Learning from Incidents

- Review and update language in task risk assessments (TRAs) and **install visual aids on site** that clearly mark areas **where vehicles and mobile equipment shall not be driven** due to the hazards associated with slopes, obstacles, etc.
- **Assess** the area to be mowed prior to beginning the activity, and **mark obstructions** (ex. cones, flags, high vis paint).
  - The TRA should specify that reconnaissance shall not be done by vehicle or mobile equipment drivers while the equipment is in motion.
- Use toolbox talks or last-minute risk assessments to confirm **understanding when there are changes** in crew size, equipment used, or other factors that change the way work is done or could make work more difficult than imagined.
  - Use landscaping personnel with **prior site experience** when possible.
- **Document jobs steps that reduce exposure** to risk in TRAs. If the sequence of steps is important for managing risk, include that information on the TRA.
- Identify jobs where there is potential interaction between vehicles / mobile equipment and workers on foot (i.e., Line of Fire hazards), **Include the risk of collision and appropriate mitigations on TRAs.**
- Look for indications of a job not going to plan. This should be done before work begins.
  - If a job is going off plan, **STOP WORK** and assess how this changes exposure to risk.
- If you are not actively involved in the task, **STAY AWAY** from the work area. Avoid SIMOPs when possible.
- **Wear appropriate PPE:** footwear, safety glasses, gloves, long pants, hearing protection, and high vis clothing.

P&O

R001511

CoD Well Upgrade Project

P&O

R001512

CoD Well Upgrade Project

The CoD Well System upgrade project was created to design a more reliable, efficient, and safe hydraulic control system, with the goal to maintain RCRA Permit compliance, protect potential groundwater receptors, and support ongoing groundwater corrective action measures at the Site.

Primary considerations for the design include:

- Formation stratigraphy and current pump settings;
- Current CoD Well construction details and operations;
- River stage fluctuations and associated drought or flood stage conditions;
- Available capacity of City of Wood River wastewater treatment plant (WWTP);
- Available drawdown and sustainability of groundwater withdrawals;
- Replace the Capacity of the current CoD Well system
- Provide Redundancy in pumping capacity between wells for periods of well maintenance;
- Ease of well maintenance;
- Safety for operating personnel and equipment reliability; and,
- Automated monitoring and optimization of pumping configuration.

P&O

R001513

CoD Well Upgrade Basis of Design (BoD)

The BoD for the CoD Well System Upgrades was developed based on evaluation of the current CoD Well System historical operations and performance needed to maintain hydraulic control under varying groundwater and river stage conditions:

- *CoD Well System hydraulic influence is affected by groundwater conditions and Mississippi River stage fluctuations*
- *Successful hydraulic control has been achieved when pumping rates between 1000-1400 gpm*

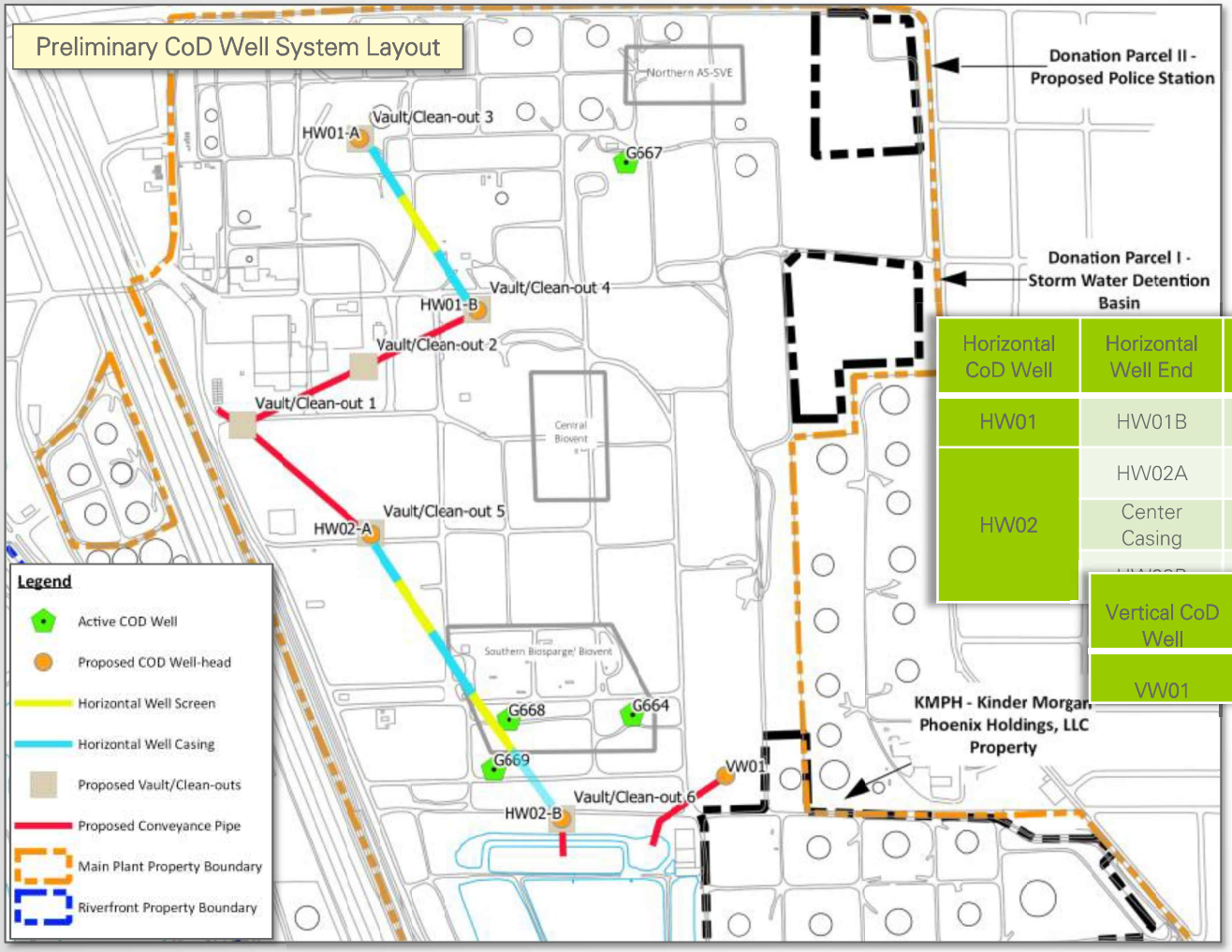
Numerical groundwater modeling was also used to support the design basis for the CoD Well configuration:

- *Well Types/Design (Vertical vs. Horizontal Wells)*
- *Number of wells and pumping rates needed to capture contaminants most effectively*
- *Consideration of Riverfront GMZ, KTF (Area 9), and SE Corner hydraulic control*

P&O

R001514

CoD Well Proposed Configuration



Two Horizontal Wells (HW01 and HW02)

- HW01: 1 Screen & 1 Pump
- HW02: 2 Screens and 2 Pumps

Horizontal CoD Well	Horizontal Well End	Casing Length	Casing Diameter	Screen Length	Screen Diameter	Screen Slot	Screen Depth	Pump HP
HW01	HW01B	375 ft	12 in	300 ft	8 in	0.040 in	75 ft bgs	40
HW02	HW02A	375 ft	12 in	300 ft	8 in	0.040 in	75 ft bgs	60
	Center Casing	300 ft	8 in					
						0.040	75 ft	60

Vertical CoD Well	Casing Length	Casing Diameter	Screen Length	Screen Diameter	Screen Slot	Pump HP
VW01	70 ft	12 in	40 ft	12 in	0.040 in	40

The three new wells with four pumps would replace the four current CoD Wells in the RCRA Permits.

P&O

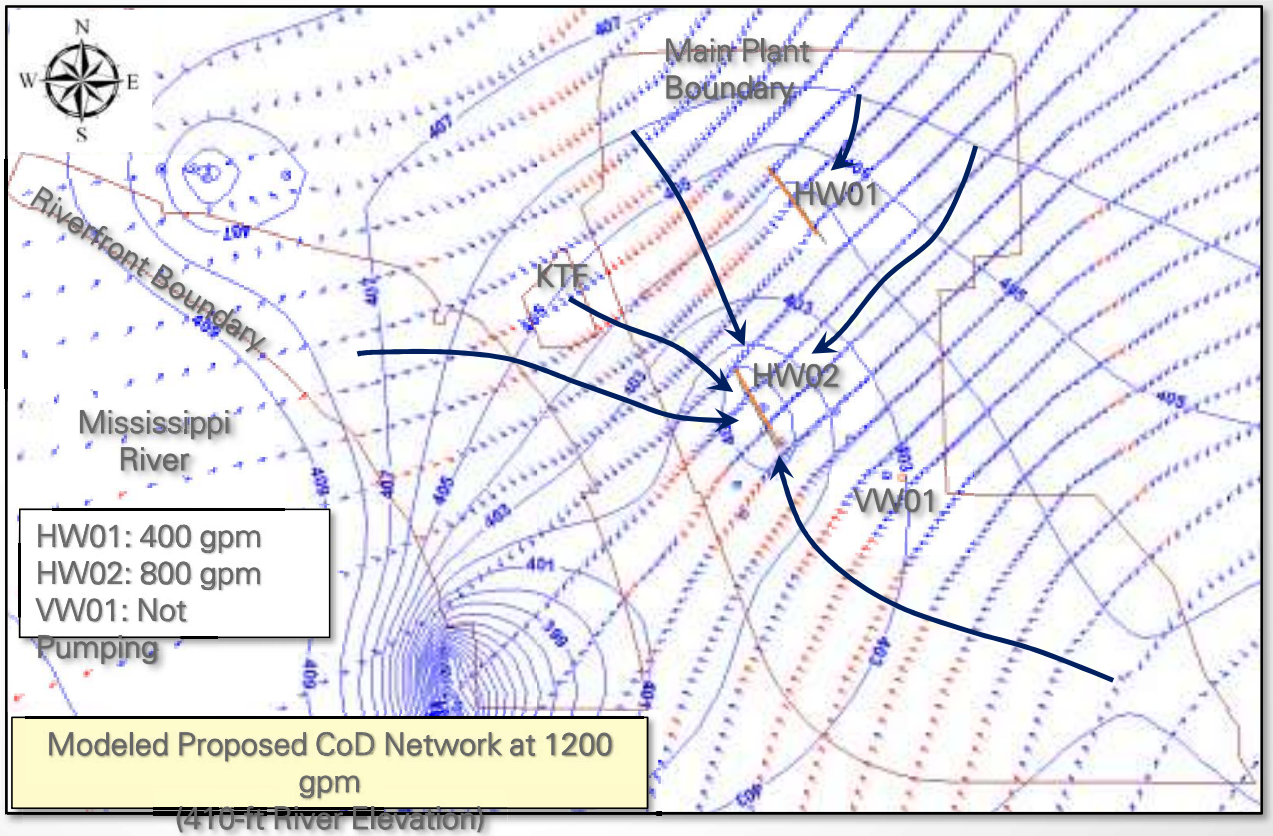
R001515

CoD Well Configuration – Example Model Results

Example model results for proposed CoD Well configuration, with calculated groundwater elevation contours and groundwater flow vectors.

City of Wood River pumping center observed north of Riverfront.

P66 pumping center observed south of Riverfront.



Blue vectors indicate upward gradient; Red vectors indicate downward gradient

R001516

Pilot-Scale Bioremediation Systems

R001517

Pilot-Scale Bioremediation Systems

Three Expansion Pilot-Scale Bioremediation Systems installed and started up in 2020-2021 as part of LNAPL Interim Remedial Measures:

- Northern AS/SVE
- Central Biovent
- Southern Biosparge/Biovent

Systems are monitored and assessed for effectiveness using Operational and Remedial Progression Metrics

- Operational Metrics – define metrics directly affected by system operation
  - VOC removal rates, biodegradation rates, pressure influence, operational uptime
- Remedial Progression Metrics – define if a system is effective at progressing the site
  - Reducing benzene in groundwater (compositional change), reduce risk to potential receptors, improve groundwater conditions compared to MNA/NSZD

Initial Pilot-Scale systems operated from 2017-2020

P&O

R001518

Bioremediation Systems Overview

Overall initial bioremediation system performance 2017-2020 successful

- Systems demonstrated that they can treat mobile and residual LNAPL and reduce benzene/VOC concentrations in soil and groundwater
- Expansions implemented 2020-2021 aimed to continue pilot testing to demonstrate remedial progression with compositional change over a larger area

Bioremediation systems significantly outperform hydraulic removal for current LNAPL conditions

- Bioremediation system mass removal/degradation is orders of magnitude higher than physical recovery efforts and outperformed the previous HRS
- Physical LNAPL recoverability/transmissivity decreases over time as LNAPL source degrades

Additional efforts in 2021-2022 to improve data gathering and evaluation through digitization

P&O

R001519

Expansion Northern AS/SVE System

Goal to reduce groundwater VOC impacts (compositional change) while monitoring dissolved metals

Initial System

- 4 SVE Wells
- 5 AS Wells – 50 ft depth
- GAC Treatment

Expansion System

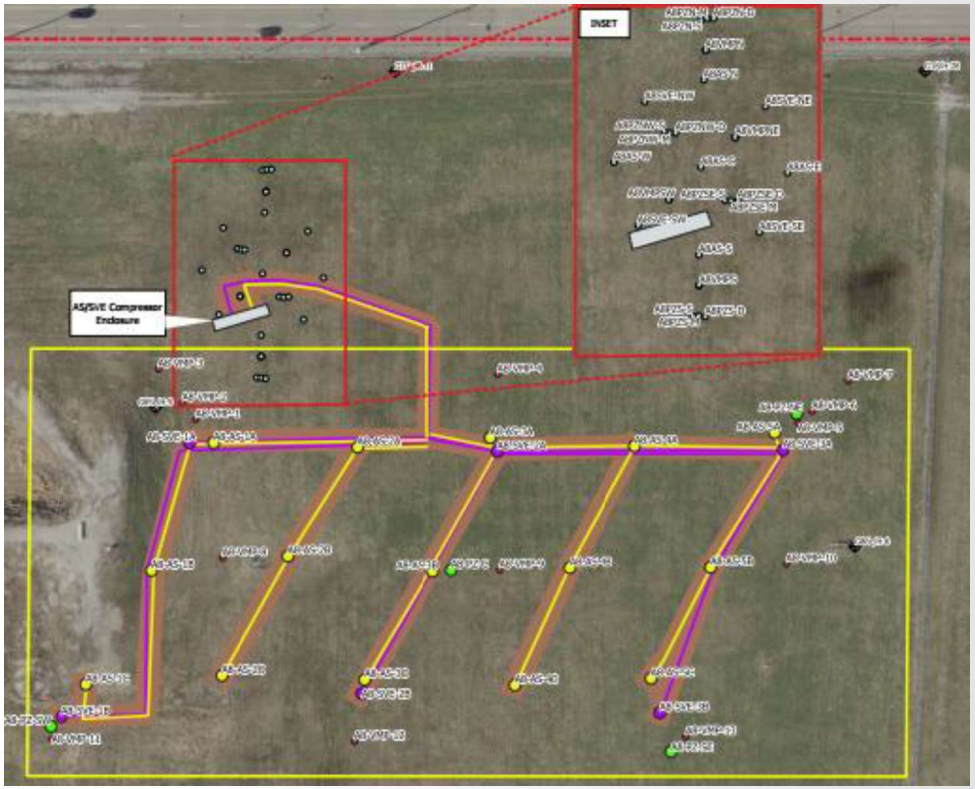
- 6 SVE Wells
- 15 AS Wells – 65-70 ft depth
- Catalytic Oxidizer Treatment

System Status

- Initial system shutdown July 2020
- Expansion SVE system started up in December 2020
- AS initiated in July 2021

Equipment/Energy

- One 25 Hp SVE blower
- One 25 Hp rotary screw compressor
- Cat Ox treatment utilizes no energy for heater at current HC influent

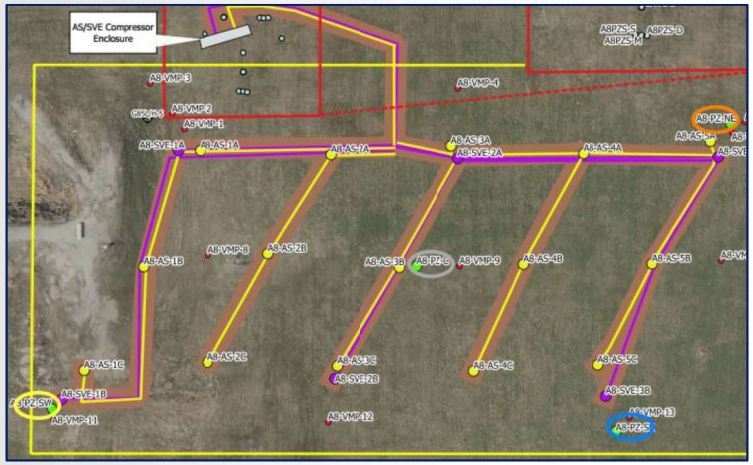


P&O

R001520

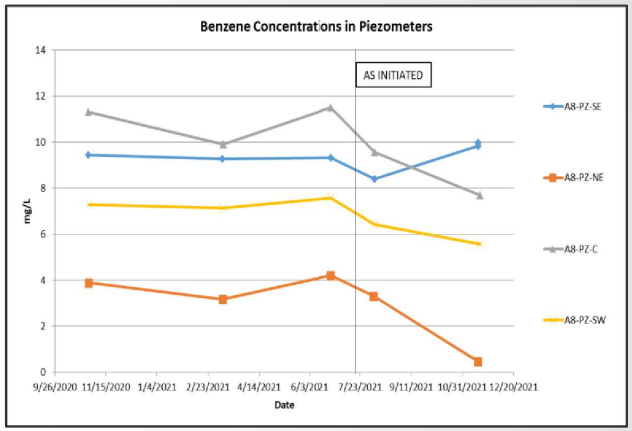
Expansion Northern AS/SVE System Performance

Monitoring compositional change and impacts on inorganic constituents.



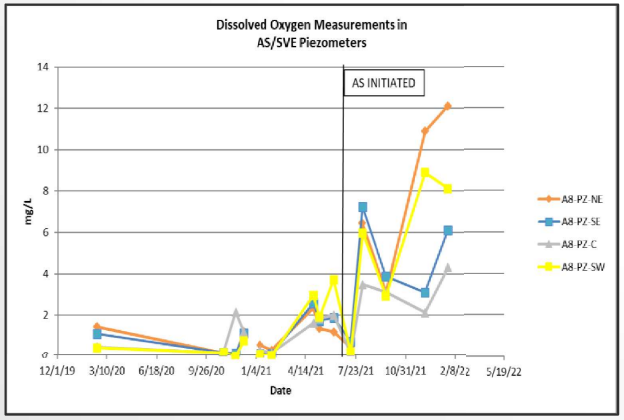
<u>Remedial Progression</u>

-Monitoring Benzene Concentrations *Compositional change in GW.*

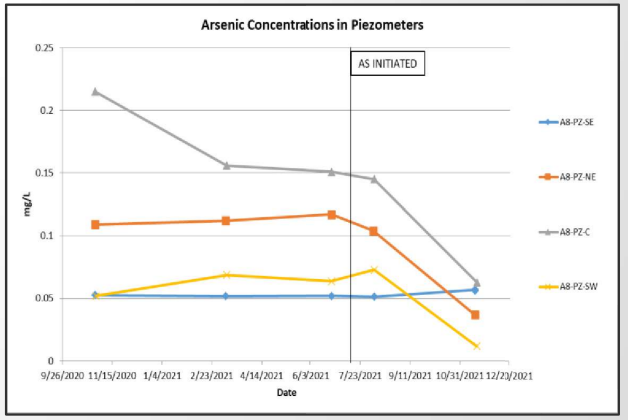


<u>Operational</u>

-Created saturated aerobic conditions *Increase after AS initiated*



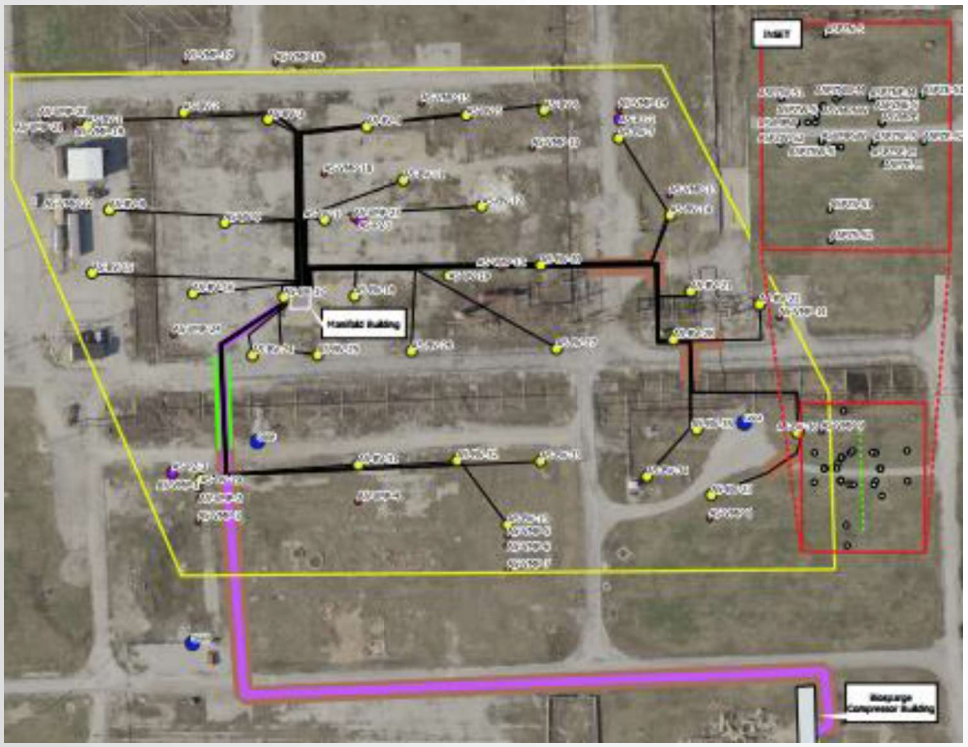
-Monitoring impacts on inorganics *Metals not mobilized due to AS/SVE operation.*



R001521

Expansion Southern BS/BV System

Goal to reduce LNAPL saturation in area of COD system drawdown, and mitigate groundwater VOC impacts through compositional change.



Initial System

- One single horizontal well ~45 ft bgs
- Biosparging/bioventing ~100 scfm

Expansion System

- 35 vertical wells ~38 ft bgs
- Bioventing ~240 scfm
- Additional manifold building installed
- Larger area to west of original treatment area near COD wells

System Status

- Initial system shutdown September 2020
- Expansion system started up July 2021

Equipment/Energy

- One 40 Hp rotary screw compressor

P&O

R001522

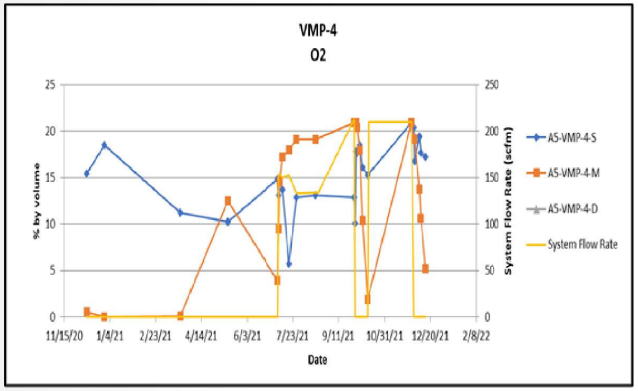
Expansion Southern BS/BV System Performance

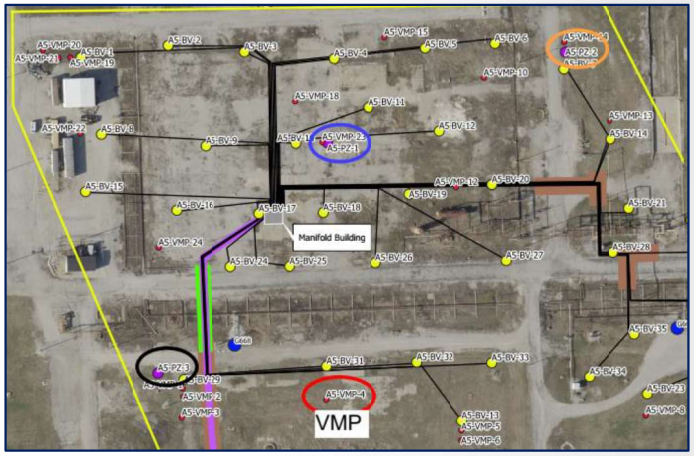
Monitoring bioventing ability to decrease HC in soil and groundwater.

Operational

-Created aerobic vadose zone

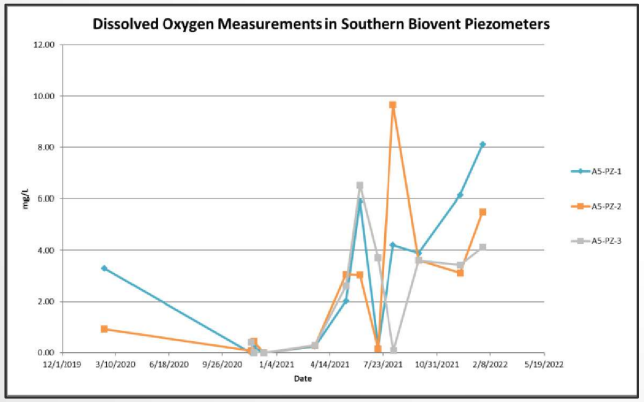
Oxygen 10-20% by volume throughout vadose zone





-Increased DO in piezometers

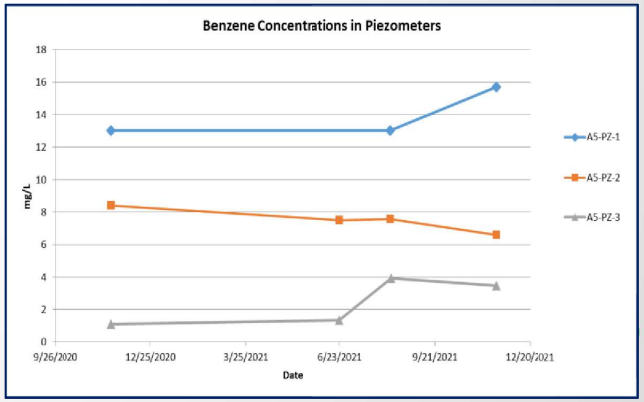
Aquifer made aerobic with capacity for additional degradation



Remedial Progression

-Monitoring Benzene Concentrations

Compositional change in GW.



R001523

Expansion Central BV System

Goal to reduce LNAPL saturation & Tn over larger area, while mitigating groundwater VOC impacts through compositional change.

Initial System

- 6 Nested BV Wells (3 shallow, 3 deep)

Expansion System

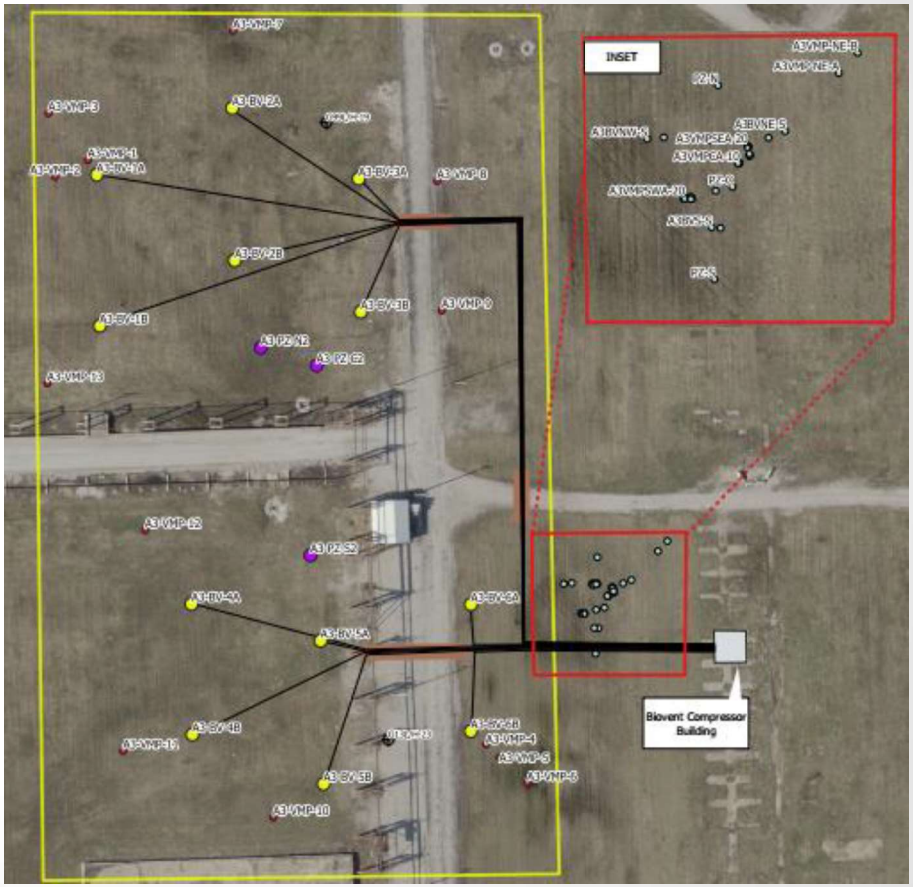
- 12 BV Wells (deep only)
- Larger area to west of original treatment area near wells G99L and G13L

System Status

- Initial system shutdown July 2020, converted to Passive Bioventing in December 2020
- Expansion system started up April 2021

Equipment/Energy

- One 7.5 Hp rotary vane compressor

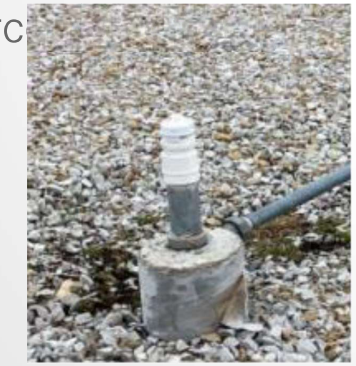


R001524

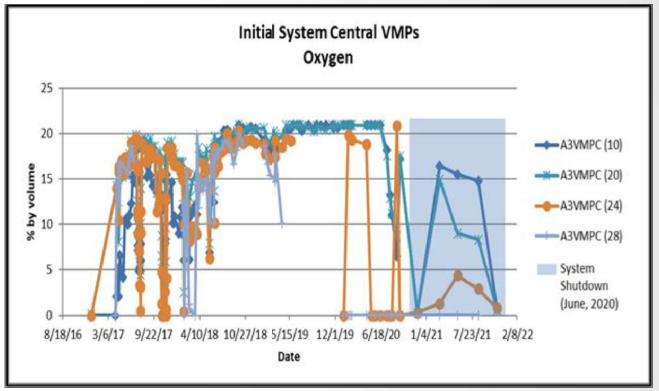
Initial Central BV System Post-Shutdown

Monitoring ability of passive bioventing to maintain enhanced degradation.

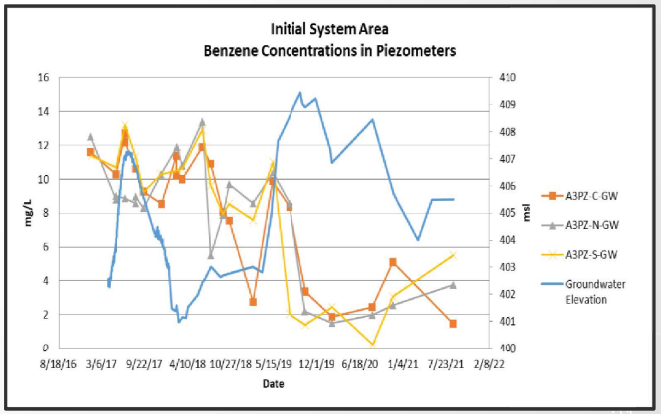
- One-way valves installed on initial biovent wells in December 2020.
- Allowed vadose zone to remain aerobic for continued degradation, especially with fluctuating water table.
- Provides pathway for transitioning from active to passive system following sourc



<u>Operational</u>
-Maintained aerobic vadose zone
Oxygen increased after passive vents installed



<u>Remedial Progression</u>
-Decreased Benzene Concentrations
Compositional change in GW.



P&O

R001525

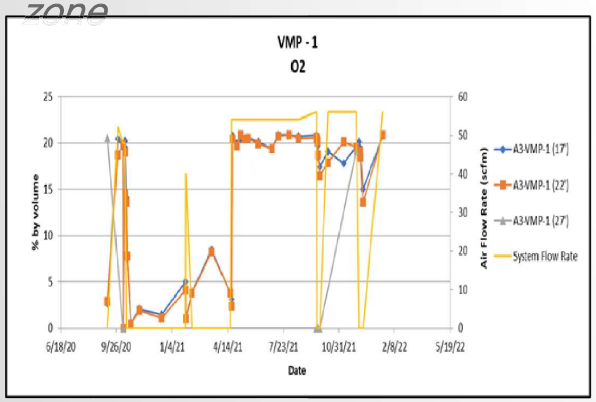
Expansion Central BV System Performance

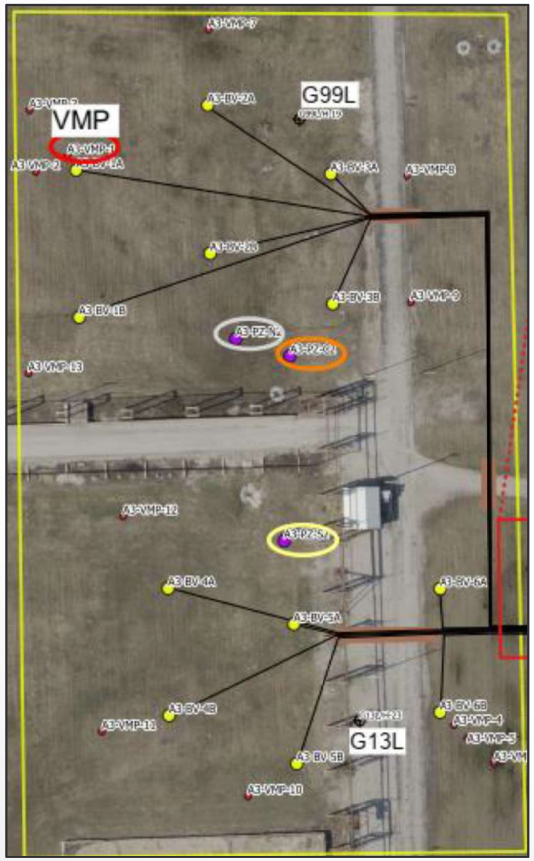
Monitoring BV ability to degrade mobile LNAPL and affect HC concentrations in groundwater.

<u>Operational</u>

-Created aerobic vadose zone

Oxygen 10-20% by volume throughout vadose zone

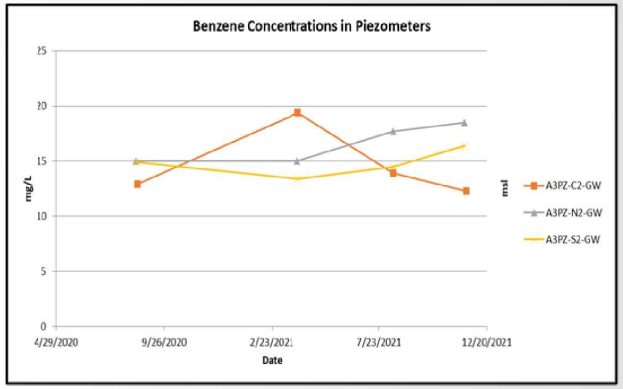




<u>Remedial Progression</u>

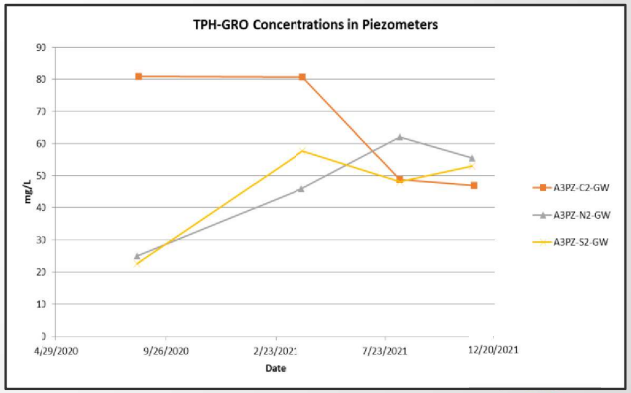
-Monitoring Benzene Concentrations

Compositional change in GW.



-Monitoring TPH-GRO Concentrations

Compositional change in GW.

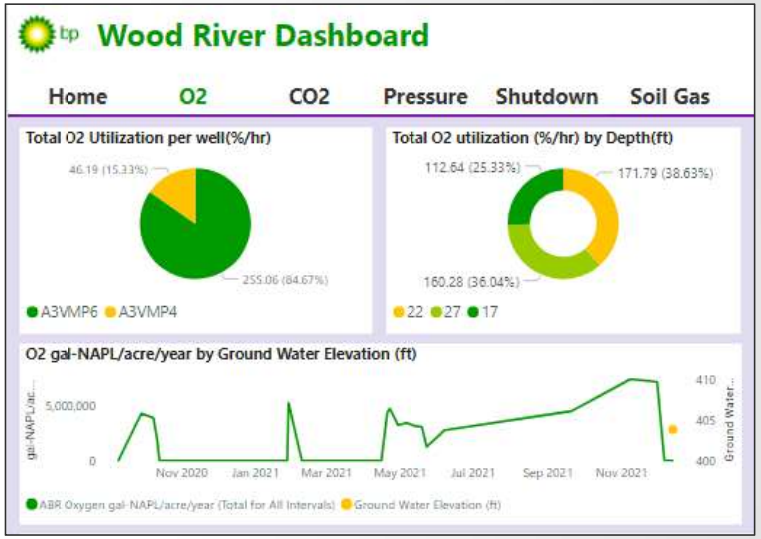


R001526

Data Digitization

Work currently in progress to digitize data gathering and improve data evaluation

- Data collected through electronic devices
  - Includes automatic data validation for users in the field
- Data automatically uploads to site databases/repositories
- Data evaluation through automated reporting processes
  - Faster – can respond to changes, outliers, or issues in near real time
  - Better – data evaluation can become spatiotemporal, variable, and incorporate built-in calculations
  - Accessible – reporting analysis available online



P&O

R001527

LNAPL IRM Summary

R001528

LNAPL Interim Removal Action Summary

Routine LNAPL removal activities include:

1. Automated LNAPL skimming using a mobile, solar powered, LNAPL belt-skimmer that can be deployed at a select well(s)
2. Manual removal via pumping and bailing, based on monthly monitoring and gauging

Interim removal measures for LNAPL at the Main Plant are routinely conducted in accordance with the IRM Criteria specified in the RCRA Permit:

- LNAPL Removal is targeted on wells that exhibit LNAPL Transmissivity (Tn) above the threshold value of 2.0 ft^2/day during low water table conditions; this value is used to account for effects seasonal water table fluctuations on recoverability (The ITRC endpoint range assumes that the Tn value is consistent throughout the year)
- 30-day average Alton Dam Tailwater River stage is below 410 ft MSL as relative indication of lower groundwater elevation when LNAPL Tn is higher
- An LNAPL thickness threshold of 0.5 feet to provide sufficient volume for removal

Criteria are intended to focus LNAPL removal actions where and when water table conditions are more conducive to LNAPL recovery.

P&O

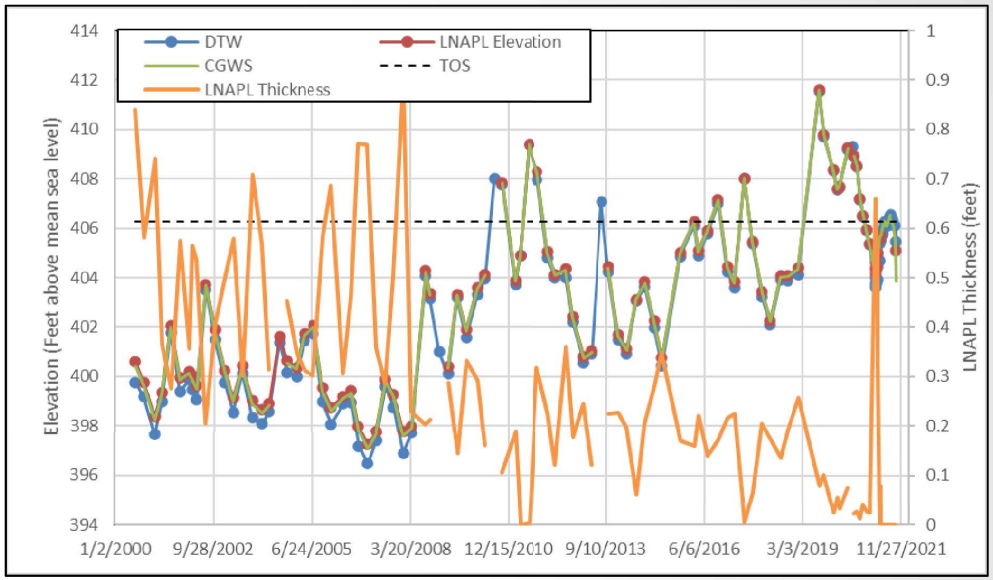
R001529

LNAPL Physical Recovery

The mobile, automated, solar-powered, LNAPL belt skimmer was deployed at well G-12 where LNAPL is unconfined

- Historically higher LNAPL Transmissivity values from G-12 during baildown tests than other wells on the Main Plant
  - Previous estimates prior to 2016 Tn > 8 ft2/day
  - March 2021 LNAPL Tn estimated ~1.6 ft2/day.
- Despite the historic elevated LNAPL Tn and moderate level in 2021, well G-12 has produced low LNAPL volumes
  - From 3/9/21-3/1/22, only 23 gallons LNAPL have been collected in G-12 belt skimmer (16 gallons in 2021)
    - Only 2 gallons collected with physical recovery remainder of site in 2021
- Wil leave in place through low water table period or if another well suggests additional LNAPL recovery

G-12 Hydrograph



- Physical measures are less effective given the seasonal water table fluctuations, limited mobile LNAPL, and low LNAPL Tn
- Based on recent Tn testing and well gauging, no wells meet the Permit requirements for manual recovery

P&O

R001530

LNAPL IRM Summary

LNAPL IRM Conducted in 2021 included:

- Operation and expansion of the three bioremediation systems
- Physical LNAPL Recovery (belt skimmer and manual)

Bioremediation systems outperform hydraulic removal for current LNAPL conditions.

- Physical LNAPL recoverability/transmissivity decreases over time as LNAPL source degrades

Interim Remedial Measure	1Q2021 LNAPL Volume Removed/ Degraded (gallons)	2Q2021 LNAPL Volume Removed/ Degraded (gallons)	3Q2021 LNAPL Volume Removed/ Degraded (gallons)	4Q2021 LNAPL Volume Removed/ Degraded (gallons)	TOTAL 2021 LNAPL Volume Removed/Degraded (gallons)
Central Biovent	0	1,545	2,061	2,061	**5,667**
Southern Biosparge/Biovent	0	0	4,938	4,652	**9,590**
Northern Air Sparge/Soil Vapor Extraction	1,221	1,676	2,118	1,305	**6,320**
LNAPL Physical Recovery	5	1	0	12	**18**
TOTAL	**1,226**	**3,222**	**9,117**	**8,030**	**21,595**

P&O

RASSR Response to Comments

P&O

R001532

RASSR Response to Comments

In January 2022, BP submitted a response to comments (RtC) received from the Agency related to the Remedial Action Selection Report and Roadmap (RASSR).

The response requested clarification of several questions related to defining site-specific:

- Receptor Points of Exposure (POE)
- Points of Compliance (POC) per Pathway
- Remedial Objectives and Timeline for Calculatin

This table from the RtC summarizes assumptions rela to these clarifications.

Pathway:	PVI	Surface Water	Potable Use Groundwater
POE:	Main Plant property boundary	Table lake (north of Forebay) and/or Former Channel at Riverfront	Sentinel Wells (>500' from nearest potable supply wells)
POC:	Main Plant GMZ Wells	Monitoring wells to be proposed between Main Plant and surface water	Main Plant GMZ Wells
Remedial Objective:	Site-specific TACO Tier 3	SWQS 35 IAC 302 or Class 2 GQS if not included in SWQS	Class 1 GQS until MEP is achieved; then site-specific TACO Tier 2 at POC and Class 1 GQS at POE
Model/Calculation:	USEPA PVIScreen Model (based on API BioVapor)	From regulations	TACO Tier 2 calculations (R26), after meeting MEP

Specific questions posed in the RtC are presented on the next slide.

P&O

R001533

RASSR Comments – Request for Clarification

BP is looking for Agency clarifications and/or response to the following questions in order to progress remedial solutions at the Main Plant:

1. Can the revised RASRR be prepared and submitted in conjunction with the pending Groundwater Remedy Implementation Plan (GRIP), or are separate submittals required?
2. Is the use of the USEPA PVIScreen model (developed from API BioVapor model) to calculate Tier 3 ROs at the Main Plant property boundary, considering dirt floor building construction and the effects of biodegradation, acceptable for presenting to Agency for review and approval?
3. Can the Agency confirm which surface water body is considered the nearest potential receptor to the Main Plant facility and clarify the appropriate RO for application to POC monitoring well(s) [to be proposed]?
4. Following removal of free product to MEP, can TACO Tier 2 equations (i.e., R26 equation) be used to develop alternative groundwater concentrations per 35 Ill. Adm. Code 724.194(b) as site-specific ROs for groundwater between the POC/GMZ wells and POE/Sentinel Wells?
5. Would the IEPA be open to discussions to define location/area specific MEPs based on stable dissolved concentrations, stable LNAPL plume, and low transmissivity as an alternative to LNAPL MEP being measured as zero sheen?

R001534

Path from RASSR to GRIP

The steps needed to revise the RASRR and prepare the GRIP include:

For Revision of RASRR

1. Document exposure pathways, receptors, and POE
2. Define POC for each pathway (prior to demonstrating MEP)
3. Document the agreed upon demonstration criteria for LNAPL removal to MEP
4. Define POC for groundwater potable use pathway after Tier 2 RO are calculated and approved
5. Develop Tier 3 RO for the PVI pathway
   - BP to propose site-specific soil vapor biodegradation evaluation and modeling

To Prepare GRIP

6. Define footprint of needed active remediation to protect POC
7. Design the set of remediation approaches to be applied at the Main Plant
8. Prepare and submit GRIP

R001535

Other Topics & Wrap-Up

R001536

Other Topics

Other topics if time permits:

- Groundwater Optimization Plan & Well Conditions
- Site-Wide Inorganics Monitoring Report
- GMZ Abutment
- Well Integrity Management program
- LRI Reporting
- Permit Renewals

Other topics or priorities to discuss?

P&O

R001537

Well Integrity Management Program Update & Path Forward

bp

Location	Obstructed Wells	Obstructions Removed / No Further Action Required	Well Redevelopment before Q2 Groundwater Monitoring Event	Well Replacements Proposed (1)	Use Bladder Pump to Bypass Obstructions	Planning Additional Attempt to Remove Object Obstruction
Main Plant	8	0	1	2 (GMZ well G078 & Observation well G85L)	5	0
Riverfront	21	2	6	3 (Observation wells G31L, G35L, & G401)	7	3

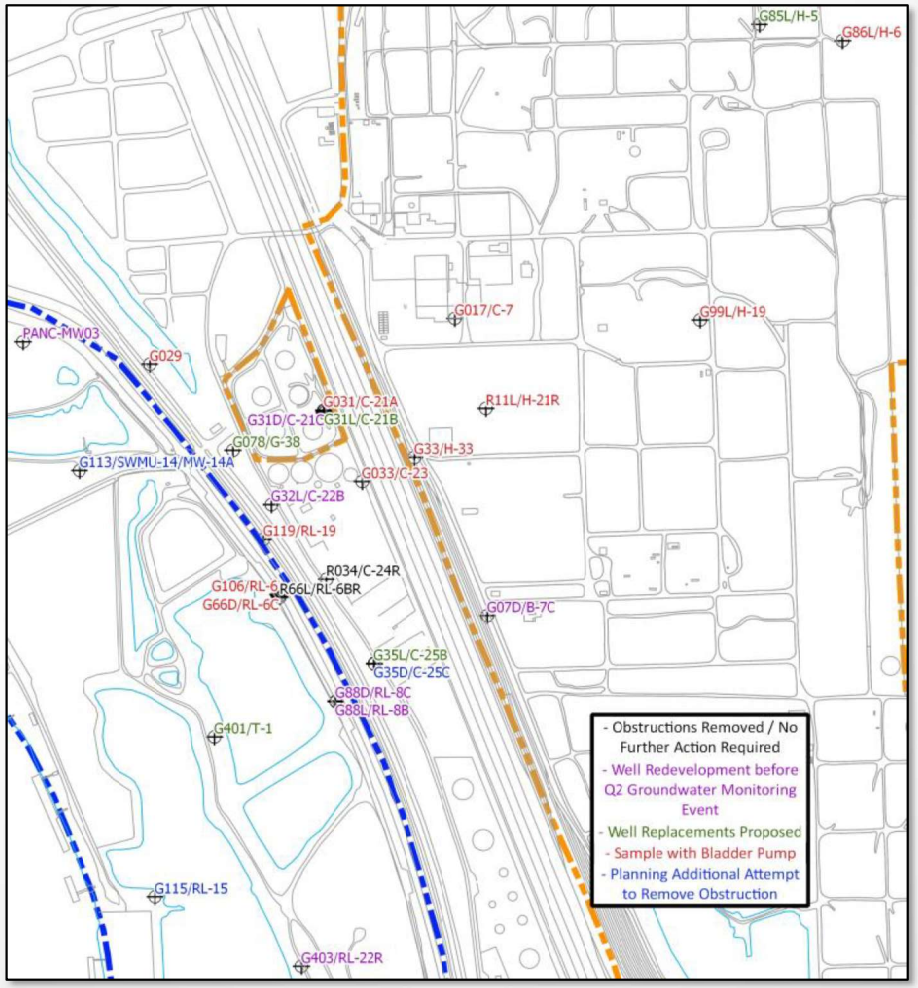
(1) 3-18-2022 Main Plant and Riverfront Well Condition Letters submitted to Illinois EPA proposing well replacements

Note: Some object obstructions have been removed manually, and some shallow obstructions have been removed via well repair; however, some deeper obstructions remain in repaired wells.

P&O

R001538

Identified Well Status Update & Path Forward

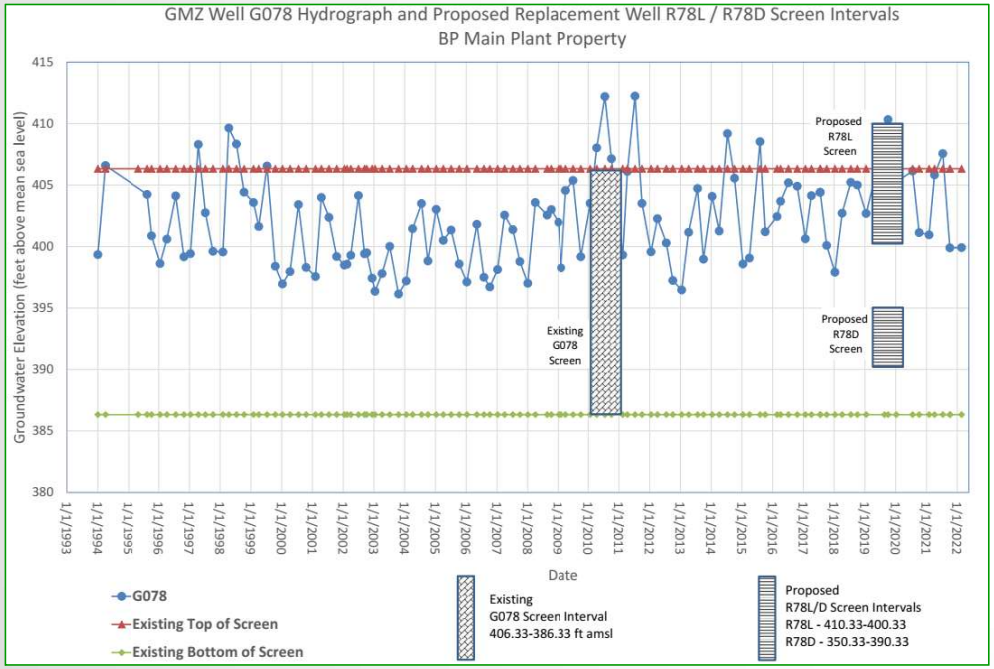


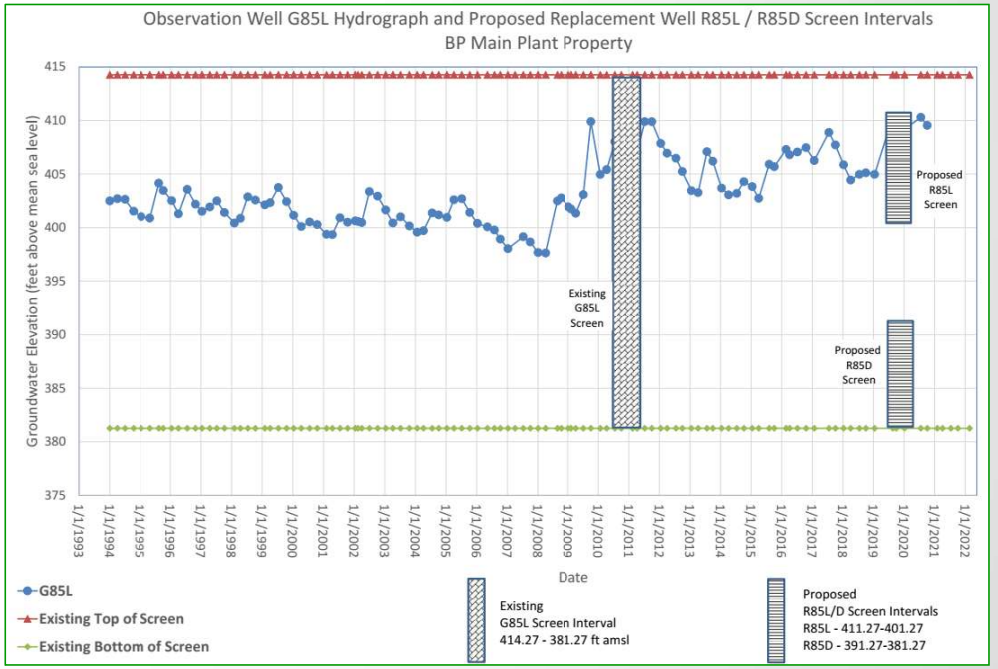
R001539

Damaged Well Status Update & Path Forward

Riverfront Wells – No change proposed in well screen intervals.

Main Plant Wells – Proposed well pairs to replace existing wells.





P&O

R001540

Comprehensive Integrity Management Program

- Each well in the sampling network now has a designated pump type in our data collection system (EQuIS Collect) for low flow sampling. Any findings or observations that prevent the use of that pump during a sampling event will be elevated for further investigation and obstruction removal, repair, or replacement as deemed appropriate. These interventions will be tracked and completed in a timely manner.
- Pump types will be limited to monsoon pumps and bladder pumps
  - We tested a small-diameter bladder pump (QED model) at the site on 1/26, and were able to get continuous flow for sampling at 80 ml/min. The team has reviewed EPA procedures for low flow sampling, and although this is below the 100 ml/min recommended in the permit, the team believes that this flow rate is in conformance with the EPA procedures, and appropriate to get quality samples which are representative of the conditions at the well.
- Bottom depths will be reviewed annually, after they are measured during the Q2 gauging event, against the original bottom depth (from construction), and action will be taken as follows:
  - For sampling wells: if greater than 15% of the screen is silted, the well will be either redeveloped or replaced
  - For gauging only wells: if greater than 50% of the screen is silted, the well will be either redeveloped or replaced

BP Submittals Awaiting Feedback

The following documents submitted by BP are awaiting feedback from Illinois EPA:

Document Name	Date Submitted
MP Groundwater Optimization Rpt Addendum	07/20/20
RF Groundwater Optimization Rpt Addendum	07/20/20
MP GMZ Re-evaluation (w/ GMZ Abutment proposal)	12/18/20
RF GMZ Re-evaluation (w/ GMZ Abutment proposal)	12/18/20
MP Class 1* Permit Mod - PM Change and GMZ Wells G067/G068	12/21/20
MP Soil Gas Pathway Evaluation Report	06/07/21
MP Area 12 Class 1* Permit Mod-CA Financial Insurance	12/23/2021
MP SWIM Evaluation Report	01/25/22
RF SWIM Evaluation Report	01/25/22
MP RASRR response to IEPA Comments	01/28/22
MP COD Well System Upgrade Proposal	03/15/22
RF COD Well System Upgrade Proposal	03/15/22
MP Well Condition Letter	03/18/22
RF Well Condition Letter	03/18/22

R001542

Meeting Wrap-Up

- COD Well Upgrade Proposal Submittal
- RASRR Clarification Question Responses
- Follow-up Communications Schedule (next meeting)

R001543

DOCUMENT 23

Faruk, Omar

From: Faruk, Omar
Sent: Tuesday, September 24, 2024 10:31 AM
To: Knapp, Michelle; Wright, Starlet
Cc: Halteman, Takako; Butler, Amy
Subject: RE: BP Main Plant area

Michelle,
Yes, the draft copy will get out by the end of this month, and the public comment period will begin on September 30, 2024.
Sure, you will receive the electronic copy either today or tomorrow. Thank you.

Omar

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Tuesday, September 24, 2024 9:59 AM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; STARLET Wright <swright@sovcon.com>
Cc: Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: [External] RE: BP Main Plant area

Thanks, Omar,
Are you still expecting to get the draft out for public comment by the end of this month?
Can I get an e-mailed copy of the draft when it goes out?
Let me know.
Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Tuesday, September 24, 2024 9:51 AM
To: STARLET Wright <swright@sovcon.com>
Cc: Knapp, Michelle <michelle.knapp@bp.com>; Halteman, Takako <Takako.Halteman@Illinois.gov>
Subject: RE: BP Main Plant area

Starlet,

You don’t need to mail it. We've updated the draft copy to reflect "approximately 570 acres (561.30 + 9.26)" instead of approximately 569 acres for BP's total land area. Thank you.

Omar

From: Starlet Wright <swright@sovcon.com>
Sent: Friday, September 20, 2024 3:10 PM
To: Knapp, Michelle <michelle.knapp@bp.com>; Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: [External] Re: BP Main Plant area

Omar,

The surveyors confirmed 561.30 acres is correct, noting that the legal description was re-recorded at the County in 2015, adding a little area. The incorrect legal description area on the second page was from before the 2015 correction. The

surveyors have corrected page 2 of the attached file. Do we need to mail a hard copy replacement page for this single page from Exhibit B-1?

Thanks,

Starlet S. Wright

Senior Project Manager

email: swright@sovcon.com

mobile: 813-767-1959

Sovereign Consulting Inc.

www.sovcon.com

From: Knapp, Michelle <michelle.knapp@bp.com>
Sent: Wednesday, September 18, 2024 11:41 AM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>; Starlet Wright <swright@sovcon.com>
Subject: RE: BP Main Plant area

Omar,
Our surveyors are in the field today, but will look into it this afternoon.
I hope to have something back to you on this tomorrow.
Thanks,
Michelle

From: Faruk, Omar <Omar.Faruk@Illinois.gov>
Sent: Wednesday, September 18, 2024 8:54 AM
To: Knapp, Michelle <michelle.knapp@bp.com>; STARLET Wright <swright@sovcon.com>
Subject: BP Main Plant area

Michelle, Starlet,

Could you please confirm the correct acreage for the BP Main Plant area so that we can update the facility boundary information in the draft permit application? For your convenience, I've attached and highlighted the pics (from the legal description in Section B). Thank you.

Regards,
Omar Faruk, EIT
Environmental Protection Engineer
RCRA Unit, Permit Section, Bureau of Land, Illinois EPA
217-557-9764
Omar.Faruk@Illinois.gov

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DOCUMENT 24

From:	Faruk, Omar
To:	Dial, Shawntay D.; Halteman, Takako; Butler, Amy
Subject:	FW: bp Wood River Main Plant draft permit comments
Date:	Wednesday, November 13, 2024 12:09:25 PM
Attachments:	image001.png ILWR241113 MP Draft RCRA Permit - Public Notice Comments.pdf

I would like to share the public notice comments received from BP.

From: Knapp, Michelle
Sent: Wednesday, November 13, 2024 11:05 AM
To: Faruk, Omar
Cc: STARLET Wright ; Hoffman, Michael
Subject: [External] bp Wood River Main Plant draft permit comments

Omar,

Attached are bp's comments on the Main Plant Permit Draft.

These comments were also mailed as per the instructions on the Draft Permit for arrival tomorrow.

Let me know if you have any questions or need additional information at this time.

Thanks,

Michelle
Michelle Knapp
Liability Manager
BP Remediation Management
847-346-7112

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bp

Remediation Management Services Company

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

November 13, 2024

Ms. Sarah Brubaker
Public Involvement Coordinator (#5)
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant
USEPA ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Public Notice Comments for Draft Permit

Dear Ms. Brubaker:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting to the Illinois Environmental Protection Agency (Illinois EPA) comments on the Draft Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (Draft Permit) for the bp Wood River Main Plant in Wood River, Madison County, Illinois. bp's comments on the Draft Permit are presented in italicized font. The proposed text revisions for the Draft Permit are presented in red-line strikeout format.

If you have any questions regarding the comments provided, please contact me at (847) 346-7112.

Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

Enclosure: Public Notice Comments for Draft RCRA Permit

cc: Illinois EPA Bureau of Land, Division of Land Pollution Control, Permit Section
Becky Raftery, bp Legal

Public Notice Comments for Draft RCRA Permit

Page	Comment	Reference / Proposed Revision(s)
FACT SHEET		
I. INTRODUCTION		
1 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The draft renewed RCRA permit for BP Main Plant contains all of the standard conditions required by 35 IAC Parts 702, 703 and 724; and the applicable conditions of 35 IAC 724.201 and Section 3004(u) of RCRA for the completion of corrective action activities at the subject facility.
IV. CORRECTIVE ACTION ACTIVITIES		
A. Solid Waste Management Units (SWMUs)		
3 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	35 IAC 724.201 and the original and current RCRA permit for this facility requires corrective action, as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents from any SWMUs and areas of concern at this facility.
B. Groundwater Corrective Action		
4 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this draft renewed RCRA permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

R001552

Page	Comment	Reference / Proposed Revision(s)
	a. Parameters	
4 of 7 and 5 of 7	*Please revise hazardous constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA-85 and 89).* *bp submitted a Site-Wide Inorganics and Metals (SWIM) Evaluation Report dated January 25, 2022 for both the Riverfront and Main Plant facilities in which it was demonstrated that increases in dissolved-phase inorganics may be due to naturally occurring fluctuations or other external influences; and that these fluctuations may exceed the established Class 1 GQS. The SWIM evaluation determined that arsenic is present in the uppermost aquifer at background concentrations that exceed the Class 1 GQS of 0.01 mg/L. bp proposed that a site-specific groundwater quality standard for arsenic be established at a concentration of 0.036 mg/L. Please revise to include a footnote stating the Concentration Limit for arsenic may be increased to a site-specific groundwater quality standard if approved by Illinois EPA.*	Hazardous Constituents / Storet No. / Concentration Limits (mg/L) Antimony 01097 0.006 Arsenic 01002 0.01** Barium 01007 2.0 ~~Beryllium~~ ~~01012~~ ~~0.004~~ ~~Cadmium~~ ~~01027~~ ~~0.005~~ Chromium 01034 0.1 ~~Cobalt~~ ~~01037~~ ~~1.0~~ Lead 01051 0.0075 ~~Mercury~~ ~~71900~~ ~~0.002~~ Nickel 01067 0.1 Selenium 01147 0.05 ~~Vanadium~~ ~~01087~~ ~~0.049~~ VOCs 1,2-Dichloroethane 34531 0.005 1,3-Dichlorobenzene 34561 0.0002 ~~1,4-Dichlorobenzene~~ ~~34571~~ ~~0.075~~ ~~2-Butanone (MEK)~~ ~~81595~~ ~~4.2~~ Benzene 34030 0.005 ~~Carbon Disulfide~~ ~~77041~~ ~~0.7~~ ~~Chlorobenzene~~ ~~34301~~ ~~0.1~~ Chloroform 32106 0.0002 Ethylbenzene 78113 0.7 Toluene 34010 1.0 Total Xylenes 34020 10.0 Methyl Tertiary-Butyl Ether 46491 0.07 Styrene 77128 0.1

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Page	Comment	Reference / Proposed Revision(s)		
4 of 7 and 5 of 7	*[Continued]*	SVOCs		
		2,4-Dimethylphenol	34606	0.14
		~~2,4-Dinitrophenol~~	~~34616~~	~~0.014~~
		~~2-Methylphenol (o-cresol)~~	~~77152~~	~~0.35~~
		4-Methylphenol (p-cresol)	77146	0.035
		~~4-Nitrophenol~~	~~34646~~	~~--~~
		~~Anthracene~~	~~34220~~	~~2.1~~
		Benzo(a)anthracene	34526	0.00013
		Benzo(a)pyrene	34247	0.0002
		Benzo(b)fluoranthene	34230	0.00018
		Benzo(k)fluoranthene	34242	0.00017
		Bis(2-ethylhexyl)phthalate	39100	0.006
		~~Butyl benzyl phthalate~~	~~34292~~	~~1.4~~
		Chrysene	34320	0.0015
		Dibenzo(a,h)anthracene	34556	0.0003
		~~Diethyl phthalate~~	~~34336~~	~~5.6~~
		~~Dimethyl phthalate~~	~~34341~~	~~--~~
		~~Di-n-butyl phthalate~~	~~39110~~	~~0.7~~
		~~Di-n-octyl phthalate~~	~~34596~~	~~0.14~~
		~~Fluoranthene~~	~~34376~~	~~0.28~~
		Naphthalene	34696	0.14
		~~Phenanthrene~~	~~34461~~	~~0.21~~
		Phenol	34466	0.035
		~~Pyrene~~	~~34469~~	~~0.1~~
		~~Pyridine~~	~~77045~~	~~0.007~~
		Biogeochemical[1] Analytes	Storet No.	Concentration Limits (mg/L)
		Dissolved iron	N/A	--
		Dissolved sulfate	N/A	--
		Dissolved manganese	N/A	--

R001554

Page	Comment	Reference / Proposed Revision(s)
4 of 7 and 5 of 7	*[Continued]*	-- Not available N/A = Not applicable 1 = To monitor natural attenuation conditions ** Site-specific concentration limit may be used if approved by the Illinois EPA.
C. Standard Permit Conditions		
6 of 7	2nd sentence: *As noted in Condition I.C.1 of the draft permit, Illinois EPA should revise this language in the Fact Sheet to clarify that some standard conditions are not applicable to this facility.*	The standard conditions are of a general nature and are applicable to all hazardous waste management facilities regulated pursuant to an Illinois EPA RCRA permit except as noted within this draft renewed RCRA permit (e.g., Condition I.C.1). The standard conditions include the effectiveness of the permit, permit actions, permit severability, permit expiration, monitoring, retention of records, permit transfer, and compliance schedules.
V. CONSIDERED PERMIT ACTIONS OTHERS THAN RCRA		
B. Water		
6 of 7	2nd sentence: *Please revise the Water Pollution Control Permit No. to align with the current permit issued by Illinois EPA on September 16, 2024.*	The groundwater remediation and treatment system at the facility has a permit from Illinois EPA's Bureau of Water (Permit No. ~~2020-EP-64994~~2024-EP-71491).

R001555

Page(s)	Comment	Reference / Proposed Revision(s)
RCRA CORRECTIVE ACTION PERMIT – MAIN PLANT FACILITY Illinois EPA No. 1191150001 USEPA No: ILD980700967		
I. GENERAL FACILITY DESCRIPTION		
	B. LOCATION	
I-I	Condition 2.c, 2nd sentence: *Please revise to align with removal of the Area 2 Donation Parcel I – Stormwater Detention Basin (9.56 acres) and the Kinder Morgan Phoenix Holdings (KMPH) parcel (118.25 acres).*	The facility which is the subject of this permit, located between 418 ft above MSL and 428 ft above MSL, is approximately 442.19 acres in size. This is a reduction of approximately ~~7.5~~127.81 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a ~~(2)~~(1) and (3).
I-I	Condition 2.d, 2nd sentence: *Please revise to align with removal of only the KMPH parcel (118.25 acres).*	The facility which is the subject of this permit, located between 408 ft above MSL and 418 ft above MSL, is approximately 451.75 acres in size. This is a reduction of approximately ~~17.06~~118.25 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a ~~(1) and (2)~~(3).
	C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES	
I-3	Condition 1, 3rd sentence: *Please revise to include closure and post-closure care (35 IAC 724, Subpart G), financial (35 IAC 724, Subpart H), and 35 IAC 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit) in the list of requirements that are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.*	There are no regulated hazardous waste management units (HWMUs) operating or requiring closure/post-closure care under this permit at this facility. Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit. This includes the requirements for personnel training (35 IAC 724, Subpart B), preparedness and prevention (35 IAC 724, Subpart C), ~~and~~ contingency plan and emergency procedures (35 IAC 724, Subpart D), closure and post-closure care (35 IAC 724, Subpart G), and financial (35 IAC 724, Subpart H). Additionally, 35 IAC 727 requirements are not applicable to this permit. However, please note that through the application of other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site.

R001556

Page(s)	Comment	Reference / Proposed Revision(s)
I-4	Condition 3.b, 2nd paragraph: *Please revise to reflect that a certified ELUC for the South Flare Pit (SFP) was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit.* *Please correct the reference to the condition with Groundwater Requirements for the SFP.*	~~Condition II.F of this permit addresses the requirements of Conditions I.C.3.b (1) and (2) above, the remaining corrective action activities that need to be completed at the SFP. An ELUC must be established in accordance with the Conditions II.F of this permit renewal before a No Further Action (NFA) can be issued for the SFP.~~ A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. Condition II.C.~~5~~4 below (Groundwater Requirements for the SFP) addresses the requirements associated with Item 3 above.
II. CORRECTIVE ACTION		
A. INTRODUCTION		
II-1	Condition 1: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	In accordance with Section 3004(u) of RCRA and 35 IAC 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents, listed in 35 IAC 721, Appendix H, from any Solid Waste Management Unit (SWMU) at the BP Main Plant in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.
II-1	Condition 4, 2nd sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The facility has completed a substantial amount of corrective action efforts to date at this facility. This permit summarizes these efforts and describes the corrective action efforts which must still be completed at this facility to ensure the requirements of Section 3004(u) and (v) of RCRA and 35 IAC 724.201 are met.

R001557

Page(s)	Comment	Reference / Proposed Revision(s)
II-1	Condition 6: *bp does not agree with the requirement to investigate NFA parcels for TACO Part 742. bp completed all regulatory requirements for closure that were in place when the NFA determinations were made and issued by Illinois EPA. bp requests removal of the requirement to reinvestigate parcels with NFA letters.*	As 35 IAC Part 742 was amended to include indoor inhalation exposure route, all SWMUs which obtained no further action for corrective action as listed in Condition II.B.1 must be re-evaluated for the indoor inhalation pathway and meet all updated remediation standards to meet the requirements of 35 IAC Part 742.
II-2	Condition 15: *bp does not agree that the Illinois EPA has the right to withdraw any NFA. Please remove this clause.*	Based on the results of the investigative efforts as required in corrective action, the Illinois EPA reserves the right to withdraw any "No Further Action" (NFA) determinations.
II-2	Condition 16: *bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit. In addition, any guidance regarding what is intended by this language would be helpful.*	The Permittee shall incorporate, as necessary, climate change adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding integrating climate change adaptation considerations into the RCRA corrective action process.
B. CORRECTIVE ACTION REQUIREMENTS		
II-4	Condition 4: *bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.*	Conduct additional investigation and remediation, as necessary, to address any on-site and/or off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility.

R001558

Page(s)	Comment	Reference / Proposed Revision(s)
II-5	Condition 6, 2nd sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The requirements of 35 IAC Parts 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 IAC 724.201.
II-6	Condition 8.e, 1st sentence: *Please correct the reference as noted.*	A report documenting the results of the efforts described in Conditions II.B.~~9~~8.c and d above will be submitted to the Illinois EPA for review and approval (this report is referred to as the Investigation Report). This report will also identify any required remedial activities (including establishment of any required engineered barriers and/or institutional controls) needed to achieve the proposed remediation objectives.
C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED		
II-9	Condition 1, Area 7 Accomplishments as of Date, 4th sentence: *Please correct the date range for the environmental data submitted in March 2024.*	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008 to IEPA. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018~~-2019~~ submitted March 8, 2024.
II-9	Condition 1, Area 8 Accomplishments as of Date, 4th sentence: *Please correct the date range for the environmental data submitted in March 2024.*	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018-~~2019~~ submitted March 8, 2024.

R001559

Page(s)	Comment	Reference / Proposed Revision(s)
II-9	Condition 1, Area 9 Accomplishments as of Date: *Please revise to include the August 23, 2023, Corrective Action Modification request submitted by bp and approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).*	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Corrective Action Modification for microbial enhancement injection approved November 20, 2023.
II-9	Condition 1, Area 9 Current Status: *Please revise to include the reporting requirements related to the Corrective Action Modification request approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).*	The Permittee to submit revised Inv. Report pending further discussion with IEPA. The Permittee to submit results of microbial enhancement injection in the Corrective Action Progress Reports required by Conditions II.L.1 and II.L.2.
II-10	Condition 1, Area 13 Accomplishments as of Date: *bp did not submit an Area 13 report on March 12, 2024. Please revise to reference the March 8, 2024, bp submittal of additional environmental data collected in 2017-2019.*	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26, 2011. ~~Further revised Investigation Report submitted March 12, 2024.~~ Additional environmental data collected in 2017-2019 submitted March 8, 2024.
II-10	Condition 1, Area 14 Current Status: *Please revise to align with the Current Status language for other Land Reuse Areas requiring a revised Land Reuse Investigation (LRI) Report pending further discussion with Illinois EPA.*	~~March 2024 submittal under IEPA review.~~ The Permittee to submit revised Inv. Report pending further discussion with IEPA.
II-11	Condition 1, Area 18 Current Status, 2nd sentence: *Please replace period with a comma for clarity.*	NFA at NC-SP1. Regarding the SFP, ~~.~~ ~~T~~the Permittee must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. The Permittee must also comply with conditions of the ELUC.

R001560

Page(s)	Comment	Reference / Proposed Revision(s)
II-12	Condition 3, Area 15 NFA and Media, 1st sentence: *Please revise to reflect that the November 19, 2003, Illinois EPA letter included a NFA determination for perched groundwater based on the following:* - *Condition 8.a: "The groundwater with the Parcel must still be addressed in accordance with Section V of the RCRA Part B Permit and all subsequent permit modifications.* - *Condition 8.b.: "…Therefore, no further action is required with response to the groundwater at the parcel except as required by Condition 8.a. above."*	NFA ~~letter~~ determination for soil and groundwater ingestion route for perched-groundwater only was issued on November 19, 2003 (Log No. B-147-CA-31, 36 & 37). ELUC was established for Area 15 (see Conditions II.C.4 and 6 below).

R001561

Page(s)	Comment	Reference / Proposed Revision(s)
II-14	Condition 5.b (2) and (3): *After the 2013 TACO Part 724 effective date, Illinois EPA issued a NFA letter dated August 22, 2016, for the indoor air inhalation exposure route for Area 2 Donation Parcel II – Police Station, requesting new PINs for Donation Parcel II & the bp Retained Parcel and a draft ELUC for Donation Parcel II requiring: a) basement with concrete wall & floors; b) concrete slab on grade; or c) combo of a & b; and draft revised ELUC for the bp Retained Parcel. bp submitted draft ELUCs to the Illinois EPA on March 29, 2017. Illinois EPA approved the draft ELUCs in letters dated April 21, 2017, and May 4, 2017. bp submitted the Certified ELUCs to Illinois EPA in a letter dated June 21, 2017, then resubmitted both Certified ELUCs in a letter dated May 1, 2024, following Illinois EPA notification that the June 21, 2017, submittal was lost.* *No further action is required by bp on Donation Parcel II – Police Station due to having the Illinois EPA approved ELUC already in place which addresses indoor air inhalation. Additionally, this parcel is no longer owned by bp, it is also no longer part of the RCRA permit, so it is not appropriate to include in permit conditions.*	(2) Due to the amendments made in 35 IAC Part 742 associated with indoor air inhalation exposure route these requirements must be addressed. Thus, BP must conduct an investigation to demonstrate that the soils present in this second donation parcel met remediation objectives for the indoor air inhalation exposure route before it was removed from the defined facility covered by this RCRA permit in accordance with plans approved by Illinois EPA. (3) The Illinois EPA issued a NFA letter on August 22, 2016 regarding the indoor air inhalation exposure route for the second donation parcel. This NFA determination was based in part on the establishment of an ELUC which would place certain restrictions on future activities within this parcel.
II-15	Condition 5.b (4), 1st sentence: *Please revise to clarify agency name and correct the Certified ELUC Document No.*	The Illinois EPA approved a draft ELUC for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528.

R001562

Page(s)	Comment	Reference / Proposed Revision(s)
II-15	Condition 5.b (5), 1st sentence: *Please revise to correct the Certified ELUC Document No.*	The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on May 4, 2017 (Log No. B-147R-CA-77) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. ~~R~~2017R18529.
II-15	Condition 5.c (3), 2nd sentence: *Please correct typos for clarity.*	The Permittee and KMPH recognize that the post-closure conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closure conditions, operations, and ~~activates~~activities at the property retained by ~~the~~ BP, or its successors could impact property owned and/or operated by KMPH or its successors.

R001563

Page(s)	Comment	Reference / Proposed Revision(s)
II-17	Condition 6.i - k: *Please remove Area 2 Donation Parcel I – Stormwater Detention Basin and Donation Parcel II – Police Station from the list of parcels where bp is required to comply with ELUCs or voidance of NFAs could result. The Area 2 Donation Parcels are not owned by bp so are not appropriate to be included in the Permit. It is incumbent on the owner of the parcel to comply with the ELUC.*	6. In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (bp retained parcel only), 4 and 15: i. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA's NFA determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Act. j. The limitations or requirements of an ELUC apply in perpetuity or until: (1) The Illinois EPA issues a new NFA determination approving modification or removal of the limitation/requirement; and (2) A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC. k. At no time shall this site be used in a manner inconsistent with the land use limitations established in an approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved; and (2) a new NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 IAC Part 742. (1) Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (I) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC Part 742. (2) Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

R001564

Page(s)	Comment	Reference / Proposed Revision(s)
D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED		
II-18	Condition 1.b: *bp disagrees that this requirement is applicable to solid waste management units (SWMUs) and Product Release Sites (PRSs) that have Illinois EPA approved NFAs. Please clarify that this requirement is only applicable for parcels which have not received NFA.* *Please correct the reference to the condition that lists the SWMUs and PRSs.*	1. The Permittee must meet the applicable indoor inhalation remediation objectives both on-site and the impacted off-site properties in accordance with 35 IAC Part 742. a. The Permittee must continue to address the primary objectives set forth in these documents entitled, "Revised Indoor Inhalation Exposure Route Evaluation and Work Plan" dated August 28, 2019 (Log No. B-147R-CA-96) and received by Illinois EPA on August 29, 2019; "Action Plan For Potential Man-Made Pathway Evaluation" dated November 25, 2019 (Log No. B-147R-CA-98) and received by Illinois EPA on November 26, 2019; "Soil Gas Pathway Evaluation Report" dated June 7, 2021 (Log No. B-147R-CA-111) and received by Illinois EPA on June 8, 2021; "Additional Info to the Revised Indoor Inhalation Exposure Route Eval And Work Plan Dated August 29, 2019 To Provide An Update on Changed Site Conditions" dated April 12,2024 (Log No. B-147RCA-126) and received by Illinois EPA on April 16, 2024. Note, these documents are currently under review by the Illinois EPA. b. Additional evaluation for the indoor inhalation exposure route requirements must be met for all SWMUs and PRSs listed in Condition ~~IV~~II.B.~~1~~.

R001565

Page(s)	Comment	Reference / Proposed Revision(s)
E. REMEDIATION OF HYDROCARBON AND REFINERY PRODUCTS		
II-19	Condition 2, 2nd paragraph: *Please revise to include updated information provided in Exhibit F-1 of the permit renewal application.* *As documented in the "Third Quarter 2024 Main Plant Corrective Action Progress Report" dated November 1, 2024, a mobile solar-powered biovent system was installed and commissioned in Third Quarter 2024 to address refinery LNAPL and impacts to groundwater at select monitoring wells.*	The locations of the three pilot remediation systems within the facility are shown in Figure E-1 of Attachment E. Since installation of the pilot-scale remediation systems, they have undergone upgrades and optimizations in response to performance monitoring. bp completed significant modifications to the pilot-scale bioremediation systems and technologies in 2019-2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the Main Plant. In addition, passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those areas to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation. A mobile solar-powered biovent system was also put into service to address refinery product in 2024. Excluding the mobile solar-powered biovent system, the configuration and operation of the pilot-scale bioremediation systems is detailed in Attachment E, including a timeline of operations, enhancements, and modifications for each system.
II-19	Condition 3, 1st sentence: *Please correct the reference as noted.*	The facility shut down the above-mentioned HRS in Condition II.E.1 above under the Temporary Authorization issued by Illinois EPA (effective date of December 5, 2017) provided the facility collected data as required, and submitted: (1) a Pilot-Scale Bioremediation System Performance Report for the pilot-scale tests identified in Condition II.E.~~1~~2 above; and (2) a workplan for developing a site-wide hydrocarbon recovery/remediation system to address the hydrocarbon contamination in the groundwater and the smear zone above the facility's remedial objectives as defined in the workplan and applicable regulations, as approved by Illinois EPA. The workplan was required to provide a conceptual plan to implement the hydrocarbon recovery/remediation systems for the entire facility in the groundwater and smear zone as well as an outline of the next steps in full-scale implementation of the hydrocarbon remedial systems. A report entitled, "Remedial Action Selection Report and Main Plant Remedy Roadmap" was received January 31, 2022, to meet this requirement. The document is currently under review by the Illinois EPA.

R001566

Page(s)	Comment	Reference / Proposed Revision(s)
II-20	Condition 4, 1st sentence: *Please clarify if updates to Attachment E are only required to be documented in the Corrective Action Progress Reports (required by Condition II.L.1), or if updates must continue to be incorporated into the Permit on an annual basis through a Class 1* Permit Modification.*	The Permittee shall operate, expand and use the pilot-scale Bioremediation Systems and technologies in order to remediate hydrocarbons and refinery product from the smear zone and vadose zone as it contributes to dissolved phase impacts. The number and location of Bioremediation Systems and Bioremediation wells, as detailed in Attachment E, can be modified to maintain or enhance remediation of hydrocarbons and refinery product. As the Permittee has continued to successfully operate these systems, activities associated with these systems shall be summarized in the Corrective Action Progress Reports required by Condition II.L.1.
II-20	Condition 5.b (1): *Please revise for clarity.*	The refinery product recoverability shall be determined through product baildown testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method (calculation method described in ASTM E2856-13 or most current method);
F. RCRA CLOSURE, RCRA POST-CLOSURE AND RCRA CORRECTIVE ACTION STATUS OF THE NORTH CELL SPRAY POND 1 AND THE SOUTH FLARE PIT		
II-21	Condition 1.b (2): *Please revise to reflect that a certified ELUC for the SFP was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit. Accordingly, bp requests that Condition II.F.2 be deleted.*	A closure-by-removal demonstration for the soils at the SFP, was approved by the Illinois EPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the HWMU. A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. ~~The requirements regarding the restrictions that must be contained in the ELUC are set forth in Condition II.F.2.~~
H. CORRECTIVE MEASURES REQUIREMENTS		
II-25	*bp is following the Land Reuse process (Section II.G); therefore, Section H is only applicable if bp withdraws from the Land Reuse Process.*	N/A

R001567

Page(s)	Comment	Reference / Proposed Revision(s)
	I. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s)	
II-28	Condition 8: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	All efforts carried out at newly identified SWMU/AOCs must meet the requirements of 35 IAC 724.201.
	J. FUTURE RELEASES FROM SWMU(s)	
II-28	Last sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	There exists a potential that a release may occur in the future from SWMUs identified in the RCRA Facility Assessment (RFA) which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition II.I.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in condition II.H. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

R001568

Page(s)	Comment	Reference / Proposed Revision(s)
	M. COST ESTIMATES/FINANCIAL ASSURANCE FOR CORRECTIVE ACTION	
II-31	Condition 2: *Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.* *Also, it is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee shall prepare a cost estimate for the completion of any corrective action required under this permit, in order to provide financial assurance for completion of corrective action, in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required under 35 IAC 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201 and this permit. These estimates must be based upon third party costs. The revised cost estimate for corrective action must be submitted to the Illinois EPA annually by January 1. Cost estimates adjusted only for annual inflation are not required to be submitted to the Illinois EPA.
II-31	Condition 3, 1st sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition II.M.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the submittal of the initial or revised cost estimates required under Condition II.M.l. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 IAC 724.246 at its discretion.

R001569

Page(s)	Comment	Reference / Proposed Revision(s)
II-31	Condition 4: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	It must be noted that cost estimates and financial assurance must be provided for the operation of the groundwater remediation system required by Section III of this permit as such a system is necessary to meet the requirements of 35 IAC 724.201.
II-31	Condition 5: *Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.*	All cost estimates prepared under the requirements of Conditions II.M.1 through II.M.4 must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281. Cost estimates adjusted only for annual inflation in accordance with 35 IAC 724.201 are not required to be submitted as a Class 1* permit modification request.
III. GROUNDWATER CORRECTIVE ACTION PROGRAM		
	A. Summary	
III-1	First paragraph, 2nd and 3rd sentences: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.* *Additionally, bp requests clarification regarding whether the last sentence is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.*	Hazardous constituents associated with historical activities at the BP Main Plant have been detected in the groundwater across the site which exceed the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

R001570

Page(s)	Comment	Reference / Proposed Revision(s)
III-1	Condition 4: *Please consider the proposed revision.*	Remediating and/or removing refinery ~~product~~ hydrocarbon sources to groundwater impacts~~from above the water table~~, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the BP Main Plant.
III-1	Condition 5: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.*	In the event that the Permittee is unable to demonstrate an inward gradient in the southeast corner of the facility, or in the vicinity of Land Reuse Area 9, compliance will be satisfied by demonstration that the groundwater quality at designated Sentry Observation Monitoring Wells in the southeast corner and/or Demonstration Wells in the vicinity of Land Reuse Area 9 ~~in this portion of the facility~~ meet applicable groundwater quality standards. The Permittee shall comply with the requirements of III.E.12 in the event that groundwater quality in ~~this~~these portions of the facility does not meet groundwater quality standards. Contingent actions could include increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.
III-2	Condition 6: *Please consider the proposed revision.*	Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater~~, treatment and reduction of free phase and residual product,~~ and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

R001571

<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td></td><td colspan="2">B. IMPLEMENTATION</td></tr>
<tr><td>III-2</td><td>Condition 4:

It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.</td><td>The Permittee must continue corrective action measures to the extent necessary to ensure that the groundwater protection standard is not exceeded to meet the requirements of 35 IAC 724.201.</td></tr>
<tr><td></td><td colspan="2">C. WELL LOCATIONS AND CONSTRUCTION</td></tr>
<tr><td>III-3
-
III-6</td><td>Condition 1:

Please revise well construction information (for select wells as noted) to match what was provided in permit renewal application replacement pages.

Also, please revise footnote 11 to reflect that former Riverfront Observation Well (RFOW) G030 no longer exists. RFOW G030 was abandoned due to an excavation for a natural gas pipeline repair as documented in the Main Plant GMZ Well G078 Well Condition Letter dated July 11, 2023 (Log No. B-147R-CA-121).</td><td>
<table>
<tr><th>IEPA Well No.</th><th>Facility Well No.</th><th>Well Depth ft.</th><th>Well Depth Elevation (ft. MSL)</th><th>Well Screen Interval (ft MSL)</th><th>Well Designation[1]</th></tr>
<tr><td colspan="6">GMZ Boundary Wells</td></tr>
<tr><td>G021</td><td>C-11</td><td>49.~~7~~50</td><td>382.27</td><td>417.27-382.27</td><td>UMA C</td></tr>
<tr><td>G067#</td><td>G-27</td><td>49.00</td><td>386.28</td><td>406.280-386.28</td><td>UMA H</td></tr>
<tr><td>G085</td><td>G-26R</td><td>54.15</td><td>388.59</td><td>408.294-388.94</td><td>UMA H</td></tr>
<tr><td colspan="6">Observation Monitoring Wells</td></tr>
<tr><td>G87L</td><td>H-7</td><td>51.50</td><td>377~~6~~.68</td><td>402.68-382.68</td><td>UMA C</td></tr>
<tr><td>G301</td><td>RP-1</td><td>49.00</td><td>377~~8~~.38</td><td>388.38-378.38</td><td>UMA H</td></tr>
<tr><td colspan="6">LNAPL Monitoring Network (6)</td></tr>
<tr><td>G515+(9)</td><td>~~G~~Q-14</td><td>+</td><td>+</td><td>_</td><td>unknown</td></tr>
<tr><td colspan="6">Demonstration Wells</td></tr>
<tr><td>R034(3B)</td><td>C-24R</td><td>35.24</td><td>393.64</td><td>403.88-393.88~~86.34~~</td><td>UMA C</td></tr>
</table>
11 = Per Condition IV.C.1.a, G078, G030, G97L, and G87L require a new or replacement well or well pairs be installed within ninety (90) days to monitor the previously screened interval. Of those wells, ~~only~~ G078 and G030 no longer exists because the wells were~~as~~ damaged or plugged.
</td></tr>
</table>

R001572

Page(s)	Comment	Reference / Proposed Revision(s)
	D. GROUNDWATER PROTECTION STANDARD	
III-8	Condition 1, 2nd and 3rd sentences: *Please revise as there is no requirement for analysis of any dissolved hazardous constituents with the exception of biogeochemical analytes to monitor natural attenuation conditions only.*	The following hazardous constituents and their concentration limits comprise the groundwater protection standard for the groundwater monitoring wells found in Conditions III.C.1. ~~Total (unfiltered) values will be used for the comparison with the 35 IAC Part 620, Class I, Groundwater Quality Standards. Dissolved values shall be used for statistical evaluations required in Condition III.H unless otherwise noted.~~

R001573

III-9 and III-10	Condition 1, Hazardous Constituents: *Please revise hazardous constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA-85 and 89).* *bp submitted a Site-Wide Inorganics and Metals (SWIM) Evaluation Report dated January 25, 2022, for both the Riverfront and Main Plant facilities in which it was demonstrated that increases in dissolved-phase inorganics may be due to naturally occurring fluctuations or other external influences; and that these fluctuations may exceed the established Class 1 GQS. The SWIM evaluation determined that arsenic is present in the uppermost aquifer at background concentrations that exceed the Class 1 GQS of 0.01 mg/L. bp proposed that a site-specific groundwater quality standard for arsenic be established at a concentration of 0.036 mg/L. Please revise to include a footnote stating the Concentration Limit for arsenic may be increased to a site-specific groundwater quality standard if approved by Illinois EPA.*	

Hazardous Constituents	Storet No.	Concentration Limits (mg/L)
Antimony	01097	0.006
Arsenic	01002	0.01**
Barium	01007	2.0
~~Beryllium~~	~~01012~~	~~0.004~~
~~Cadmium~~	~~01027~~	~~0.005~~
Chromium	01034	0.1
~~Cobalt~~	~~01037~~	~~1.0~~
Lead	01051	0.0075
~~Mercury~~	~~71900~~	~~0.002~~
Nickel	01067	0.1
Selenium	01147	0.05
~~Vanadium~~	~~01087~~	~~0.049~~
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
~~1,4-Dichlorobenzene~~	~~34571~~	~~0.075~~
~~2-Butanone (MEK)~~	~~81595~~	~~4.2~~
Benzene	34030	0.005
~~Carbon Disulfide~~	~~77041~~	~~0.7~~
~~Chlorobenzene~~	~~34301~~	~~0.1~~
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
~~2,4-Dinitrophenol~~	~~34616~~	~~0.014~~

R001574

III-9 and III-10	*[Continued]*	~~2-Methylphenol (o-cresol)~~	~~77152~~	~~0.35~~
		4-Methylphenol (p-cresol)	77146	0.035
		~~4-Nitrophenol~~	~~34646~~	~~--~~
		~~Anthracene~~	~~34220~~	~~2.1~~
		Benzo(a)anthracene	34526	0.00013
		Benzo(a)pyrene	34247	0.0002
		Benzo(b)fluoranthene	34230	0.00018
		Benzo(k)fluoranthene	34242	0.00017
		Bis(2-ethylhexyl)phthalate	39100	0.006
		~~Butyl benzyl phthalate~~	~~34292~~	~~1.4~~
		Chrysene	34320	0.0015
		Dibenzo(a,h)anthracene	34556	0.0003
		~~Diethyl phthalate~~	~~34336~~	~~5.6~~
		~~Dimethyl phthalate~~	~~34341~~	~~--~~
		~~Di-n-butyl phthalate~~	~~39110~~	~~0.7~~
		~~Di-n-octyl phthalate~~	~~34596~~	~~0.14~~
		~~Fluoranthene~~	~~34376~~	~~0.28~~
		Naphthalene	34696	0.14
		~~Phenanthrene~~	~~34461~~	~~0.21~~
		Phenol	34466	0.035
		~~Pyrene~~	~~34469~~	~~0.1~~
		~~Pyridine~~	~~77045~~	~~0.007~~
		Biogeochemical[1] Analytes	Storet No.	Concentration Limits (mg/L)
		Dissolved iron	N/A	--
		Dissolved sulfate	N/A	--
		Dissolved manganese	N/A	--

-- Not available
N/A = Not applicable
1 = To monitor natural attenuation conditions
** Site-specific concentration limit may be used if approved by the Illinois EPA.

R001575

Page(s)	Comment	Reference / Proposed Revision(s)
	E. GROUNDWATER CORRECTIVE ACTION PROGRAM	
III-10	Condition 1: *Please correct the references as noted.*	The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.~~D~~C.1 for the hazardous constituents listed in Condition III.~~E~~D.1 above.
III-11	Condition 2.a.i: *Please revise to include GMZ Boundary Well G085 as listed in Condition III.C.1.*	The following groundwater monitoring wells shall define the outermost horizontal extent of the approved GMZ: G005, G006, G008, G021, G023, G04R, G045, G055, G059, G062, R063, G067, G068, G073, G079, G084, G085, G111, G112, G32R, G37, G5B, G35A, G35B, G500, G69R, G74L, G75L, G76L, G91, G92, G93L, H3IB, RG36, R302, G303, G503, G504, G505.
III-11	Condition 2.a.ii, 2nd sentence: *bp does not understand the rationale for this new requirement as it is not necessary to protect human health and the environment. Please clarify this new requirement to better define the vertical extent/boundary of the GMZ.*	The vertical boundaries of the GMZ shall range from the approximate top of the uppermost aquifer (30 feet bgs) to the top of the bedrock surface at the BP Main Plant facility. As required by Condition IV.C.l.b, wells must be proposed to better define the vertical extent.
III-11	Condition 3: *The goal of the remediation program at this site is hydrocarbon remediation, and the language in the current permit (i.e., "hydrocarbon pool") is more appropriate. bp requests the text be revised to replace "hazardous constituents" with "hydrocarbon pool."*	The Groundwater Corrective Action Program shall control the horizontal and vertical flow in the vertical column of water present in the uppermost aquifer beneath the facility and monitor the position and rate of migration of the hydrocarbon pool~~hazardous constituents~~ released to groundwater as follows:

R001576

Page(s)	Comment	Reference / Proposed Revision(s)
III-12 and III-13	Condition 11: *The property owner has no contractual obligation to allow bp access to the property. bp requests this requirement be removed from the permit.*	The Permittee must continue to pursue access to the off-site property where former wells G060 and G061 are located for the purposes of properly abandoning these wells. Once access to the property is obtained, the facility must submit certification that plugging and abandonment of the well(s) was carried out in accordance with the approved procedures to Illinois EPA and the appropriate State Agencies in accordance with Condition III.C.6. Until the wells are abandoned, the status and details of any efforts must be reported in the reports required by Condition III.1.2.
III-13	Condition 12.b: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.*	If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.
III-13	Condition 12.c.ii: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.*	Perform a "Resampling Event" for the Sentry Observation Monitoring Wells and/or Demonstration Wells within thirty (30) days of the date the determination is made.
III-14	Conditions 12.e.ii.1 and 2: *Please revise for clarity and to remove redundancy between these two conditions.*	1. For the Southeast portion of the GMZ, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine (9) monitoring wells in order to develop a groundwater flow gradient~~.~~ ~~F~~for the southeast portion of the GMZ: wells G301, G305, R042, R083, G501, G502, G005, G92, and G112. ~~For the vicinity of Land Reuse Area 9: wells R032, R034, R035, and G304.~~ 2. For the vicinity of Land Reuse Area 9, the groundwater gauging ~~and monitoring~~ performed for Contingency Monitoring shall use at a minimum the following four (4) monitoring wells in order to develop a groundwater flow gradient for the vicinity of Land Reuse Area 9 of the GMZ: R032, R034, R035, and G304.

R001577

Page(s)	Comment	Reference / Proposed Revision(s)
III-15	Condition 12.g.v: *Please revise to include the vicinity of Land Reuse Area 9.*	Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner or in the vicinity of Land Reuse Area 9, including but not limited to, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.
III-15	Condition 13: *Please correct the references as noted.*	The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E~~D~~ of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L~~M~~.1. A discussion must also be provided in reports required by Condition III.1.6.

R001578

III-15	Condition 14: *bp is currently addressing the indoor inhalation exposure route through the Indoor Inhalation (or vapor intrusion [VI]) Exposure Route Evaluation and Work Plan as summarized in the chronology of correspondence, to date, between bp and Illinois EPA provided as* ***Exhibit A*** *of bp's "Public Notice Comments for Draft Permit" (and documented in Attachment C of this draft Permit).* *Appendix G of the Revised Indoor Inhalation Exposure Route Evaluation and Work Plan dated August 28, 2019, included a site-specific evaluation of the indoor inhalation pathway for the Main Plant GMZ wells using the Johnson & Ettinger calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor) as recommended by Illinois EPA. The calculations were conducted for six applicable constituents under a residential building scenario using site-specific soil conditions including seasonal high water table depth. This site-specific evaluation documented that groundwater conditions at that time did not represent a risk to potential off-site indoor air receptors. As such, it is proposed to utilize this same site-specific approach during the semi-annual comparison of GMZ (and off-site) well groundwater sampling results to evaluate whether the indoor inhalation exposure pathway remains incomplete and potential off-site receptors remain protected. bp's proposed revisions outline the evaluation methodology and reporting criteria.*	14. Following each s~~S~~emi-annual groundwater sampling event, an evaluations~~~~ for the indoor inhalation exposure route must be provided for exceedances of 35 IAC Part 620 based on comparison of groundwater sampling results ~~and screening levels identified in Table H of Appendix B in 35 IAC Part 742~~ at the groundwater monitoring wells located at the property boundary and at any off-site locations to site-specific residential screening levels calculated in accordance with the methodology presented in the August 28, 2019, *Revised Indoor Inhalation Exposure Route Evaluation and Work Plan*, Appendix G (Log No. B-147R-CA-96). ~~Screening levels for the current type of property use shall be used.~~ a. ~~Identify any homes or buildings potentially impacted by the exceedance and evaluate, in accordance with 35 IAC Part 742, if the indoor inhalation pathway is complete by conducting site-specific evaluations based on~~ The evaluation will compare current groundwater dissolved phase concentrations against the previously calculated site-specific screening values and must confirm that the most recent water level is not higher than the site-specific seasonal high water table used in the threshold screening level calculation. If the groundwater level is higher, then the screening level calculations must be revised accordingly (and will become the new site-specific screening values)~~, building-specific construction information if known, known occupancy and any other site-specific factors, as appropriate and applicable, at each building~~. b. If the comparison ~~evaluation~~ documents that groundwater dissolved-phase concentrations remain below 35 IAC Part 620 criteria and/or the site-specific screening values and demonstrates that the indoor inhalation pathway is incomplete, the Permittee shall include this comparison~~e demonstration~~ in the semi-annual report required by Condition III.I.2. c. If additional constituents beyond the six chemicals evaluated during the 2019 evaluation are detected above 35 IAC Part 620 criteria, then screening criteria must be developed consistent with the approach utilized in the 2019 evaluation, and these values will become new site-specific screening values (once approved by Illinois EPA). d~~e~~. If the comparison~~evaluation~~ documents groundwater dissolved-phase concentrations exceed the site-specific screening values, indicating

R001579

Page(s)	Comment	Reference / Proposed Revision(s)
III-15	*[Continued]*	~~demonstrates~~ that the indoor inhalation pathway is potentially complete, the Permittee must implement a~~submit the~~ location-specific evaluation of the pathway in accordance with the provisions of 35 IAC Part 742 and submit the results within the next semi-annual report required by Condition III.I.2, following the evaluation~~and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval~~. If the pathway is determined to be complete, the Permittee must propose additional corrective action within that semi-annual report for the Illinois EPA review and approval. ~~d. A new evaluation is required for each sampling to determine whether screening levels are exceeded.~~
I. REPORTING AND RECORDKEEPING		
III-17	Condition 6: *Please correct the references as noted.*	Free product thickness data measured pursuant to Condition III.E.5.C, and reduction of hydrocarbons and refinery product data collected in accordance with Condition II.E~~D~~ of the Corrective Action Section, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2. Reporting information must also be included in Corrective Action Progress Reports required by Condition II.L~~M~~.1.
III-17	Condition 7: *Please revise for clarity. Condition III.E.6 states, "The Permittee shall determine the groundwater flow rate (i.e., seepage velocity in ft/day) and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1."*	The groundwater flow rate and direction, determined pursuant to Condition III.E.6, shall be submitted ~~annually~~ as a part of the first and second semi-annual reports as identified in Condition III.1.2.

R001580

Page(s)	Comment	Reference / Proposed Revision(s)
III-18	Condition 13: *Please clarify the number of copies required. As noted in the proposed revision, bp's preference is to mail one (1) original copy and send electronic copies for all Illinois EPA CCs.*	The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. Only one (1) copy of the LPC 592 must accompany the submittal. However, the Permittee must submit one (1) original paper submittal of each notice or report you submit to the Illinois EPA, and ~~(excluding the groundwater and leachate monitoring results submitted in an electronic format)~~ a minimum of two (2) electronic copies for all additional~~of each notice or report to the~~ Illinois EPA copies (i.e., Permit Section and the regional Field Operation Section). Additional paper copies must be provided upon Illinois EPA request. The form is not to be used for permit modification requests.
III-19	Condition 16.c: *Please revise for clarity and to remove redundancy.*	16. If the Permittee evaluation, when required by Condition III.E.12, determines verification of contaminant control is necessary due to a lack of inward gradient, the Permittee will complete the following reporting and notification requirements in III.E.12: a. Notify the Illinois EPA in writing within seven (7) days of the date the determination resampling is required. b. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring is required. c. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring does not meet the requirements for inward gradient and the permit-defined requirements for VOCs, the Permittee shall take steps to implement additional corrective measures as outlined in Condition III.E.12.g, and: ~~i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.~~ii. Submit a written report to the Illinois EPA within thirty (30) days describing the actions to be taken. iii~~i~~. Take necessary actions to meet applicable groundwater standards at GMZ Boundary wells.

R001581

Page(s)	Comment	Reference / Proposed Revision(s)
III-19	Condition 17: *Please correct the reference and revise to align with the proposed revisions to Condition III.E.14.*	If the comparison~~indoor inhalation exposure route evaluation~~ required by Condition III.E.14 documents groundwater dissolved-phase concentrations exceed the site-specific screening values, indicating~~demonstrates that~~ the indoor inhalation pathway is potentially complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval.
III-19 and III-20	Condition 18: *Please revise to clarify contaminant control monitoring, notification, and reporting requirements are detailed in Conditions III.E.12 and III.I.16.* *It was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider the proposed revisions to Conditions 18.a-d.*	18. If the Permittee determines that groundwater flow is not being adequately controlled, except as required by Conditions III.E.12 and III.I.16 regarding contaminant control in the Southeast portion of the GMZ and/or in the vicinity of Land Reuse Area 9 (western portion of the GMZ),~~and/or the contaminant control evaluations indicate contaminants are migrating beyond the GMZ boundaries,~~ the Permittee shall: ~~a. Notify the Illinois EPA in writing within seven (7) days of the date that this determination is made.~~ a~~b~~. Take actions as necessary to regain the control of groundwater flow as required by Condition III.E.3. b~~c~~. Include a summary of ~~Submit a written report to the Illinois EPA within thirty (30) days describing~~ the actions taken to regain control of groundwater flow and ~~. In addition, the report must contain~~ provide information which demonstrates that groundwater flow is being adequately controlled in the semi-annual report required by Condition III.I.2. c~~d~~. Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

R001582

Page(s)	Comment	Reference / Proposed Revision(s)
	J. REQUEST FOR PERMIT MODIFICATION	
III-20	Condition 1: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.
IV. SPECIAL CONDITIONS		
	C. COMPLIANCE SCHEDULE	
IV-1	Condition 1.b: *Please correct the reference as noted. This requirement does not enhance the protection of human health and the environment. bp requests this requirement be removed from the permit.*	Within ninety (90) days of the effective date of this permit, propose monitoring wells with screens positioned to adequately define the vertical boundary of the GMZ in Condition III.E.2.a.
IV-1	Condition 2, 1st sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee must prepare and submit an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required in accordance with 35 IAC 724.201. This cost estimate must include a minimum of 10% contingency for all items necessary to complete corrective action.

R001583

Page(s)	Comment	Reference / Proposed Revision(s)
V. STANDARD CONDITIONS		
	GENERAL REQUIREMENTS	
V-2 and V-3	Condition 13.a, 2nd sentence: *bp is not required to have a "waste analysis plan" for this facility as the facility does not accept outside waste and 35 IAC 727 requirements are not applicable to this permit. As this is a Standard Condition, please consider the proposed note to be added for clarification or address the non-applicability of the requirement elsewhere in the permit. Please see comment and proposed revisions to Condition I.C.1.*	Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from 35 IAC 721, Appendix A. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan. NOTE: On the effective date of the permit, this requirement is not applicable because the Permittee does not accept waste. Illinois EPA can revise or modify the applicability of this requirement by a Permit modification or written notification to the Permittee.
V-5	Condition 21: *Please correct the references as noted.*	OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 14~~16~~, 15~~19~~ and ~~20~~16, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g)).

R001584

Page(s)	Comment	Reference / Proposed Revision(s)
	GENERAL FACILITY STANDARDS	
V-6	Conditions 27 – 30: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart B (General Facility Standards). Please see comment and proposed revisions to Condition I.C.1.*	27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 IAC Part 722. 28. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c). 29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d). 30. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 IAC 722.117(a)(8).

R001585

Page(s)	Comment	Reference / Proposed Revision(s)
	PREPAREDNESS AND PREVENTION	
V-6 and V-7	Conditions 31 – 36: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart C (Preparedness and Prevention). Please see comment and proposed revisions to Condition I.C.1.*	31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131) 32. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132. 33. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in the contingency plan and this permit as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133) 34. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134. 35. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements. 36. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

R001586

Page(s)	Comment	Reference / Proposed Revision(s)
	POST-CLOSURE	
V-7 and V-8	Conditions 38 – 42: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart G (Closure and Post-Closure Care) and Subpart H (Financial Requirements). Please see comment and proposed revisions to Condition I.C.1.*	38. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan. 39. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans, or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d). 40. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be: a. Adjusted for inflation either sixty (60) days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within thirty (30) days after close of the firm's fiscal year. b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure. c. Kept on record at the facility and updated. (35 IAC 724.244). d. Maintained at the value approved by the Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification. 41. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by Standard Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245. Financial assurance documents submitted to the Illinois EPA should be directed to the following address:

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<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>V-7
and
V-8</td><td>[Continued]</td><td>Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East P.O. Box 19276
Springfield, IL 62794-9276

42. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.</td></tr>
<tr><td colspan="3">VI. REPORTING AND NOTIFICATION REQUIREMENTS</td></tr>
<tr><td>VI-1</td><td>Condition II.M.2, Action:

Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.</td><td>Annual Cost Estimate for Corrective Action (excluding cost estimates adjusted for annual inflation only)</td></tr>
<tr><td>VI-1</td><td>Conditions III.C.3, III.C.5, III.C.2:

Please correct the Condition references as noted.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>C.43</td><td>Notification that well has been damaged or its structural integrity compromised.</td><td>Within 30 days of identification</td></tr>
<tr><td>C.65</td><td>Boring logs, construction diagrams and datasheets from installation and development of new/replaced well.</td><td>Within 30 days after well installed</td></tr>
<tr><td colspan="3">C.12 General schedule for collection and reporting of groundwater data:</td></tr>
</table>
</td></tr>
<tr><td>VI-2</td><td>Condition III.I.15, Due Date:

Please revise to “semi-annually” to align with Condition III.I.7. Note, bp has proposed a revision to Condition III.1.7 as well for better clarification.</td><td>Semi-annuallyBy August 1 of each year</td></tr>
</table>

R001588

<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>VI-2</td><td>Conditions III.I.18.a-c:

As noted above under Condition III.I.18, it was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider removing the associated Actions under Conditions I.18.a and I.18.b from this table.

Please correct the Condition reference for Condition III.1.18.c as noted.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>~~I.18.a~~</td><td>~~Notify the Illinois EPA in writing that groundwater flow is not being adequately controlled.~~</td><td>~~Within 7 days of the date the determination is made~~</td></tr>
<tr><td>~~I.18.b~~</td><td>~~Submit a report to Illinois EPA describing the actions taken to regain control of groundwater flow.~~</td><td>~~Within 30 days of the date the determination is made~~</td></tr>
<tr><td>I.18.~~d~~e</td><td>Submit a request for permit modification to Illinois EPA describing any changes to the corrective action program to regain control of groundwater flow.</td><td></td></tr>
</table>
</td></tr>
<tr><td>VI-3</td><td>Condition J.1, Due Date:

It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.</td><td>Within 90 days of determination existing program does not meet the requirements of 35 IAC 724.201</td></tr>
</table>

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<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>VI-3 and VI-4</td><td>Conditions V.34, V.35.a and b, V.36, and V.37:

Please correct the references as noted although these requirements are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>~~35~~40.a</td><td>Adjust post-closure cost estimates for inflation.</td><td>Within 60 days before anniversary date, or within 30 days after close of the firm’s fiscal year.</td></tr>
<tr><td>~~35~~40.b</td><td>Revision post-closure cost estimates.</td><td>As needed, within 90 days of discovery of revision.</td></tr>
<tr><td>41~~36~~</td><td>Change in financial assurance mechanism for post-closure.</td><td>As needed</td></tr>
<tr><td>42~~37~~</td><td>Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.</td><td>Within 10 days after commencement of proceeding.</td></tr>
</table>
</td></tr>
<tr><td colspan="3">ATTACHMENTS</td></tr>
<tr><td>A</td><td>IDENTIFICATION OF APPROVED PERMIT APPLICATION

Please revise bp document dates as noted.</td><td>1. RCRA Post-Closure Renewal Application (Log No. B-147R2) dated October 8, 2020.
2. Additional Information for B-147R2- Replacement Pages submitted 1) Condition C.8.1.5-Page 13 and 2) Exhibit C-l, Table 1- Page 4, dated ~~April 28~~May 10, 2022.
3. Time extension request for submittal of a response to the IEPA RCRA Permit Renewal Application NOD letter, dated July ~~5~~3, 2024.
4. “Response to Illinois EPA Comments dated July 18, 2024” dated August 1, 2024.
5. Additional Information for B-147R2. Replacement pages, for Section C, dated August 29, 2024.</td></tr>
</table>

R001590

DOCUMENT 25

From: Halteman, Takako
To: Faruk, Omar
Subject: More on BP Comments
Date: Friday, December 6, 2024 6:59:00 PM
Attachments: 6.5.2024 USEPA Guidance integrating climate Change .pdf
2.6.2024 USEPA Guidance Climate Chnage in CA Process.pdf

Omar-
I just went through the remaining ones you highlighted only quickly (these answers may not be complete but hopefully a good start). Below would be a good start for you on those comments.
#13
According to 3004(u) of RCRA and 35 IAC 724.201, corrective action for all releases of hazardous waste or hazardous constituents from solid waste management units (SWMUs) at permitted hazardous waste treatment, storage, and disposal facilities (TSDFs).
As the original RCRA permit was issued for the this facility managing hazardous waste management units and the obligations for the corrective actions associated with any solid waste management units for releases of nay hazardous waste and hazardous waste constituents still applies. 35 IAC 724.201 (a) requires that the facility must institute corrective action as necessary to adequately protect human health and the environment for all releases of hazardous waste or constituents. As the facility is still under the obligation of the RCRA corrective action requirements, it is necessary for the facility to re-evaluate for indoor inhalation exposure route based on the current regulations to protect human health and the environment is necessary to meet the standards is necessary.
#14- see response to #13. In addiotn, if there ino human health risked based on TACO is presnet, a NFA will not be withdown. Addiotnal investigation and remediation is necessary only if there is a risk to heman health and the environment is currently present.
#15
Please reference USEPA's climate change guidances attched and indicate that as an authorized state of RCRA corrective action, Illinois EPA has an obligation to implemet such recommended action by the USEPA.
#16
This condition is inclued to be consistent with the requirements of 35 IAC 724.201 (c) and 3004(v) (please check on the actual citation- the one required off-site remediation) of RCRA.
#26- ask GW for RESPONSE
#38: Corrective measures requireemtns still be applicable for the facility reagrdless of the requirements established in Condition II.G. If any corrective measures are necessary for nay areas or SWMUs, CM must be incorporated into th Land Reuse Process and inplemented in accordance with Condition II.H.
We can discuss more as you incorpoate these and rework your responses.
Thanks,
Takako

OFFICE OF RESOURCE CONSERVATION AND RECOVERY
WASHINGTON, D.C. 20460

February 6, 2024

MEMORANDUM

SUBJECT: Integrating Climate Change Adaptation Considerations into the Resource Conservation and Recovery Act Corrective Action Process

FROM: Carolyn Hoskinson, Director

TO: Land, Chemicals, and Redevelopment Division Directors, Regions 1-10

PURPOSE

This memorandum[1] conveys the U.S. Environmental Protection Agency's (EPA or Agency) recommendations on how EPA regions and authorized states should work with RCRA facility owners or operators to integrate climate change adaptation considerations into the corrective action process under the Resource Conservation and Recovery Act (RCRA) of 1976 as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984.[2]

Corrective action is the process under which owners and operators of RCRA treatment, storage and disposal facilities investigate and clean up releases of hazardous waste and constituents into soil, ground water, surface water and air, as necessary to protect human health and the environment.

Climate change can increase the frequency and intensity of extreme weather events, such as heavy precipitation and storms; or can cause more gradual changes such as sea level rise. Seasonal changes in precipitation or temperatures, increasing risk of floods, increasing intensity and frequency of hurricanes and wildfires, and thawing of permafrost in northern regions are additional examples of climate-related changes which could impact RCRA cleanups. These changes can lead to the release of

[1]This document provides recommendations to regional staff and management, as well as state hazardous waste programs authorized under RCRA, regarding how to approach the RCRA corrective action process with respect to climate adaptation. This document does not substitute for applicable statutory or regulatory requirements, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation depending upon the circumstances. Any decisions regarding a particular situation will be made based on the statute and the regulations, and EPA and authorized state decision makers retain the discretion to adopt approaches on a site-specific basis that differ from these recommendations where appropriate.

[2]42 USC §6924 et seq.

hazardous waste or constituents from, or interfere with the operation of remedies at, RCRA corrective action cleanups. Such impacts can pose increased threats to human health and the environment, thereby supporting the need to integrate climate adaptation considerations into RCRA corrective action cleanups.

Although this memorandum addresses integrating climate adaptation into the corrective action process, the Agency also encourages considering climate mitigation, e.g., green remediation strategies, in the RCRA corrective action process, while, of course, assuring that each cleanup is protective.

This memorandum supplements the Agency's existing policy statements and guidance addressing RCRA corrective action cleanups,[3] including guidance on RCRA Corrective Action Decision Documents.[4] However, it does not amend or modify RCRA regulations in any way.

Definitions of key terms pertaining to climate adaptation used in this memorandum and a list of additional resources are included in the Attachment.

BACKGROUND

EPA released a Climate Adaptation Plan (CAP) in October 2021 which laid out five priority actions for the agency to implement in the coming years, including integrating consideration of climate impacts into EPA's programs, policies, rulemaking processes, and enforcement activities.[5]

In October 2022, EPA's Office of Land and Emergency Management (OLEM) released its Climate Adaptation Implementation Plan which included the commitment to develop a memorandum that calls for climate change impacts to be considered as part of the corrective action process for any necessary corrective action at RCRA treatment, storage, and disposal facilities.

Incorporating climate adaptation considerations into the corrective action process for RCRA cleanups will ensure that remedies remain effective and prevent the migration of hazardous waste or constituents. These considerations should be factored into the corrective action process consistent with existing EPA guidance that applies to RCRA corrective action cleanups.[6]

LEGAL AUTHORITY

Under RCRA section 3004(u), each RCRA permit must require corrective action for all releases of hazardous waste or constituents from any solid waste management unit at the permitted facility. EPA has codified this requirement at 40 CFR § 264.101(a) and (b), which specify that permits shall require corrective action as necessary to protect human health and the environment. RCRA section 3004(v) requires corrective action beyond the facility boundary where necessary to protect human health and the environment; EPA has codified this requirement at 40 CFR § 264.101(c). RCRA section 3008(h)

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[3]For additional information, see https://www.epa.gov/hw/documents-pertaining-remedy-implementation-corrective-action-sites

[4]Guidance on RCRA Corrective Action Decision Documents: Statement of Basis and Response to Comments (PDF): https://www.epa.gov/sites/default/files/2013-10/documents/rcradecisiodoc-mem.pdf

[5]For additional information, see https://www.epa.gov/climate-adaptation/climate-adaptation-plan

[6]Policies and Guidance Documents that Provide EPA and Authorized States with Assistance Regarding Corrective Action: https://www.epa.gov/rcra/policies-and-guidance-documents-resource-conservation-and-recovery-act-rcra-state-authorization

authorizes EPA to issue orders requiring corrective action as necessary to protect human health and the environment to addresses releases of hazardous waste from facilities that have interim status, facilities that should have had interim status, and facilities that have lost interim status through actions (or a failure to take action) of the owner or operator of the facility. Most states have been authorized for 40 CFR § 264.101, which codifies the permitting corrective action authority in RCRA sections 3004(u) and (v); EPA has not authorized states for RCRA section 3008(h) authorities, which EPA implements. In addition to these corrective action specific authorities, the RCRA "omnibus" permit authority requires EPA and authorized states to include in permits such terms and conditions as EPA or the state determines necessary to protect human health and the environment. RCRA section 3005(c)(3); 40 CFR § 270.32(b)(2).

Under these authorities, EPA, or authorized states, are empowered to impose corrective action requirements that will be protective of human health and the environment taking into account potential climate impacts on the effectiveness of cleanups over time.

CLIMATE ADAPTATION CONSIDERATIONS IN THE CORRECTIVE ACTION PROCESS

EPA regions and authorized states should work with RCRA facility owners and operators during the RCRA corrective action process to identify and address climate-related risks to ensure protection of human health and the environment. Particular consideration should be given to ensuring long-term reliability and effectiveness of selected remedies.

EPA regions and authorized states should consider climate-related risks as they implement the RCRA corrective action process. Considerations for recommended steps in the process are discussed below, although a screening and, if necessary, an assessment, could be implemented at any appropriate point in the corrective action process.

1. **RCRA Facility Assessment, RCRA Facility Investigation, and/or Corrective Measures Study**

   1.1 Climate Vulnerability Screening: EPA Regions and authorized states should work with facility owners and operators to screen RCRA corrective action facilities' vulnerability to any potential climate change impacts that may be relevant, such as:

   Temperature changes: Rising temperatures can influence the efficiency of certain cleanup technologies and treatment processes. It is important to consider how temperature variations might impact the overall vulnerability of RCRA corrective action cleanups to temperature changes.

   Precipitation patterns: Changes in long-term precipitation patterns, including increased rainfall, snow and hail, or prolonged droughts, can affect groundwater elevations and movement and the transport and fate of contaminants at RCRA corrective action cleanups. Where a vulnerability screening indicates the potential for impacts, analyzing potential changes in precipitation in a climate vulnerability assessment will be helpful in understanding how the fate and transport of contaminants may be impacted.

   Sea level rise: If RCRA corrective action cleanups are located in coastal areas, sea level rise caused by climate change can pose significant challenges. Where sea level rise may cause impacts, assessing the potential extent of sea level rise and its impacts on facility

infrastructure, groundwater levels, shoreline erosion, effects of storm surges, and potential contaminant migration can be crucial.

Long-term changes in weather patterns: Reviewing climate models and trends will help identify potential long-term changes in weather patterns, such as shifts in seasons, increased frequency of heatwaves, wildfires, permafrost thaw, or altered storm tracks. These alterations can have indirect impacts on the effectiveness of cleanup activities.

1.2 Climate Vulnerability Assessment: Once the climate vulnerability screening is complete, if there are climate change impacts that could plausibly impact a corrective action cleanup, EPA regions and authorized states may require the facility owners or operators to conduct a climate vulnerability assessment, as appropriate and necessary for the facility's specific circumstances.[7]

2. Remedy Selection

EPA proposed a regulation in 1990 to expand on the codification of RCRA 3004(u) and (v) in 40 CFR § 264.101. 55 FR 30798 (July 27, 1990). The proposal included nine remedy selection criteria. EPA did not finalize that regulation but uses the nine proposed criteria as guidance in remedy selection. 61 FR 19432, 19449 (May 1, 1996).

Following this guidance, selection of final remedies for RCRA corrective action cleanups typically includes a two-phased evaluation. During the first phase, potential remedies are screened to see if they meet four ''remedy threshold criteria'': (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate, to the extent practicable, further releases of hazardous waste and hazardous constituents that might pose threats to human health and the environment; and (4) comply with applicable standards for waste management. Remedies which meet the threshold criteria are then evaluated using five ''balancing criteria'' to identify the remedy that provides the best relative combination of attributes: (1) Long-term reliability and effectiveness; (2) reduction of toxicity, mobility or volume of wastes; (3) short-term effectiveness; (4) implementability; and (5) cost.

During remedy selection, the adaptive capacity of the remedial alternatives to potential adverse impacts of climate change should be considered, as relevant based on the climate vulnerability assessment. Consideration should be given to building adaptive approaches into remedies, so that the remedies can be evaluated and adjusted over time, if necessary, based on updated climate-related information. Where climate-related risks are a concern, such risks might weigh in favor of selecting remedies that leave less waste in place.

3. Remedy Implementation

During remedy implementation for RCRA corrective action cleanups, EPA regions and authorized states should work with facility owners or operators to ensure that adaptation

[7]Vulnerability Assessment: https://www.epa.gov/superfund/superfund-climate-resilience-vulnerability-assessment#vulnerability

measures are implemented to ensure the long-term integrity of constructed remedies and their protectiveness of human health and the environment, consistent with any adaptive approaches included in the remedies and with authorities for the modification of remedies. Multiple adaptation measures may be appropriate based on evaluation on a case-by-case basis.

4. **Long-Term Stewardship**
   For remedies already in place, long-term stewardship reviews can provide opportunities to assess the adaptive capacity of the remedy considering new information regarding potential (or actual observed) climate change impacts. Any vulnerabilities identified that may not have been known during remedy selection should be considered and addressed as appropriate, consistent with any adaptive approaches included in the remedies and with authorities for the modification of remedies.

EXAMPLES OF CLIMATE ADAPTATION STRATEGIES THAT CAN BE IMPLEMENTED IN THE CORRECTIVE ACTION PROCESS

A facility-by-facility analysis is required to properly determine the specific climate-related risks that may need to be mitigated for each corrective action. Measures[8] that can be taken to address climate-related risks include:

- Constructing physical barriers to contain contaminants (e.g., sand cap, retaining wall) that are impervious to the identified climate threat (e.g., flooding, intense storms, fire).
- Placing engineering controls (e.g., pumps, electrical equipment) that are necessary for properly managing and containing hazardous wastes or constituents in locations not likely to be impacted by identified climate threats.
- Designing containment, monitoring and treatment systems, and subgrade infrastructure to withstand changing conditions from identified climate threats.
- Designing caps to be impervious to identified threats, e.g., by use of drought-resistant plants for a vegetated soil cap for long-term erosion control.
- Incorporating climate resilience into the design and construction of waste containment systems, infrastructure, and remediation technologies.
- Considering flexible and adaptive design approaches to accommodate changing climate conditions.
- Implementing measures to enhance resilience, such as reinforced barriers, improved stormwater management, or enhanced erosion control.
- Establishing or enhancing monitoring systems, including those for groundwater, air quality and weather, by integrating parameters to detect climate-related changes and potential impacts on cleanups.
- Developing early warning systems to anticipate and respond to climate-related events that may affect facility integrity or increase the risk of releases of hazardous wastes or constituents.
- Implementing adaptive management approaches that allow for adjustments to remediation strategies based on changing climate conditions.

[8]Adapted from Vulnerability of Waste Infrastructure to Climate Induced Impacts in Coastal Communities: https://www.epa.gov/sites/default/files/2019-11/documents/vulnerability_of_waste_infrastructure_to_climate_induced_impacts_in_coastal_communities.pdf

- Regularly reassessing the effectiveness of remedies considering climate change impacts and adapting as necessary.
- Developing contingency plans to address potential climate-related disruptions to remediation efforts.

Additional examples of climate adaptation strategies may be found in the resources list in the Attachment.

CONCLUSION

Integrating climate change adaptation considerations into the RCRA corrective action process provides for the protection of human health and the environment by ensuring the integrity and effectiveness of the remedy and preventing or limiting exposure to hazardous wastes or constituents.

Throughout the RCRA corrective action process, EPA regions and authorized states should work with owners or operators to ensure that climate adaptation considerations that ensure protection of human health and the environment are implemented.

EPA regions and authorized states should continue to use the existing corrective action process consistent with RCRA and relevant EPA guidance and policies.

If you have questions about this memorandum or would like assistance with evaluating climate vulnerabilities and adaptation strategies during the RCRA corrective action process, please contact Seun Akinlotan (akinlotan.seun@epa.gov), Office of Resource Conservation and Recovery (ORCR).

cc: Ken Patterson, Office of Site Remediation Enforcement
Gregory Gervais, Federal Facilities Restoration and Reuse Office
Kathryn Caballero, Federal Facilities Enforcement Office
Larry Douchand, Office of Superfund Remediation and Technology Innovation
Rosemarie Kelley, Office of Civil Enforcement
Dania Rodriguez, Executive Director, Association of State and Territorial Solid Waste Management Officials
Mark Junker, Chair, Tribal Waste and Response Steering Committee
Gerald Wagner, Executive Committee Chair, National Tribal Caucus

ATTACHMENT

KEY TERMS PERTAINING TO CLIMATE ADAPTATION

For purposes of this memorandum, key terminology[9, 10] includes:

Climate change or climate adaptation means taking action to prepare for and adjust to both the current and projected impacts of climate change.

Adaptive capacity is the ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.

Climate change refers to changes in global or regional climate patterns attributed largely to human-caused increased levels of atmospheric greenhouse gases.

Resilience can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.

Vulnerability means the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes; it is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

ADDITIONAL RESOURCES

1. The U.S. Climate Resilience Toolkit: A Platform Designed to Help People Find and Use Tools, Information, and Subject Matter Expertise to Build Climate Resilience. (https://toolkit.climate.gov/#steps).
2. EPA's Adaptation Actions for Protecting Waste Facilities. (https://www.epa.gov/arc-x/adaptation-actions-protecting-waste-facilities#tab-1).
3. EPA Superfund Climate Resilience Technical Fact Sheet: Groundwater Remediation Systems (https://semspub.epa.gov/work/11/175851.pdf).
4. EPA Superfund Climate Resilience Technical Fact Sheet: Contaminated Sediment Sites. (https://semspub.epa.gov/work/11/177110.pdf).
5. EPA Superfund Climate Resilience Technical Fact Sheet: Contaminated Waste Containment Systems. (https://www.epa.gov/sites/default/files/2019-12/documents/cr_containment_fact_sheet_2019_update.pdf).

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[9]Vocabulary Catalog; Topic: Climate Change; Publisher: EPA Office of Air and Radiation/Office of Atmospheric Programs/Climate Change Division. https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=Glossary%20Climate%20Change%20Terms#formTop

[10]Climate Adaptation and EPA's Role: https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role

6. Superfund Climate Resilience: EPA's Superfund program approach addressing climate vulnerabilities as a standard operating practice in cleanup projects. (https://www.epa.gov/superfund/superfund-climate-resilience).
7. Fed Center Climate Adaptation Program Area: Federal government resource that supports federal agency climate adaptation planning. (https://www.fedcenter.gov/programs/climate/).

OFFICE OF RESOURCE CONSERVATION AND RECOVERY
WASHINGTON, D.C. 20460

June 5, 2024

MEMORANDUM

SUBJECT: Implementing Climate Resilience in Hazardous Waste Permitting Under the Resource Conservation and Recovery Act (RCRA)

FROM: Carolyn Hoskinson, Director

Digitally signed by CAROLYN HOSKINSON
Date: 2024.06.05 20:15:53 -04'00'

TO: Land, Chemicals, and Redevelopment Division Directors, Regions 1-10

PURPOSE

The purpose of this memorandum is to provide guidance to EPA Regions, states, and territories on when and how to consider potential adverse climate change impacts in the hazardous waste permitting process under RCRA. This includes recommendations for conducting climate change vulnerability screenings and assessments for treatment, storage, and disposal facilities (TSDFs) to determine whether there are climate vulnerabilities that hazardous waste permits should address.

Adverse impacts of climate change can include the frequency and intensity of extreme weather events, changing wind patterns, temperature fluctuations, increased precipitation, sea level rise, storm surges, inland and coastal flooding, bank and shoreline erosion, changes in groundwater levels and direction of flow, drought, increased risk of wildfires, and permafrost thaw. These potential impacts can threaten the resilience of engineering and other controls at TSDFs for which applicants seek permits from EPA Regions or states and territories authorized to implement the RCRA program. This memorandum identifies authorities, provides interpretations of relevant RCRA provisions, and recommends approaches to ensure that controls will provide long-term effectiveness through resilience to adverse climate change impacts into the future.[1]

Definitions of key terms pertaining to climate adaptation used in this memorandum are included in the attachment.

[1] This document does not substitute for the statute or regulations, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. Any decisions regarding a particular situation will be made based on the statute and the regulations, and EPA and authorized state/territory decision makers retain the discretion to adopt approaches on a site-specific basis that differ from these recommendations where appropriate.

BACKGROUND

EPA released a Climate Adaptation Plan (CAP) in October 2021 which laid out five priority actions for the agency to implement in the coming years, including integrating consideration of climate impacts into EPA's programs, policies, rulemaking processes, and enforcement activities.[2] In October 2022, EPA's Office of Land and Emergency Management (OLEM) released its Climate Adaptation Implementation Plan, which included the commitment to incorporate climate adaptation into OLEM's mission, programs, and management functions.

IMPLEMENTATION

The 40 CFR Part 264 standards for RCRA TSDFs are designed to ensure that hazardous waste treatment, storage and disposal are conducted in a manner that protects human health and the environment (See RCRA 3004(a)). These standards are implemented through RCRA permits at permitted TSDFs. RCRA permits must ensure that facility operations will comply with these standards (RCRA 3005(c)(1)) and must contain any additional terms or conditions that EPA or the authorized state determines are necessary to protect human health and the environment (RCRA 3005(c)(3)).

The climate change impacts described above may affect what a facility needs to do to comply with the RCRA standards applicable to TSDFs. EPA expects that EPA Regional offices and authorized states and territories will consider the potential for adverse climate change impacts to affect TSDF operations in the permitting process, and that RCRA permits will include the conditions that the permitting authority determines are necessary to ensure that facility operations will be compliant and protective in the face of such impacts. Climate change adaptation considerations should be incorporated as appropriate during initial permit issuance, permit renewal, and/or permit maintenance (e.g., permit modification). The potential for climate impacts should be considered and addressed throughout the expected active life of the facility, as well as during post-closure, as appropriate, not just for the term of the permit or permit modification under consideration.

Conducting climate vulnerability screenings and analyses at TSDFs can help determine whether changes to facility permits are necessary to ensure that TSDFs are resilient to climate events and remain so into the future. For example, prior to receiving a renewal permit application, or during the process of reviewing an application for an initial permit or modification, EPA Regions, states, and territories should perform an initial climate vulnerability screening as appropriate to determine which adverse climate change impacts might apply to the facility. The vulnerability screening is a high-level screening step to determine if a site or facility is located in a geographic area at risk to adverse climate change impacts. If the results of the screening indicate that climate change impacts might plausibly impact the protectiveness of facility operations, EPA, states, and territories should conduct, or should request or require an owner or operator to conduct, a more detailed climate vulnerability assessment to determine whether adaptive measures are necessary. If an initial climate vulnerability screening indicates that adaptative measures are necessary, and no further information or analysis is needed, then the more detailed climate vulnerability assessment is not necessary. However, if the initial climate vulnerability screening indicates a plausible basis for concern and there is uncertainty as to the level of

[2] For additional information, see https://www.epa.gov/climate-adaptation/climate-adaptation-plan.

climate risk or the adaptive measures that may be needed, then the regulator may require a climate vulnerability assessment.

KEY RCRA REGULATORY AUTHORITIES RELEVANT TO CLIMATE CHANGE CONSIDERATIONS IN PERMITTING

Several regulatory authorities support consideration of potential adverse climate change impacts on permitted activities and the development of permit conditions, as needed, to ensure that such activities will be protective of human health and the environment in the face of such impacts. Below is a list of regulatory provisions, although this is not an exhaustive list of the potentially relevant regulatory provisions.

Facility Design and Operation [§ 264.31]
Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a release of hazardous waste or hazardous waste constituents that could threaten human health and the environment. EPA Regions and authorized states/territories should consider the potential adverse climate change impacts in ensuring that this standard is satisfied. For example, more frequent storm events as well as temperature fluctuations can influence how a facility's units (e.g., containers, tanks, landfills) should be designed and operated to protect human health and the environment. Facility design and operation may need to change in the face of future climate conditions.

Facility Location Standards [§ 264.18(b)]
The RCRA regulations generally require facilities located within a 100-year floodplain to be designed, constructed, operated and maintained to prevent washout, should there be a flood. The number of facilities within a 100-year floodplain will likely increase as a result of potential adverse climate change impacts causing floodplains to expand. TSDFs located in a 100-year floodplain will need to ensure their operations comply with this requirement, and permit writers should take care to ensure that permits adequately address this requirement. These requirements should be considered during permit renewal as well as initial permit issuance. In view of changing climate conditions, it will be important to employ an approach for identifying the 100-year floodplain that considers predicted future conditions, and recent flooding events and their impact on the facility, rather than simply long-term historical data.

Contingency Plans [§ 264.50 – 264.56]
The RCRA regulations require that TSDFs have contingency plans designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. Development and review of contingency plans should consider potential adverse climate change impacts.

Omnibus Authority under Section 3005(c)(3) [§ 270.32(b)(2)]
The omnibus permit authority provides that "Each permit issued under section 3005 of this act shall contain terms and conditions as the Administrator or State Director determines necessary to protect human health and the environment." EPA expects that climate change impacts can generally be addressed using more specific regulatory authorities such as those identified above. However, where permitting authorities determine that permit conditions beyond those required under these specific authorities are necessary to protect human health or the environment from potential adverse climate change impacts, the EPA Region or the state/territory has the responsibility to impose such terms and conditions by exercising their omnibus authority.

Review of State Permits [§ 271.19]
EPA has the authority to oversee state program implementation to ensure it is consistent with the state's own authorized requirements. This includes the authority for EPA to comment on a draft permit. EPA can enforce the terms of the comment, even if those terms are not incorporated into the permit, if the comment indicates that the terms are necessary to implement the approved program, as provided in § 271.19(b). EPA Regions should consider potential adverse climate change impacts in evaluating the use of its comment authority.

Agency Initiated Permit Modifications [§ 270.41(a)(2)]
This provision authorizes the permitting authority to modify a permit based on "information [that] was not available at the time of permit issuance … and would have justified the application of different permit conditions at the time of issuance." Such a basis for permit modifications could include changes due to climate change-related factors (e.g., updated floodplain maps or precipitation data from federal or state sources) that may impact facility operations.

Part B Permit Application [§ 270.14-270.28]
The RCRA Part B permit application regulations specify information that must be submitted in permit applications. Particularly relevant are the provisions of § 270.14(11)(iii) and (iv), which relate to floodplains, and also § 270.14(19) relating to mapping and location. EPA Regions and authorized states/territories should work with facility owners and operators to ensure that Part B permit applications are prepared using up-to-date climatological data and data projections for the anticipated life of the facility. This ensures that unit-specific designs and permit conditions remain protective in the face of potential adverse climate change impacts. While not part of the specific Part B Application requirements, a general permit application requirement under § 270.10(k) provides broader authority to require additional information necessary to develop permit conditions that can be used to address climate adaptation concerns.

CLIMATE ADAPTATION TOOLS

RCRA climate vulnerability screening tools and assessment methodologies are currently under development. One screening tool has been released in RCRAInfo for sea level rise projections at RCRA facilities (https://rcrapublic.epa.gov/rcra-public-web/action/posts/5). EPA also anticipates releasing further policy and guidance regarding how permits can incorporate climate change adaptation considerations through its effort to update the RCRA Model Permit and through development of the

Updates to the RCRA Hazardous Waste Permitting Regulations and Other Technical Corrections rulemaking.

In the interim, for further information, please see the Superfund Climate Resilience website which provides an overview of climate-related initiatives within the Superfund program, with information about strategies that can be used to evaluate and strengthen climate resilience at Superfund sites. While this website offers guidance on Superfund sites, it can also help inform decisions at RCRA facilities. EPA intends to develop a climate vulnerability assessment methodology for the RCRA program, based on Superfund's methodology.

CONCLUSION

RCRA permits must be protective of human health and the environment. Climate change has the potential to impact TSDF compliance with RCRA regulatory provisions, and more broadly, the protectiveness of TSDF operations. Thus, throughout the RCRA permitting process, including issuance of initial permits, permit renewals, and permit modifications, EPA Regions and authorized states and territories should work with facilities to consider potential adverse climate change impacts in assuring that RCRA requirements are met and that RCRA permits are protective of human health and the environment in the face of those impacts.

If you have questions about this document or would like assistance with evaluating climate vulnerabilities and adaptation measures as they relate to RCRA permitting, please contact Jeff Gaines, Office of Resource Conservation and Recovery (ORCR), at (202) 566-0332 or gaines.jeff@epa.gov.

Attachment

KEY TERMS PERTAINING TO CLIMATE ADAPTATION

For purposes of this memo, key terminology[3] includes:

Adaptation: Taking action to prepare for and adjust to both the current and projected impacts of climate change.

Adaptive Capacity: The ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.

Climate Change: Climate change refers to changes in global or regional climate patterns attributed largely to human-caused increased levels of atmospheric greenhouse gases.

Extreme Weather Event: An extreme weather event is an event that is rare at a particular place and time of year. Definitions of rare vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile of a probability density function estimated from observations. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense.

Resilience: Climate resilience can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.

Vulnerability: The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes; it is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

[3] https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf

DOCUMENT 26

United States Environmental Protection Agency

Illinois Environmental Protection Agency

Agenda
USEPA-Illinois EPA Corrective Action Quarterly Call
December 9, 2024 · 11:00am – 12:00pm (Microsoft Teams)

Introductions

- Action Items from the August 6, 2024 Conference Call
  - Solutia (Judith Lane Landfill) – Containment Cell Update
  - Nexeo Solutions/Former Ashland site in Willow Springs – CA800 Update
  - CA725 Not Met – 3 sites under IEPA's review to identify potential obstacles for milestone achievement:

Site Name	Location	USEPA ID	IEPA ID	Notes from August 2024 Call and/or Current Status
Terminal Railroad Association	Lovejoy, IL	ILD984778340	1638995001	Awaiting TSCA update
Dynachem Inc	Georgetown, IL	ILD005174461	1838060003	No update currently
Kinder Morgan Liquid Terminals LLC	Hartford, IL	ILR000191304	1190505061	New RCRA permit approved in March 2024. CA725 determination possible in FY25
RRR Grundy	Morris, IL	ILR000161448	630605174	CA725YE determination, 9/23/24
Buckeye Terminals	Hartford, IL	ILR000076042	1190505033	CA725YE determination, 8/20/24

  - FY25 Goals and Accomplishments, as of December 9, 2024

Illinois EPA

Milestone	Completed	Committed
CA550 Remedy Construction	0	0
CA725 Human Exposures Controlled Determination	0	2
CA750 Release to GW Controlled Determination	0	1
CA800 Ready for Anticipated Use Determination	0	0
CA900/999 CA Process Terminate	0	0

U.S. EPA Region 5 (Illinois)

Milestone	Completed	Committed
CA550 Remedy Construction	0	0
CA725 Human Exposures Controlled Determination	1	1
CA750 Release to GW Controlled Determination	0	0
CA800 Ready for Anticipated Use Determination	0	0
CA900/999 CA Process Terminate	0	0

United States Environmental Protection Agency

Illinois Environmental Protection Agency

Discussion Topics (summaries are from 8/6/24 meeting notes)

- Village of Hartford update (ILR000128249)
    - Pilot Test Activities in RMA-11
        I. Injections of microbes completed in July 2024, effectiveness monitoring in January 2025
- A3 Project
    - Best Blast (ILD035755719)
        I. Site Access Agreement secured. Investigation to occur in Late Summer/Early Fall 2024
    - Revere Ware (ILD005078274)
        I. Site Access Agreements not yet secured. Indoor air samples to be collected Late Summer/Early Fall 2024
    - Pierce Biotechnologies (ILD041539230)
        I. Vapor intrusion evaluation by IEPA indicated a potential concern at one area of the site where a building sits. Communication with facility started. IEPA to issue notice to require VI investigation
- Airtex (ILD001662816)
    - UECA finalization pending at Plant 2. Update for Plant 1 work progression
- Keystone Steel & Wire Co. (ILD000714881)
    - Facility changed their groundwater pumping strategy
    - CA900 not currently expected
- Afton Chemical (ILD055871370)
- Corrective Action Targeting Lists

Information Sharing

- Amended IL MOU – update
- FY25 – R5 Organizational structure status
- USEPA – Corrective Action Rebranding
- IEPA – Update on building move and staff resources

Open Floor

DOCUMENT 27

From: Faruk, Omar
To: Halteman, Takako
Subject: FW: bp Wood River - upcoming Land Reuse Investigation Report
Date: Tuesday, December 10, 2024 10:26:25 AM
Attachments: Outlook-xl3fv0vn
Outlook-kk3ppafi.png

Takako, Can you give me suggestion about it? I am alright with e-copy.

From: Starlet Wright
Sent: Tuesday, December 10, 2024 9:37 AM
To: Faruk, Omar
Subject: [External] bp Wood River - upcoming Land Reuse Investigation Report

Hi Omar,

We are preparing a Land Reuse Investigation Report (which tend to be very large with a lot of attachments) for one of the Main Plant Land Reuse Areas, and I just wanted to confirm that our current process of submitting one original hard copy to Illinois EPA and an e-copy for your copy will be okay?

Thank you,

Starlet S. Wright

Senior Project Manager | email: swright@sovcon.com

mobile: 813-767-1959

Sovereign Consulting Inc.

Greater St. Louis Area

www.sovcon.com

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product privilege, or any other exemption from disclosure.

DOCUMENT 28

From: Halteman, Takako
To: Faruk, Omar
Subject: RE: bp Wood River - upcoming Land Reuse Investigation Report
Date: Tuesday, December 10, 2024 10:41:00 AM
Attachments: image001.jpg
image002.png

One original copy, 2 hard copies at a minimum. We would like to get a digital copy in addition to those. One hard copy must go to FOS.

From: Faruk, Omar
Sent: Tuesday, December 10, 2024 10:26 AM
To: Halteman, Takako
Subject: FW: bp Wood River - upcoming Land Reuse Investigation Report
Takako, Can you give me suggestion about it? I am alright with e-copy.

From: Starlet Wright <swright@sovcon.com>
Sent: Tuesday, December 10, 2024 9:37 AM
To: Faruk, Omar <Omar.Faruk@Illinois.gov>
Subject: [External] bp Wood River - upcoming Land Reuse Investigation Report
Hi Omar,
We are preparing a Land Reuse Investigation Report (which tend to be very large with a lot of attachments) for one of the Main Plant Land Reuse Areas, and I just wanted to confirm that our current process of submitting one original hard copy to Illinois EPA and an e-copy for your copy will be okay?
Thank you,

Starlet S. Wright

Senior Project Manager | email: swright@sovcon.com

mobile: 813-767-1959

Sovereign Consulting Inc.

Greater St. Louis Area

www.sovcon.com

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Please consider the environment before printing this e-mail.

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DOCUMENT 29

From: Halteman, Takako
To: Faruk, Omar
Subject: BP permit revisions
Date: Wednesday, April 2, 2025 7:31:00 PM
Attachments: 20250402TNH_1191150001-RCRA-B147R2-Approval.docx

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Please see attached for the revisions made. I did initial the cover letters.

Takako Halteman, P.E.
RCRA Unit Manager
Permit Section, Bureau of Land, Illinois EPA
217/524-3274
takako.halteman@illinois.gov

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

217/524-3301

Certified Mail
Return Receipt Requested

BP Products North America, Inc.
Attn: Ms. Michelle Knapp
Liability Manager
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North American Inc./Main Plant
ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Permit Approval

Dear Ms. Knapp:

Enclosed is a final Resource Conservation and Recovery Act (RCRA) corrective action permit. The final permit decision is based on the administrative record contained in the Illinois EPA's files. The contents of the administrative record are described in Title 35 Illinois Administrative Code (IAC) 705.211.

Please read the permit carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties. The only comments received on the draft RCRA corrective action permit were from BP Products North American Inc./Main Plant (BP). The Illinois EPA's responses to BP's comments are attached to this letter.

This action shall constitute the Illinois EPA's final action on the subject submittal. The applicant may appeal this final decision to the Illinois Pollution Control Board pursuant to Section 40 of the Environment Protection Act (Act) by filing a petition for a hearing within 35 days after the date of issuance of the final decision. However, the 35-day period may be extended for a period of time not to exceed 90 days by written notice from the applicant and the Illinois EPA within the initial 35-day appeal period. If the owner or operator wishes to receive a 90-day extension, a written request that includes a statement of the date the final decision was received, along with a copy of this decision, must be sent to the Illinois EPA as soon as possible.

For information regarding the request for an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
2520 West Iles Avenue
Post Office Box 19276
Springfield, IL 62794-9276
217/782 5544

For information regarding the filing of an appeal, please contact:

Illinois Pollution Control Board
60 East Van Buren St., Suite 630
Chicago, IL 60605-1241
312/814-3620

For questions regarding the groundwater portions of the permit, contact Shawntay Dial by phone at 217/558-0177 or by email at Shawntay.Dial@Illinois.gov. For all other questions concerning this permit, please contact Omar Faruk, E.I.T by phone at 217/557-9764 or by email at Omar.Faruk@illinois.gov.

Sincerely,

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:OF:1191150001-RCRA-B147R2-Approval.docx

Attachments: 1. Illinois EPA's Response to Comments
2. RCRA Corrective Action Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Emily Keener, U.S. EPA – Region V
Michelle Knapp, BP Products North America, Inc
Michael Hoffman, WSP USA Environment & Infrastructure, Inc
Starlet S. Wright, Sovereign Consulting, Inc.

ILLINOIS EPA'S RESPONSE TO COMMENTS
BP Products North America Inc. – Main Plant
Draft Hazardous Waste Management RCRA Corrective Action Permit
Dated September 30, 2024

ILLINOIS EPA'S RESPONSE TO COMMENTS
BP Products North America Inc. – Main Plant
Draft Hazardous Waste Management RCRA Corrective Action Permit
Dated September 30, 2024 (Log No. B-147R2)

The Illinois EPA's responses below address comments from BP Products North America Inc. (BP) received by Illinois EPA on November 14, 2024 pertaining to the draft RCRA Corrective Action permit for BP issued on September 30, 2024. Note that italicized language on each comment, paraphrases the comments by BP (which is refer to as "bp" in its comment).

Comment 1: Fact Sheet I:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
The original RCRA permit issued to the facility in 1993 (Log No B-147) required post-closure care for the two hazardous waste management units, North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP), and also corrective action for any Solid Waste Management Units (SWMUs) at the facility under the requirements of 35 IAC 724.201. This permit was renewed in 2011 (Log No. B-147R), which also required a site-wide corrective action under 35 IAC 724.201. As the corrective action requirements were still not met at the facility, any remaining corrective action must still be addressed though the final RCRA corrective action permit. In addition, as described in Condition I.C.1 of the final RCRA corrective action permit, even though there are no regulated Hazardous Waste Management Units (HWMUs) operating or requiring closure/post-closure care, "the application of the other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site". As the corrective action has not been completed at the facility, the corrective action requirements and obligations under 35 AC 724.201 are applicable at this facility. The Condition remains unchanged. Please also see Comment 3. However, the Fact Sheet will not be included as a part of the final permit.

Comment 2: Fact Sheet IV.A:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1.

Comment 3: Fact Sheet IV.B:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
RCRA corrective action activities required in Section II of the final RCRA corrective action permit, as well as Section IV of the previous RCRA permit (Log No. B-147R), have been conducted in accordance with 35 IAC 724.201, not under 35 IAC 724.200 since the regulated units were approved for closure by removal. Section V (Groundwater Corrective Action Program) in the previous RCRA permit historically referenced 35 IAC 724.192 through 200 (Log No. B-147R) as the two hazardous waste management units (NC-SP1and SFP) previously required post-closure care. Under the final RCRA corrective action permit, as BP indicated in its comments, the former hazardous waste units were closed in accordance with the requirements of 35 IAC 724 Subpart G. In accordance with 35 IAC 724.210(c), it is appropriate to address remaining groundwater contamination from the former regulated units as well as from other SWMUs/Areas of Concern (AOCs) under corrective action section requirements in accordance with 35 IAC 724.201 as no other closure or post-closure care requirements remain for the two units. Condition IV.B remains unchanged. Please also refer to response to the Comment 1.

Comment 4: Fact Sheet IV.B.a:
Please revise hazardous waste constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA- 85 and 89).

ILLINOIS EPA RESPONSE
The hazardous waste constituent list and footnotes have been updated to reflect changes in the Fact Sheet. However, the Fact Sheet will not be included as a part of the final RCRA corrective action permit.

Comment 5: Fact Sheet IV.C:
As noted in Condition I.C.1 of the draft permit, Illinois EPA should revise this language in the Fact Sheet to clarify that some standard conditions are not applicable to this facility.

ILLINOIS EPA RESPONSE
The standard conditions are standard for all RCRA corrective action permits. However, if any of these conditions aren't applicable to BP, the corresponding requirements are not applicable. Circumstances may arise where regulations that

were not applicable at the time of issuing permit, becomes applicable at a later time. Condition I.C.1 remains unchanged.

Comment 6: Fact Sheet V.B:
Please revise the Water Pollution Control Permit No. to align with the current permit issued by Illinois EPA on September 16, 2024.

ILLINOIS EPA RESPONSE
Water Pollution Control Permit No. has been revised from "2020-EP-64994" to "2024-EP-71491" in the Fact Sheet.

Comment 7: Section I General Facility Description, Condition I.B.2.c:
Please revise to align with removal of the Area 2 Donation parcel I- Stormwater Detention Basin (9.56 acres) and the Kinder Morgan Phoenix holdings (KMPH) parcel (118.25 acres).

ILLINOIS EPA RESPONSE
The Second sentence of Condition I.B.2.c has been revised from "7.5" acres to "127.81" acres and from "Condition I.B.2.a (2)" to "Conditions I.B.2.a (1) and (3)".

Comment 8: Section I General Facility Description, Condition I.B.2.d:
Please revise to align with removal of only the KMPH parcel (118.25 acres).

ILLINOIS EPA RESPONSE
The Second sentence of Condition I.B.2.d, 2nd sentence has been revised from "17.06" acres to "118.25" acres and from "Conditions I.B.2.a (1) and (2)" to "Condition I.B.2.a (3)".

Comment 9: Section I General Facility Description, Condition I.C.1:
Please revise to include closure and post-closure care (35 IAC 724, Subpart G), financial (35 IAC 724, Subpart H), and 35 IAC 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit) in the list of requirements that are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.

ILLINOIS EPA RESPONSE
For 35 IAC 724, Subpart G, closure and post-closure care cannot be excluded until such time the Correction Action requirements under this subpart are fully completed and it is determined that the requirements of Subpart G are no longer required for any hazardous constituents for this site.

For 35 IAC 724, Subpart H, financial requirements cannot be excluded because the assurances of financial responsibility are required in accordance with 35 IAC 724.201.

For Subpart H of 35 IAC Part 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit), since this final RCRA corrective action permit is a RCRA corrective action permit, 35 IAC Part 727 does not need to be considered in the context of the RCRA permit renewal. The Condition I.C.1 remains unchanged.

Comment 10: Section I General Facility Description, Condition, Condition I.C.3.b:
Please revise to reflect that a certified ELUC for the South Flare Pit (SFP) was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit.
Please correct the reference to the condition with Groundwater Requirements for the SFP.

ILLINOIS EPA RESPONSE
This comment is acknowledged. The proposed language has been incorporated into the final RCRA Correction Action permit.

The Second Paragraph of Condition I.3.b has been corrected from "Condition II.C.5" to "Condition II.C.4".

Comment 11: Section II Corrective Action, Condition II.A.1:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.A.1 remains unchanged.

Comment 12: Section II Corrective Action, Condition II.A.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.A.4 remains unchanged.

Comment 13: Section II Corrective Action, Condition II.A.6:
bp does not agree with the requirement to investigate NFA parcels for TACO Part 742. bp completed all regulatory requirements for closure that were in place when the NFA determinations were made and issued by Illinois EPA. bp requests removal of the requirement to reinvestigate parcels with NFA letters.

ILLINOIS EPA RESPONSE
According to 3004(u) of RCRA and 35 IAC 724.201, the obligations for the corrective actions associated with any releases of any hazardous waste or hazardous waste constituents from SWMUs at the facility still applies. The facility must institute corrective action as necessary to adequately protect human health and the environment for all releases of hazardous waste or constituents at the facility. As the facility is still under the obligation of the RCRA corrective action requirements and indoor inhalation is a potential concern at the facility, it is necessary for the facility to evaluate for indoor inhalation exposure route based on the current regulations and standards to protect human health and the environment.

Comment 14: Section II Corrective Action, Condition II.A.15:
bp does not agree that the Illinois EPA has the right to withdraw any NFA. Please remove this clause.

ILLINOIS EPA RESPONSE
The comment has been noted; however, if there is a risk to human health and environment present, the Illinois EPA has an authority to require additional investigation and remediation, as necessary, to meet the requirements of Section 3004 (u) and (v) of RCRA, 35 IAC 724.201, and 35 IAC Part 742 in accordance with Condition II.A.4 and II.A.6. The Illinois EPA has revised the condition II.A.15 as follows:

Based on the results of the investigative efforts, additional investigation and remediation, as necessary, may be required at any SWMUs or AOC to protect human health and the environment to meet the remedial objectives in accordance with 35 IAC Part 742.

Comment 15: Section II Corrective Action, Condition II.A.16:
bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit. In addition, any guidance regarding what is intended by this language would be helpful.

ILLINOIS EPA RESPONSE
The U.S. Environmental Protection Agency (USEPA) issued a memorandum on February 6, 2024, titled "Integrating Climate Change Adaptation Considerations

into the Resource Conservation and Recovery Act Corrective Action Process" and another memorandum on June 5, 2024, titled "Implementing Climate Resilience in Hazardous Waste Permitting under RCRA". These documents are attached to this Illinois EPA Response to Comments. As an authorized state of RCRA corrective action, Illinois EPA has an obligation to implement such recommended action by USEPA, and this language is being incorporated into the Corrective Action Section of all newly renewed RCRA permits. Therefore, for example, any corrective measures and remedial actions associated with increased volume or intensity of precipitation, groundwater level fluctuations due to changes in the river surface water level, or extreme low and high temperature, etc., should be considered into the design and evaluation, as necessary.

Comment 16: Section II Corrective Action, Condition II.B.4:
bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.

ILLINOIS EPA RESPONSE
Condition II.B.4 is included to be consistent with the requirements of 35 IAC 724.201(c) and 3004(v) of RCRA.

Comment 17: Section II Corrective Action, Condition II.B.6:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Conditions II.B.6 remains unchanged.

Comment 18: Section II Corrective Action, Condition II.B.8.e:
Please correct the reference as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made to the final RCRA corrective action permit.

Comment 19: Section II Corrective Action, Condition II.C.1, Area 7 Accomplishments as of Date:
Please correct the date range for the environmental data submitted in March 2024.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made from "2018-2019" to "2017-2018" in the final RCRA corrective action permit.

Comment 20: Section II Corrective Action, Condition II.C.1, Area 8 Accomplishments as of Date:
Please correct the date range for the environmental data submitted in March 2024.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made from "2018-2019" to "2017-2018" in the final RCRA corrective action permit.

Comment 21: Section II Corrective Action, Condition II.C.1, Area 9 Accomplishments as of Date:
Please revise to include the August 23, 2023, Corrective Action Modification request submitted by bp and approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated into the final RCRA corrective action permit.

Comment 22: Section II Corrective Action, Condition II.C.1, Area 9 Current Status:
Please revise to include the reporting requirements related to the Corrective Action Modification request approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated into the final RCRA corrective action permit.

Comment 23: Section II Corrective Action, Condition II.C.1, Area 13 Accomplishments as of Date:
bp did not submit an Area 13 report on March 12, 2024. Please revise to reference the March 8, 2024, bp submittal of additional environmental data collected in 2017-2019.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 24: Section II Corrective Action, Condition II.C.1, Area 14 Current Status:
Please revise to align with the Current Status language for other Land Reuse Areas requiring a revised Land Reuse Investigation (LRI) Report pending further discussion with Illinois EPA.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 25: Section II Corrective Action, Condition II.C.1, Area 18 Current Status:
Please replace period with a comma for clarity.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 26: Section II Corrective Action, Area 15 NFA and Media:
Please revise to reflect that the November 19, 2003, Illinois EPA letter included a NFA determination for perched groundwater based on the following:

- *Condition 8.a: "The groundwater with the Parcel must still be addressed in accordance with Section V of the RCRA Part B Permit and all subsequent permit modifications.*
- *Condition 8.b.: "…Therefore, no further action is required with response to the groundwater at the parcel except as required by Condition 8.a. above."*

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective Action permit.

Comment 27: Section II Corrective Action, Condition II.C.5.b (2) and (3):
After the 2013 TACO Part 724 effective date, Illinois EPA issued a NFA letter dated August 22, 2016, for the indoor air inhalation exposure route for Area 2 Donation Parcel II – Police Station, requesting new PINs for Donation Parcel II & the bp Retained Parcel and a draft ELUC for Donation Parcel II requiring: a) basement with concrete wall & floors; b) concrete slab on grade; or c) combo of a & b; and draft revised ELUC for the bp Retained Parcel. bp submitted draft ELUCs to the Illinois EPA on March 29, 2017. Illinois EPA approved the draft ELUCs in letters dated April 21, 2017, and May 4, 2017. bp submitted the Certified ELUCs to Illinois EPA in a letter dated June 21, 2017, then resubmitted both Certified ELUCs in a letter dated May 1, 2024, following Illinois EPA notification that the June 21, 2017, submittal was lost.

No further action is required by bp on Donation Parcel II – Police Station due to having the Illinois EPA approved ELUC already in place which addresses indoor air inhalation. Additionally, this parcel is no longer owned by bp, it is also no longer part of the RCRA permit, so it is not appropriate to include in permit conditions.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition II.C.5.b (2) has been removed from the permit condition, as this subsection pertains to the Summary of Corrective Action Efforts Completed. Condition II.C.5.b (3) has also been revised and incorporated into the previous Condition II.C.5.b (4), now renumbered as Condition II.C.5.b (2), as follows:

The Illinois EPA issued a NFA letter on August 22, 2016 regarding the indoor air inhalation exposure route for the second donation parcel. The Illinois EPA approved a draft Environmental Land Use Control (ELUC) for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above in addition to restrictions required by Illinois EPA's August 22, 2016 letter discussed in Condition II.C.5.b (3) above.

Regarding the Illinois EPA notification comment dated May 1, 2024, concerning the June 21, 2017 submittal which included a certified ELUC, later it has been determined that the subject certified ELUC was reviewed and approved as a permit modification, as required under Log No. B-147R-M-16, dated August 9, 2017.

Comment 28: Section II Corrective Action, Condition II.C.5.b(4):
Please revise to clarify agency name and correct the Certified ELUC Document No.

ILLINOIS EPA RESPONSE
The first sentence of Condition II.C.5.b (4) has been revised from "Illinois" to "Illinois EPA" and "Document No. 201718528" to "2017R18528".

Comment 29: Section II Corrective Action, Condition II.C.5.b (5):
Please revise to correct the Certified ELUC Document No.

ILLINOIS EPA RESPONSE
The first sentence of Condition II.C.5.b (5) has been revised from "Document No. R201718528" to "2017R18529".

Comment 30: Section II Corrective Action, Condition II.C.5.c (3):
Please correct typos for clarity.

ILLINOIS EPA RESPONSE
The second sentence of Condition II.C.5.c (3) has been revised from "activates" to "activities" and "the BP" to "BP".

Comment 31: Section II Corrective Action, Condition II.C.6.i-k:
Please remove Area 2 Donation Parcel I – Stormwater Detention Basin and Donation Parcel II – Police Station from the list of parcels where bp is required to comply with ELUCs or voidance of NFAs could result. The Area 2 Donation Parcels are not owned by bp so are not appropriate to be included in the Permit. It is incumbent on the owner of the parcel to comply with the ELUC.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the Illinois EPA has revised the Condition II.C.6 as follows:

In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (the Permittee retained parcel only), 4 and 15:

Comment 32: Section II Corrective Action, Condition II. D.1.b:
bp disagrees that this requirement is applicable to solid waste management units (SWMUs) and Product Release Sites (PRSs) that have Illinois EPA approved NFAs. Please clarify that this requirement is only applicable for parcels which have not received NFA.

Please correct the reference to the condition that lists the SWMUs and PRSs.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 13. Condition II.D.1.b remains unchanged.

The comment is acknowledged, and the reference to the condition that lists the SWMUs and PRSs have been corrected in the final RCRA corrective action permit.

Comment 33: Section II Corrective Action, Condition II.E.2:
Please revise to include updated information provided in Exhibit F-1 of the permit renewal application.

As documented in the "Third Quarter 2024 Main Plant Corrective Action Progress Report" dated November 1, 2024, a mobile solar-powered biovent system was installed and commissioned in Third Quarter 2024 to address refinery LNAPL and impacts to groundwater at select monitoring wells.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated in Condition II.E.2 into the final RCRA corrective action permit.

Comment 34: Section II Corrective Action, Condition II.E.3:
Please correct the reference as noted.

ILLINOIS EPA RESPONSE
The first sentence of condition II.E.3 has been updated to correct the reference from "Condition II.E.1" to "Condition II.E.2".

Comment 35: Section II Corrective Action, Condition II.E.4:
Please clarify if updates to Attachment E are only required to be documented in the Corrective Action Progress Reports (required by Condition II.L.1), or if updates must continue to be incorporated into the Permit on an annual basis through a Class 1 Permit Modification.*

ILLINOIS EPA RESPONSE
Updates of Attachment E are only required to be documented in the Corrective Action Progress reports (required by Condition II.L.1).

Comment 36: Section II Corrective Action, Condition II.E.5.b (1):
Please revise for clarity.

ILLINOIS EPA RESPONSE
Condition II.E.5.b(1) has been revised from "ASTM E2856-13 or most current method" to "calculation method described in ASTM E2856-13 or most current method".

Comment 37: Section II Corrective Action, Condition II.F.1.b (2):
Please revise to reflect that a certified ELUC for the SFP was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit. Accordingly, bp requests that Condition II.F.2 be deleted.

ILLINOIS EPA RESPONSE
The comment is acknowledged. The proposed changes have been incorporated into the final RCRA corrective action permit, and Condition II.F.2 has been revised as follows:

The ELUC was established for the SFP, which placed the following restrictions, at a minimum, on the future activities of the subject property:

Comment 38: Section II Corrective Action, Condition II.H:
bp is following the Land Reuse process (Section II.G); therefore, Section H is only applicable if bp withdraws from the Land Reuse Process.

ILLINOIS EPA RESPONSE
Corrective measures requirements are still applicable for the facility regardless of the requirements established in Condition II.G. If any corrective measures are

necessary for any areas or SWMUs, corrective measures must be incorporated into the Land Reuse Process and implemented in accordance with Condition II.H.

Comment 39: Section II Corrective Action, Condition II.I.8:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.I.8 remains unchanged.

Comment 40: Section II Corrective Action, Condition II.J:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.J remains unchanged.

Comment 41: Section II Corrective Action, Condition II.M.2:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

Also, it is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
In reference to BP's comment regarding 35 IAC 742.200, please refer to response to Comment 1. The revised cost estimate for corrective action must be submitted when it is necessary or requested by Illinois EPA. The Condition remains unchanged, except for the last sentence of Condition II.M.2 which has been revised as follows:

The revised cost estimate for corrective action must be submitted to the Illinois EPA as necessary or requested by Illinois EPA.

Comment 42: Section II Corrective Action, Condition II.M.3:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous

waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.M.3 remains unchanged.

Comment 43: Section II Corrective Action, Condition II.M.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. The condition II.M.4 remains unchanged.

Comment 44: Section II Corrective Action, Condition II.M.5:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 41.

Comment 45: Section III Groundwater Corrective Action Program, Condition III.A:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate. Additionally, bp requests clarification regarding whether the last sentence is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.

ILLINOIS EPA RESPONSE
RCRA corrective action activities in Section II of the final RCRA corrective action permit, as well as Section IV of the previous RCRA permit (Log No. B-147R), have been conducted in accordance with 35 IAC 724.201, not under 35 IAC 724.200 since the regulated units were approved for closure by removal. Section V (Groundwater Corrective Action Program) in the previous RCRA permit historically referenced 35 IAC 724.192 through 200 (Log No. B-147R) as the two hazardous waste management units (NC-SP 1and SFP) previously required post-closure care. Under the final RCRA corrective action permit, as BP indicated in its comments, the former hazardous waste units were closed in accordance with the requirements of 35 IAC 724 Subpart G. In accordance with

35 IAC 724.201(c), it is appropriate to address remaining groundwater contamination from the former regulated units under corrective action section requirements in accordance with 35 IAC 724.201 as no other closure or post-closure care requirements remain for the two units. The final sentence of the condition is added to highlight the conditions of 35 IAC 724.201(c) and is applicable for all RCRA permits subject to 35 IAC 724.201. This condition remains unchanged. Please also refer to the response to Comment 1.

Comment 46: III Groundwater Corrective Action Program, Condition III.A.4:
Please consider the proposed revision.

Remediating and/or removing refinery hydrocarbon sources to groundwater impacts, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the bp Main Plant.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.A.4 has been revised as requested.

Comment 47: III Groundwater Corrective Action Program, Condition III.A.5:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.A.5 has been revised as requested. As Condition III.E.12 has been renumbered due to revisions as part of requests by BP's Comment 57, Condition III.A.5 has also been updated to reference Condition III.E.11.

Comment 48: III Groundwater Corrective Action Program, Condition III.A.6:
Please consider the proposed revision.

Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

ILLINOIS EPA RESPONSE
Exhibit F-1, Section B (Definitions), of the approved Permit Application defines "remediating refinery product" as, "the use of physical, chemical, or biological means to recover or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts in order to reduce the mass present at the Site." Condition II.A.6 remains unchanged.

Comment 49: III Groundwater Corrective Action Program, Condition III.B.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Condition III.B.4 remains unchanged. Please also refer to the response to Comment 1 and Comment 45.

Comment 50: III Groundwater Corrective Action Program, Condition III.C.1:
Please revise well construction information (for select wells as noted) to match what was provided in permit renewal application replacement pages.

Also, please revise footnote 11 to reflect that former Riverfront Observation Well (RFOW) G030 no longer exists. RFOW G030 was abandoned due to an excavation for a natural gas pipeline repair as documented in the Main Plant GMZ Well G078 Well Condition Letter dated July 11, 2023 (Log No. B-147R-CA-121).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.C.1 has been revised as requested.

Comment 51: III Groundwater Corrective Action Program, Condition III.D.1:
Please revise as there is no requirement for analysis of any dissolved hazardous constituents with the exception of biogeochemical analytes to monitor natural attenuation conditions only.

ILLINOIS EPA RESPONSE
The comment is acknowledged and Condition III.D.1 has been revised as requested.

Comment 52: III Groundwater Corrective Action Program. Condition III.D.1:
Please revise hazardous waste constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA- 85 and 89).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.D.1 has been revised as requested.

Comment 53: III Groundwater Corrective Action Program. Condition III.E.1:
Please correct the references as noted.

The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.C.1 for the hazardous constituents listed in Condition III.D.1 above.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.1 has been revised as requested.

Comment 54: III Groundwater Corrective Action Program. Condition III.E.2.a.i:
Please revise to include GMZ Boundary Well G085 as listed in Condition III.C.1.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.2.a.i has been revised as requested.

Comment 55: III Groundwater Corrective Action Program. Condition III.E.2.a.ii:
bp does not understand the rationale for this new requirement as it is not necessary to protect human health and the environment. Please clarify this new requirement to better define the vertical extent/boundary of the GMZ.

ILLINOIS EPA RESPONSE
In accordance with 35 IAC 620.250, a GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from the facility. The three-dimensional region contains a horizontal and vertical component. The statement in Condition III.E.2.a.ii was included to better define the vertical dimension of the GMZ. Condition III.E.2.a.ii remains unchanged.

Comment 56: III Groundwater Corrective Action Program. Condition III.E.3:
The goal of the remediation program at this site is hydrocarbon remediation, and the language in the current permit (i.e., "hydrocarbon pool") is more appropriate. bp requests the text be revised to replace "hazardous constituents" with "hydrocarbon pool."

ILLINOIS EPA RESPONSE
The use of “hazardous constituents” is more representative of the dissolved phase and/or free phase. Condition III.E.3 remains unchanged.

Comment 57: III Groundwater Corrective Action Program. Condition III.E.11:
The property owner has no contractual obligation to allow bp access to the property. bp requests this requirement be removed from the permit.

ILLINOIS EPA REPONSE
The comment is acknowledged, and Condition III.E.11 has been removed and remaining conditions in III.E renumbered.

Comment 58: III Groundwater Corrective Action Program. Condition III.E.12.b:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.b (formerly III.E.12.b) has been revised as requested.

Comment 59: III Groundwater Corrective Action Program. Condition III.E.12.c.ii:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.c.ii (formerly III.E.12.c.ii) has been revised as requested.

Comment 60: III Groundwater Corrective Action Program. Condition III.E.12.e.ii.1 and 2:
Please revise for clarity and to remove redundancy between these two conditions.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Conditions III.E.11.e.ii.1 and 2 (formerly III.E.12.e.ii.1 and 2) and have been revised as requested.

Comment 61: III Groundwater Corrective Action Program. Condition III.E.12.g.v:
Please revise to include the vicinity of Land Reuse Area 9.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.g.v (formerly III.E.12.g.v) has been revised as requested.

Comment 62: III Groundwater Corrective Action Program. Condition III.E.13:
Please correct the references as noted.

The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the

development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L.1. A discussion must also be provided in reports required by Condition III.1.6.

ILLINOIS EPA RESPONSE

The comment is acknowledged, and Condition III.E.12 (formerly III.E.13) has been revised as requested.

Comment 63: III Groundwater Corrective Action Program. Condition III.E.14:

*bp is currently addressing the indoor inhalation exposure route through the Indoor Inhalation (or vapor intrusion [VI]) Exposure Route Evaluation and Work Plan as summarized in the chronology of correspondence, to date, between bp and Illinois EPA provided as **Exhibit A** of bp's "Public Notice Comments for Draft Permit" (and documented in Attachment C of this draft Permit).*

Appendix G of the Revised Indoor Inhalation Exposure Route Evaluation and Work Plan dated August 28, 2019, included a site-specific evaluation of the indoor inhalation pathway for the Main Plant GMZ wells using the Johnson & Ettinger calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor) as recommended by Illinois EPA. The calculations were conducted for six applicable constituents under a residential building scenario using site-specific soil conditions including seasonal high water table depth. This site-specific evaluation documented that groundwater conditions at that time did not represent a risk to potential off-site indoor air receptors. As such, it is proposed to utilize this same site-specific approach during the semi-annual comparison of GMZ (and off-site) well groundwater sampling results to evaluate whether the indoor inhalation exposure pathway remains incomplete and potential off-site receptors remain protected. bp's proposed revisions outline the evaluation methodology and reporting criteria.

ILLINOIS EPA RESPONSE

The Illinois EPA can agree, in part, with the approach described in the BP's comments to Condition III.E.13 (formerly III.E.14) for evaluating the indoor inhalation pathway; however, the referenced in-house document has not been approved. Therefore, the approach cannot currently be used while the majority of proposed revisions are considered acceptable. The following comments are noted based on the provided comments:

1. An alternative procedure must be submitted as a Class 1* modification request to propose a procedure for evaluating the indoor inhalation pathway for dissolved groundwater concentrations measured at all groundwater monitoring wells located at the property boundary and off-site locations each time groundwater is sampled. The proposal may include a procedure using the Johnson & Ettinger Calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor).

2. The procedure must include evaluation of all wells, not limited to GMZ wells, at the property boundary and off-site locations to assess potential concerns at any existing buildings.

3. The Illinois EPA concurs with comparison to current results; however, the site-specific calculations have not been approved. Site-specific soil conditions are not currently collected at the off-site areas of concern, and Table H of Appendix B in 35 IAC Part 742 only allows comparison to groundwater or soil gas results; therefore, soil gas or groundwater must be proposed for calculations. An alternative screening level for each hazardous constituent may be calculated using the highest observed groundwater elevation in recorded events for the property boundary and available off-site monitoring wells.

4. The constituents evaluated must consist of a complete list of hazardous constituents listed in Condition III.D.1 which are also identified in Table H of Appendix B in 35 IAC Part 742.

5. A new evaluation is required for each sampling event to determine whether screening levels are exceeded.

6. If the pathway is determined to be complete, the proposal for correction action cannot be provided within the semi-annual groundwater monitoring report, as these are not responded to by the Illinois EPA. Instead, the request to propose corrective action must be submitted in accordance with Condition II.A.13 and II.D.4.

Condition III.E.13 (formerly III.E.14) has been modified to require a proposal be submitted within 90 days. As a result, Condition III.I.17 has been modified to take effect upon approval of the required proposal. A typographical error in Condition III.I.17 was also corrected to reflect reference to Condition III.E.13 instead of Condition II.E.13.

Comment 64: III Groundwater Corrective Action Program. Condition III.I.6:
Please correct the references as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.6 has been revised as requested.

Comment 65: III Groundwater Corrective Action Program. Condition III.I.7:
Please revise for clarity.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.7 has been revised as requested.

Comment 66: III Groundwater Corrective Action Program. Condition III.I.13:
Please clarify the number of copies required. As noted in the proposed revision, bp's preference is to mail one (1) original copy and send electronic copies for all Illinois EPA CCs.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.13 has been revised as requested.

Comment 67: III Groundwater Corrective Action Program. Condition III.I.16.c:
Please revise for clarity and to remove redundancy.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.16.c has been revised as requested.

Comment 68: III Groundwater Corrective Action Program. Condition III.I.17:
Please correct the reference and revise to align with the proposed revisions to Condition III.E.14.

ILLINOIS EPA RESPONSE
Revisions to Condition III.E.14 now allow for evaluation of a potentially complete pathway. Condition III.E.17 remains unchanged.

Comment 69: III Groundwater Corrective Action Program. Condition III.I.18:
Please revise to clarify contaminant control monitoring, notification, and reporting requirements are detailed in Conditions III.E.12 and III.I.16.
It was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider the proposed revisions to Conditions 18.a-d.

ILLINOIS EPA RESPONSE
The intent of Condition III.I.18 is to provide notification and necessary actions if corrective action is not effective to protect human health and the environment with the currently approved groundwater corrective action remedies. Illinois EPA acknowledges the requirements of III.E.12 and reporting requirements of III.I.16; however, there are instances when additional corrective action may be necessary.

In addition, the GMZ boundary encompasses the majority of the property and extends off-site; therefore, certain scenarios are not captured by Condition III.E.12.

Acceptable revisions have been incorporated into Condition III.I.18.

Comment 70: III Groundwater Corrective Action Program. Condition III.J.1:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.:
If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.

ILLINOIS EPA RESPONSE
This Condition III.J.1 remains unchanged. Please also refer to response to Comment 1 and Comment 45.

Comment 71: Section IV Compliance Schedule, Condition IV.C.1.b:
Please correct the reference as noted. This requirement does not enhance the protection of human health and the environment. bp requests this requirement be removed from the permit.

ILLINOIS EPA RESPONSE
The comment is acknowledged and Condition IV.C.1.b has been revised. Additionally, please refer to response to Comment 13. Condition IV.C.1.b remains in the Permit.

Comment 72: Section IV Compliance Schedule, Condition IV.C.2:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. The condition IV.C.2 remains unchanged.

Comment 73: Section V General Requirements, Condition V.13.a:
bp is not required to have a "waste analysis plan" for this facility as the facility does not accept outside waste and 35 IAC 727 requirements are not applicable to this permit. As

this is a Standard Condition, please consider the proposed note to be added for clarification or address the non-applicability of the requirement elsewhere in the permit. Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE

The standard conditions are standard for all RCRA corrective action permits. However, if any of these conditions aren't applicable to BP, the corresponding requirements are not applicable. Circumstances may arise where regulations that were not applicable at the time of issuing permit, becomes applicable on a later time. Condition V.13.a remains unchanged.

Comment 74: Section V General Requirements, Condition V.21:

Please correct the references as noted.

ILLINOIS EPA RESPONSE

There has been error in referencing Condition V.16 which should be referenced as Condition V.18, instead of Condition V.16, according to 35 IAC 702.152(g). Error has been corrected in the final RCRA correction action permit.

Comment 75: Section V General Facility Standards, Condition V.27-30:

Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart B (General Facility Standards). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE

Please refer to response to Comment 73.

Comment 76: Section V General Facility Standards, Condition V.31-36:

Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart C (Preparedness and Prevention). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE

Please refer to response to Comment 73.

Comment 77: Section V Post-Closure, Condition V.38-42:

Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart G (Closure and Post-Closure Care) and Subpart H (Financial Requirements). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE

Please refer to response to Comment 9.

Comment 78: Section VI Reporting And Notification Requirements, Condition VI.II.M.2, Action:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the changes have been made to the final RCRA corrective action permit.

Comment 79: VI. Reporting And Notification Requirements, Condition III.C.3, III.C.5, III.C.2:
Please correct the Condition references as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the condition references have been corrected.

Comment 80: VI. Reporting And Notification Requirements, Condition III.I.15:
Please revise to "semi-annually" to align with Condition III.I.7. Note, bp has proposed a revision to Condition III.1.7 as well for better clarification.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the condition references have been corrected.

Comment 81: VI. Reporting And Notification Requirements, Conditions III.I.18.a-c:
As noted above under Condition III.I.18, it was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider removing the associated Actions under Conditions I.18.and I.18.b from this table.

Please correct the Condition reference for Condition III.1.18.c as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged. Condition III.I.18 remains unchanged. Please refer to response to Comment 69.

Comment 82: Section VI Reporting And Notification Requirements, Condition VI.III.J.1, Due Date:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1.

Comment 83: Section VI Reporting And Notification Requirements, Condition VI.V.34, VI.V.35.a and b, VI.V.36, and VI.V.37:
Please correct the references as noted although these requirements are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 74. The references have been corrected into the final RCRA corrective action permit.

Comment 84: Identification of Approved Permit Application, Attachment A
Please revise bp document dates as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the changes have been made to the final RCRA corrective action permit.

Attachments: 1. Integrating Climate Change Adaptation Considerations into the Resource Conservation and Recovery Act Corrective Action Process
2. Implementing Climate Resilience in Hazardous Waste Permitting under RCRA

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

RCRA CORRECTIVE ACTION PERMIT

1191150001 -- Madison County
BP Products North America, Inc./Main Plant
ILD 980700967
Log No. B-147R2
RCRA Administrative Record

Issue Date:
Effective Date:
Expiration Date:

PERMITTEE

BP Products North America, Inc.
Attention: Ms. Michelle Knapp
301 Evans Avenue, P.O. Box 167
Wood River, Illinois 62095

A Resource Conservation and Recovery Act (RCRA) corrective action permit is hereby issued to BP Products North America Inc. (BP) as Owner and Operator and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code (35 IAC) Subtitle G.

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires BP to conduct the following hazardous waste activities in accordance with the approved permit application and the conditions in this permit:

Corrective Action: Twenty-one (21) Solid Waste Management Units (SWMUs) and eight (8) Product Release Sites (PRSs) in nineteen (19) Land Reuse Areas.
Groundwater Monitoring: Corrective action for the SWMUs and PRSs in Land Reuse Areas.

This permit consists of the conditions contained herein and those in Sections and Attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 IAC Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this RCRA permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment A of this permit, and any subsequent amendments. Any inaccuracies found in the information provided in the approved permit application may be grounds for the termination or modification of this permit (see 35 IAC 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:OF:1191150001-RCRA-B147R2-Approval.docx

RCRA Corrective Action Permit

BP Products North America -- Main Plant Facility

Wood River, Illinois

Illinois EPA No. 1191150001

USEPA No: ILD980700967

RCRA Corrective Action Permit
BP Products North America/Main Plant

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SECTION I: GENERAL FACILITY DESCRIPTION

A. OWNER AND OPERATOR

The facility is owned and operated by BP Products, North America Inc., hereinafter referred to as the "Permittee" (35 IAC 702.121, 702.123 and 703.181).

BP Products North America, Inc.
301 Evans Avenue
Wood River, Illinois 62095

Facility Contact:
Michelle Knapp
Liability Manager
Remediation Management Services Company
An Affiliate of BP Products North America Inc.
847-346-7112
michelle.knapp@BP.com

B. LOCATION

1. Location of the facility:

   The BP Products North America, Inc. (formerly Amoco) Main Plant facility is located at 301 Evans Avenue, Wood River, Madison County, Illinois.

2. Definition of facility covered by this Permit:

   a. The boundary of the facility subject to this permit has been modified to reflect the previous corrective action and permit decisions made under the previous permit (Log No. B-147R). The original permitted facility (approximately 570 acres) was previously parceled to remove three specific portions of land, by parceling horizontally and vertically, as described below:

      1) A 9.56-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 418 feet above mean sea level (ft above MSL); this plane is located approximately 23 feet below ground surface (ft-bgs). The Property Index Number (PIN) for this parcel is 19-2-08-27-14-301-003. The PIN for the parcel directly beneath the 9.56-acre donated parcel is 19-2-08-27-301-004, which is still owned by the Permittee and included in the permitted facility boundary.

      2) A 7.5-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 428 ft above MSL; this plane is located approximately 15 ft-bgs. The PIN for this parcel is 19-2-08-27-10-101-002. The PIN for the parcel

directly beneath the parcel is 19-2-08-27-10-101-003, which is still owned by the Permittee and included in the permitted facility boundary.

3) An approximate 118.25-acre parcel purchased by Kinder Morgan Phoenix Holdings LLC (KMPH) which only extends from ground surface vertically downward to a subsurface horizontal plane at an elevation of 408 ft above MSL, which is located approximately 25 ft-bgs. The Property Index Numbers (PINs) for the 118.25-acre KMPH parcel are:

19-1-08-27-18-301-001.001
19-1-08-34-00-000-001.004
19-1-08-34-00-000-001.005
19-1-08-34-00-000-001.006
19-1-08-34-00-000-001.007

Note that the parcel of land which lies directly beneath each of the KMPH parcels is owned by the Permittee and is a part of the permitted facility.

b. The facility which is the subject of this permit, located between the ground surface and an elevation of 428 ft above MSL, is approximately 434.69 acres in size. This is a reduction of approximately 135.31 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) through (3).

c. The facility which is the subject of this permit, located between 418 ft above MSL and 428 ft above MSL, is approximately 442.19 acres in size. This is a reduction of approximately 127.81 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) and (3).

d. The facility which is the subject of this permit, located between 408 ft above MSL and 418 ft above MSL, is approximately 451.75 acres in size. This is a reduction of approximately 118.25 acres from the original BP Main Plant to remove the parcels described in Condition I.B.2.a (3).

e. The facility which is the subject of this permit, located between 408 ft above MSL and below, is approximately 570 acres in size. This is identical to the original BP Main Plant boundary.

3. Facility Maps:

The general location of the facility is shown on Figure B-1, Attachment B of this permit. The location of the solid waste management units (SWMUs), product release sites (PRSs) and Land Reuse Areas are shown on Figure B-2, Attachment

B of this permit. The facility layout map is shown on Figure B-3, Attachment B of this permit.

C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

1. There are no regulated hazardous waste management units (HWMUs) operating or requiring closure/post-closure care under this permit at this facility. Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit. This includes the requirements for personnel training (35 IAC 724, Subpart B), preparedness and prevention (35 IAC 724, Subpart C) and contingency plan and emergency procedures (35 IAC 724, Subpart D). However, please note that through the application of other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site.

2. The Permittee currently proposes no corrective action activities that would subject the facility to a RCRA Remedial Action Plan Permit (RAPP). If plans change in the future such that one or more corrective action activities would subject the facility to a RCRA RAPP, the Permittee must submit a modification request to incorporate requirements for a RAPP into this permit in addition to the plans submitted as a part of a normal corrective action document, as well as certification in accordance with Section 39(i) of the Illinois Environmental Protection Act.

3. Requirements for HWMUs: NC-SP1 and SFP

   a. At the North Cell of Spray Pond 1 (NC-SP1) the closure-by-removal requirements of 35 IAC 703.159 have been met. This determination was made in the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) and was based upon the review of the October 17, 2007 "Supplemental Soil Investigation Report for the North Cell of Spray Pond 1" and the Illinois EPA's May 29, 2007 (Log No. B-147-M-7) letter to BP. This letter also required a Class 3 modification of the permit requesting that the NC-SP1 be removed as a regulated unit subject to the requirements of the permit. With the approval of this permit, this requirement has been considered to be met and accordingly, no further action is necessary for the NC-SP1.

   b. At the South Flare Pit (SFP), Condition 2 of the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) stated that the review of soil data contained in the October 17, 2007 "Supplemental Soil Investigation Report" determined that the closure-by-removal demonstration had been met for soil and no further action was needed for soil:

      (1) With the implementation of a Health and Safety Plan for Construction Workers in the area of the SFP shown within the hyphenated line by Attachment 1 of the January 7, 2008 letter;

(2) With the eventual implementation of an Environmental Land use Control (ELUC) as required by Attachment C of the Illinois EPA's May 29, 2007 letter and the conditions set forth in the January 7, 2008 letter;

(3) Provided that groundwater issues for the SFP are addressed as outlined by Items 1 through 4 in Attachment C of the Illinois EPA's May 29, 2007 letter (Log No. B- 147-M-7 and B-147-M-1).

A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. Condition II.C.4 below (Groundwater Requirements for the SFP) addresses the requirements associated with Item 3 above.

4. Groundwater Requirements for the SFP

a. The Illinois EPA approved the March 18, 2010 submittal for the SFP demonstration to exclude the groundwater ingestion exposure route for perched groundwater (locally encountered groundwater in surficial fill and fine-grained native materials (Cahokia Clay facies) at the former SFP area.

(1) As a result of the perched groundwater route being excluded, the Groundwater Detection Monitoring Program was removed with the issuance of the renewed RCRA Permit (Log No. B-147R).

(2) The facility must satisfy the requirement of Condition II.F.2 of this permit.

(3) The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

SECTION II: CORRECTIVE ACTION

A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 IAC 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents, listed in 35 IAC 721, Appendix H, from any Solid Waste Management Unit (SWMU) at the BP Main Plant in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.

2. The original permit issued by the Illinois EPA for this facility on September 30, 1993 required that the facility conduct corrective action at twenty-one (21) SWMUs and nine (9) product release sites (PRSs) (locations where product was known to have been released or where product could have potentially been released). On June 21, 2002, the Illinois EPA approved a plan to expand the scope of this corrective action program to include all recognized environmental conditions (RECs) at the facility. To accomplish this, the facility was broken up into nineteen (19) investigation areas (Land Reuse Areas) so that corrective action at the facility could be addressed on an Area-by-Area basis.

3. One of the Land Reuse Areas (Area 18) contains two units that were identified and regulated as hazardous waste management units (HWMUs) in the permit issued to this facility on September 30, 1993. The facility has since accomplished closure by removal for these two units (referred to as the North Cell Spray Pond 1 (NC-SP1) and the South Flare Pit (SFP)). This section summarizes the status of these units relative to RCRA closure, RCRA post-closure and RCRA corrective action (it must be noted that HWMUs are a subset of SWMUs).

4. The facility has completed a substantial amount of corrective action efforts to date at this facility. This permit summarizes these efforts and describes the corrective action efforts which must still be completed at this facility to ensure the requirements of Section 3004(u) and (v) of RCRA and 35 IAC 724.201 are met.

5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility or any SWMUs found during the course of facility operations in the future.

6. As 35 IAC Part 742 was amended to include indoor inhalation exposure route, all SWMUs which obtained no further action for corrective action as listed in Condition II.B.1 must be evaluated for the indoor inhalation pathway and meet all updated remediation standards to meet the requirements of 35 IAC Part 742.

7. The Permittee must develop and implement a Corrective Measures Program (CMP), as necessary, to protect human health and the environment from any SWMUs and Areas of Concern (AOCs) at the facility.

8. The Permittee must carry out interim measures in accordance with the terms, conditions, and requirements of this permit to address existing contamination at the facility until such time as a final corrective measure can be developed and implemented.

9. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs and AOCs; and/or (2) future releases for existing SWMUs at the facility.

10. Investigation and remediation efforts carried out as part of the corrective action program implemented in accordance with this permit must meet the requirements of: (1) this permit, and the regulations cited herein; (2) the Illinois EPA and the USEPA guidance documents regarding such efforts; and (3) the Illinois EPA letters regarding such activities.

11. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 IAC 703 Subpart G.

12. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act (Act).

13. All documents submitted to the Illinois EPA regarding corrective action efforts must be accompanied by a completed RCRA Corrective Action Certification Form (LPC 632). This form can be found on the Illinois EPA website.

14. The Illinois EPA may modify this Section when it determines good cause exists for modification of a compliance schedule, such as an act of nature, strike, flood or materials shortage or other Force Majeure or events over which the Permittee has no control and for which there is no reasonably available remedy.

15. Based on the results of the investigative efforts, additional investigation and remediation, as necessary, may be required at any SWMUs or AOC to protect human health and the environment to meet the remedial objectives in accordance with 35 IAC Part 742.

16. The Permittee shall incorporate, as necessary, climate change adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding integrating climate change adaptation considerations into the RCRA corrective action process.

B. CORRECTIVE ACTION REQUIREMENTS

A plan to conduct a Phase I RCRA Facility Investigation (RFI) of the twenty-one (21) SWMUs and nine (9) product release sites (PRSs) of concern as identified in the 1993 permit and listed below was approved by Illinois EPA on September 7, 1994; a report documenting the results of this investigation was approved by Illinois EPA on June 5, 2001. In 2016, as the approximate 118.25-acre KMPH parcel at and above 408 feet above mean sea level (ft above MSL), which contained of one of the PRSs (PRS 7), was removed from the facility subject to this permit, the number of PRSs requiring corrective action under this permit is now eight (8), while groundwater throughout the original permitted boundaries of the facility is still subject to corrective action. The requirements to addresses corrective action at these areas are included in Section II of this permit.

SWMU #	SMMU Description
8	Three Leaded Tank Bottom Disposal Area
9	Northeast Sand Pits
12	Southeast Disposal Area
13	API Separator Sludge Landform
14	North Cell/Spray Pond 1
15	Spray Ponds Other Than North Cell/Spray Pond 1
16	Old API Separator
17	Additive Waste Pit
18	DAP Spent Filter Cake Storage Area
21	Former APAC Waste Transfer Area
22	New APAC Waste Transfer Area
23	MAP Spent Filter Cake Storage Area
24	APAC Slop Oil Tank 70
25	APAC Slop Oil Tank 176
26	APAC Slop Oil Tanks 189, 190, 845, and 846
27	APAC Slop Oil Tank 277 Area
30	Korea Tank Form Disposal Area
31	Waste Phenol Accumulation Area
33	South Flare Pit
34	Amoco's Sewer System
36	Liquid Waste Collection Bin

PRS #	PRS Description
1	Former Tank 228 Dike Area
2	Former Tank 256 Dike Area
3	Waste Oil Leak Area
4	Hydrocarbons on Water Table
5	North Tank Farm
6	East Tank Farm
8	Korea Tank Farm
9	Gasoline Piping Manifold

1. A Phase II RFI workplan for the SWMUs and PRSs mentioned above was approved by Illinois EPA on February 5, 2002 that was subsequently modified on June 21, 2002. The February 5, 2002 approval letter expanded the scope of corrective action at this facility to all recognized environmental conditions (not just the SWMUs and PRSs identified in the original 1993 permit) and divided the facility into nineteen (19) Land Reuse Areas for remediation and potential redevelopment. A map of the BP Main Plant Land Reuse Areas is presented in Attachment A-1 to this section; these areas are also identified as follows:

Land Reuse Area No.	**Name**
Area 1	Northwest Corner
Area 2	Northeast Corner
Area 3	North Central Area
Area 4	Former Rail Yard
Area 5	South Central Area
Area 6	Former APAC Area
Area 7	Former Alkyl Plant
Area 8	North Tank Farm
Area 9	Korea Tank Farm
Area 10	East Tank Farm
Area 11	Spray Pond Area (Ponds 1 & 2 and Intake Channel Areas)
Area 12	South Tank Farm
Area 13	Wildlife Enhancement Area
Area 14	Southeast Corner
Area 15	Administration Building
Area 16	Marketing Operations Area
Area 17	Liquid Propane Gas (LPG) Caverns
Area 18	North Cell Spray Pond 1 and South Flare Pit
Area 19	Spray Pond 3

2. Condition II.C.1 below includes the facility's corrective action efforts that have been completed, updated to June 2024. Condition II.D below includes the required corrective action that still must be completed at the facility.

3. All investigation efforts conducted at each Land Reuse Area must be sufficient as to thoroughly characterize contamination associated with all the identified recognized environmental conditions present in the area. The Land Reuse Area investigations will focus on soil and perched groundwater.

4. Conduct additional investigation and remediation, as necessary, to address any on-site and/or off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility.

5. All plans and reports associated with all aspects of corrective action at this facility should be submitted to the Illinois EPA for review and approval before implemented. A summary of the plans/reports submitted to date regarding corrective action at this facility, organized by the Illinois EPA log number (and

thus the chronologic order in which the plans/reports were submitted) is provided in Attachment C; this attachment also identifies the Illinois EPA's final action on each submittal.

6. The requirements of 35 IAC Parts 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 IAC 724. 201.

7. Components of the corrective action program must include:

   a. Continued groundwater monitoring and corrective action program in accordance with the conditions in Section III of this permit.

   b. Continued operation of the bioremediation systems and remediation of hydrocarbon in accordance with Condition II.E and as approved in Illinois EPA letters.

   c. Continued submittal of Corrective Action Progress Reports in accordance with Condition II.L.1 of this permit.

   d. Continued implementation of ELUC – Condition II.C of this permit.

8. The Permittee plans to complete corrective action for the soil and perched groundwater at the facility through the land reuse investigation remediation process. The goal in following this process is to obtain a NFA determination for a given Land Reuse Area by addressing recognized environmental conditions in that area. If the Permittee determines that redevelopment is not likely to occur in a given area, the Permittee will follow the corrective action process only for the SWMUs and PRSs in that area. If the potential for redevelopment of the Land Reuse Area becomes viable in the future, the Permittee would pursue an NFA determination for the entire area (including RECs) at that time. The general process for investigation and remediation of each Land Reuse Area is as follows:

   a. Current conditions will be established for the parcel/area.

   b. An Investigation Workplan incorporating the current conditions will be developed and submitted to the Illinois EPA for review and approval to investigate data gaps required to properly characterize the area (this submittal is referred to as the Current Conditions Report/Investigation Workplan).

   c. The investigation, focused on obtaining soil and any perched groundwater data, will be completed. It must be noted that the groundwater within the uppermost aquifer beneath the facility is being addressed by the requirements of Section III of this permit.

   d. The results of the investigation will be analyzed; as well as all other data remediation objectives will be developed in accordance with 35 IAC Part

742; a comparison will be made between the data to the developed remediation objectives; and a determination will be made regarding the need for any remedial activities (including the establishment of engineered barriers and institutional controls).

e. A report documenting the results of the efforts described in Conditions II.B.8.c and d above will be submitted to the Illinois EPA for review and approval (this report is referred to as the Investigation Report). This report will also identify any required remedial activities (including establishment of any required engineered barriers and/or institutional controls) needed to achieve the proposed remediation objectives.

f. Based upon review of the Investigation Report, the Illinois EPA will either:

(1) require that additional investigative efforts be conducted;

(2) issue a draft NFA letter for soil and perched groundwater (if applicable). This draft NFA will identify any required remedial activities (including establishment of an engineered barrier or institutional control) that must be completed before a final NFA letter can be issued. As necessary, the Permittee will conduct the required remedial activities and submit a report to the Illinois EPA for review and approval documenting the results of these activities. Additional work must be conducted by the Permittee as necessary in accordance with plans and reports approved by the Illinois EPA, until the Illinois EPA determines that a final NFA letter can be issued.

(3) issue a final NFA letter for soil and perched groundwater (if applicable); or

(4) require some combination of the above efforts.

g. Any engineered barriers and/or institutional controls required in the development of remediation objectives must be established before a final NFA letter can be issued. Plans for establishing the required engineered barrier, if necessary, and associated institutional control(s) required must be submitted to the Illinois EPA for review and approval as well as reports documenting completion of these efforts. Any other proposed remedial efforts to achieve the established remediation objectives must also be completed before a final NFA letter can be issued.

h. Development of the area may proceed so as long as such activities are conducted, meeting all the requirements and conditions of the NFA letter and any applicable conditions of this permit.

C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED

1. The status of investigations and corrective action for each Land Reuse Area as of September 2024, is presented on the table below.

Notes: CCR/IW = Current Conditions Report/Investigation Work Plan
Inv Report = Investigation Report
ELUC = Environmental Land Use Control
APAC = Amoco Petroleum Additives Company
NFA = No further Action
IEPA = Illinois EPA

Land Reuse Area	**SWMUs/PRSs contained in Areas**	**Accomplishments as of Date**	**Current Status**
Area 1-Northwest Corner	PRS 5 – North Tank Farm	NFA for soils approved December 5, 2001. Recorded ELUC approved March 25, 2005.	Comply with conditions of NFA and ELUC.
Area 2-Northeast Corner	PRS 1 – Former Tank 228 Dike Area	NFA for soils approved August 13, 2002. Recorded ELUC approved March 29, 2005. Revised recorded ELUC approved February 27, 2012. A revised recorded ELUC approved August 9, 2017.	Comply with conditions of NFA and ELUC. The Permittee retains ownership and responsibility for RCRA corrective action activities associated groundwater in the vicinity of two parcels removed from the facility as described in Conditions II.C.5 (a) and (b) below.
	PRS 5 – North Tank Farm		
	PRS 6 – East Tank Farm		
	SWMU 9 – Northeast Sand Pit		
Area 3-North Central Area	SWMU 24 – APAC Slop Oil Tank 70	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised Inv. Report submitted May 8, 2012. IEPA requested that the Permittee withdraw the 2012 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
	SWMU 26 – APAC Slop Oil Tanks 189, 190, 845, 846		

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 4-Former Rail Yard	SWMU 13 – Separator Sludge Landfarm SWMU 21 – Former APAC Waste Transfer Area	NFA for soils approved August 22, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC. * See Notes below.
Area 5-South Central Area	SWMU 27 – APAC Slop Oil Tank 177 Area PRS 3 – Waste Oil Leak Area	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA February 12, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 6-Former APAC Area	SWMU 17 - Additives Waste Pit SWMU 18 - Detergent Additives Plant (DAP) Spent Filter Cake Storage Area SWMU 22 – New APAC Waste Transfer Area SWMU 23 – Multipurpose Additives Plant (MAP) Spent Filter Cake Storage Area SWMU 31 – Waste Phenol Accumulation Area SWMU 36 – Liquid Waste Collection Bin	CCR/IW approved September 5, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA March 16, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 7-Former Alkyl Plant	PRS 5 – North Tank Farm	CCR/IW approved August 7, 2003. Inv. Report submitted June	The Permittee to submit revised Inv.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
		2, 2008 to IEPA. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	Report pending further discussion with IEPA.
Area 8-North Tank Farm	PRS 2 – Former Tank 246 Dike Area PRS 5 – North Tank Farm SWMU 8 – Bottom Disposal Areas SWMU 25 – APAC Slop Oil Tank 189	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 9-Korea Tank Farm	SWMU 30 – Korea Tank Farm Disposal Area PRS 8 – Korea Tank Farm	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Corrective Action Modification for microbial enhancement injection approved November 20, 2023.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. The Permittee to submit results of microbial enhancement injection in the Corrective Action Progress Reports required by Conditions II.L.1 and II.L.2.
Area 10-East Tank Farm	PRS 6 – East Tank Farm	CCR approved June 4, 2003. Inv. Report submitted March 21, 2008; revised Inv. Report received by IEPA on May 5, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Revised Inv. Report submitted December 20, 2019, superseding 2011 Inv. Report.	Revised Inv. Report pending IEPA review. * See Notes below.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 11-Spray Pond Area (Ponds 1 and 2 and Intake Channel Areas)	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1	RFI Phase I report for SWMUs in this area approved June 5, 2001. CCR/IW approved by IEPA January 24, 2012.	The Permittee implementing approved CCR/IW. * See Notes below.
Area 12-South Tank Farm	PRS 7 – South Tank Farm SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in this area approved June 5, 2001. IEPA notified of the Ownership Transfer of the Permittee to Kinder Morgan Phoenix Holdings LLC (KMPH) on November 2, 2015.	KMPH is responsible for RCRA corrective action activities at and above elevation 408 ft above MSL in Area 12. The Permittee retains ownership and responsibility for RCRA corrective action activities below elevation 408 ft above MSL.
Area 13-Wildlife Enhancement Area	SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26,2011. Additional environmental data collected in 2017-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 14-Southeast Corner	None	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved July 12, 2012. Environmental data collected in 2017-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 15-Administration Building	None	NFA for soils approved November 19, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC.
Area 16-Marketing Operations Area	SWMU 16 – Old American Petroleum Institute (API) Separator SWMU 34 – Amoco's Sewer System	CCR/IW approved May 5, 2009. Inv. Report submitted December 23, 2014 and received by IEPA on December 24, 2014. IEPA requested a revised Inv. Report in a letter dated June 14, 2016. Additional environmental data	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
		collected in 2018-2019 submitted March 8, 2024.	
Area 17-LPG Caverns	None	CCR/IW approved May 5, 2009. Inv. Report submitted October 22, 2012. IEPA requested that the Permittee withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 18-North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP)	SWMU 14 – NC-SP1 SWMU 33 – SFP	On January 7, 2008, Illinois EPA approved closure by removal demonstration for the NC-SP1. IEPA has determined that the facility has satisfied the groundwater requirements of IEPA's May 29, 2007 and September 9, 2008 letters. Based upon 35 lAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. A closure by removal demonstration for the soils at the SFP was approved by IEPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the unit. Recorded ELUC approved July 18, 2016.	NFA at NC-SP1. Regarding the SFP, the Permittee must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. The Permittee must also comply with conditions of the ELUC.
Area 19 Spray Pond 3	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1	IEPA approved Inv. Report on December 6, 2007; IEPA revised this letter on April 13, 2009. This letter determined that no further action required in area provided certain requirements are met and certain restrictions are placed on future activities in the area.	The Permittee must carry out requirements set forth in IEPA's April 13, 2009 letter. * See Notes below.

*Notes: In accordance with the KMPH RCRA Permit issued March 4, 2024, small portions of the following Land Reuse Areas were included in the transfer of ownership to KMPH: 4, 5, 10, 11, 13, 17 and 19. The Permittee retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 ft above MSL.

2. As provided by 35 IAC 742.1000(a), an institutional control satisfactory to the Illinois EPA must be established for property or media that have been remediated to any acceptable standard identified in 35 IAC Part 742 other than those for a residential use. As of September 2024, the Permittee has completed the required environmental investigation and remedial activities associated with the corrective action for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 identified in Condition II.C.3. As discussed in Condition II.C.3, No Further Action (NFA) determinations for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 have been made by Illinois EPA.

3. As of September 2024, the Permittee has obtained NFA for the specific media at the following parcels and SWMUs:

Land Reuse Area/ SWMUs Present in Area	**NFA and Media**
Area 1	NFA letter for soil and groundwater ingestion route for perched-groundwater only was issued on December 5, 2001 (Log No. B-147-CA-11). ELUC was established for Area 1 (see Conditions II.C.4 and 6 below).
Area 2	NFA letter for soil only was issued on August 13, 2002 (Log No. B-147-CA-14). ELUC was established for Area 2 (see Conditions II.C.4 and 6 below). No perched groundwater was encountered during the investigation.
Area 4	NFA letter for soil only was issued on August 22, 2003 (Log No. B-147-CA-30). Exclusion of groundwater ingestion exposure route for perched-groundwater in this parcel was approved on August 22, 2003 (B-147-CA-30). ELUC was established for Area 4 (Conditions II.C.4 and 6 below).
Area 15	NFA letter for soil and groundwater ingestion route for perched groundwater only was issued on November 19, 2003 (Log No. B-147-CA-31,36 & 37). ELUC was established for Area 15 (see Conditions II.C.4 and 6 below).

4. As of September 2024, the following Environmental Land Use Control (ELUC) has been established following the NFA determinations by Illinois EPA and recorded with the Madison County Recorder's Office as shown in the table below.

ELUC Recorded as Part of RFI for BP Main Plant

Area Name	**Size (Acres)**	**Parcel ID for Site**	**Date of NFA Letter**	**County Recorder's No. /Date Recorded**	**PIN/TAX ID**
Area 1	6.3	Northwest Parcel	December 5, 2001	2003R05241/ January 23, 2003	19-1-08-28-12-201-001.001
Area 2	43	Police Station	August 13,	2003R08605/	19-2-08-27-14-301-

		Donation Parcel & BP retained Parcel	2002	February 5, 2003	003;19-2-08-27-301-004; 19-2-08-27-10-101-002; 19-2-08-27-10-101-003.
Area 4	29.44	Former Rail Yard	August 22, 2003	2005R38583/ July 13, 2005	19-1-08-28-00-000-010; 19-1-08-33-00-000-013;19-1-08-34-00-000-001; 19-1-08-34-00-000-001.001
Area 15	11.73	Administration Building Parcel	November 19, 2003	2004R59615/ October 1, 2004	19-1-08-28-00-000-010.001

5. Three parcels have been removed from the original definition of the facility that are subject to corrective action under this permit as described below:

   a. BP donated a 9.56-acre parcel in Area 2 to the City of Wood River. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 23 ft-bgs at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-14-301-003. BP retained ownership of that portion of the 9.56- acre parcel which extends below a horizontal plane at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-301-004.

      (1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on February 5, 2003, one for the parcel being donated to the City of Wood River and one for that portion of Area 2 being retained by BP.

      (2) The Illinois EPA approved a draft ELUC for the 9.56-acre donation parcel on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. 2011R45888. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R0865 filed with the Madison County Recorder on February 5, 2003.

      (3) The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. 2011R45887. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R08605 filed with the Madison County Recorder on February 5, 2003) and superseded the original ELUC for Area 2.

(4) The Illinois EPA issued a modified permit for this facility on December 21, 2012 which allowed the 9.56-acre donation parcel (Parcel Index No. 19-2-08-27-14-301-003) to be removed from the defined facility covered by this permit. The basis for this modification was that: (1) a NFA was issued for soils in Area 2 by Illinois EPA on August 3, 2002 (which would include the 9.56-acre donation parcel), subject to certain restrictions being in place on future activities in Area 2; and (2) an ELUC specific to this parcel was in place which restricted future activities in the donation parcel as required by the NFA Letter for Area 2.

b. BP donated a 7.5-acre parcel within Area 2 to the City of Wood River for the construction of a new police station. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 15 ft-bgs at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-10-101-002. BP is retaining ownership of that portion of the 7.5-acre parcel which extends below a horizontal plane at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-10-101-003.

(1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on December 7, 2011, one for the parcel being donated to the City and one for that portion of Area 2 being retained by BP.

(2) The Illinois EPA approved a draft ELUC for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above.

(3) The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on May 4, 2017 (Log No. B-147R-CA-77) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18529. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above and also superseded this latter ELUC.

(4) This modified permit (Log No. B-147R-M-16 and any future modifications) allows the subject 7.5-acre donation parcel (Parcel Index No. 19-2-08-27-104-101-002) to be removed from the defined facility covered by this RCRA permit. The basis for this modification is that: (1) NFA Letters were issued for soils in this parcel by Illinois EPA on August 13, 2002 and August 22, 2016, subject to certain restrictions being in place on future activities in the parcel; and (2) an ELUC specific to this parcel is in place

which restricted future activities in the donation parcel as required by these NFA letters.

c. An approximate 118.25-acre three-dimensional parcel at elevation of 408 ft above MSL is not part of the facility. This parcel has already been issued a RCRA corrective action permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area below elevation of 408 ft above MSL remains part of the facility and is subject to BP Main Plant's RCRA permit.

(1) KMPH is responsible for RCRA Corrective action activities at and above elevation of 408 ft above MSL at the former BP Wood River Terminal (South Tank Farm), Land Reuse Area 12, and those portions of the following areas that were included in the purchase: 4, 5, 10, 11, 13, 17 and 19.

(2) The Permittee retains ownership and responsibility for RCRA Corrective Action activities below elevation of 408 ft-MSL.

(3) The Permittee and KMPH recognize that the post-closure conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closure conditions, operations, and activities at the property retained by BP, or its successors could impact property owned and/or operated by KMPH or its successors.

(4) In the event that post-closure activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by the Permittee, KMPH will be responsible for the environmental impacts and corrective action activities that result.

(5) In the event that post-closure activities at the property retained by the Permittee impact the overlying and/or adjacent property owned by KMPH, the Permittee will be responsible (if determined to be the result of the Permittee's activities) for the environmental impacts and corrective action activities that result.

6. In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (the Permittee retained parcel only), 4 and 15:

a. No groundwater beneath the areas, including perched groundwater, may be used as a potable supply of water.

b. Contaminated groundwater and/or soil that is removed, excavated, or disturbed from the areas must be handled in accordance with all applicable laws and regulations.

c. The areas may not be used for residential purposes and may only be used solely and exclusively as "industrial/commercial property" as that term is defined in 35 IAC Part 742.

d. Excavation and subsurface construction work in the Land Reuse Areas must be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soil and impacted perched groundwater in the area. All construction workers shall be equipped with appropriate personal protective equipment as required and specified in the site health and safety plan.

e. The soil within each area is to remain in place, except where necessary to remove it for construction purposes.

f. A detailed process must be followed in the management on any soil excavated during construction/demolition/excavation efforts in the areas. This process allows the excavated soil to be placed elsewhere at the BP facility provided certain requirements are met.

g. Requires maintenance of engineered barriers over certain portions of each area as follows:

Land Reuse Areas	Number of Subareas Requiring an Engineered Barrier
Area 1	2
Area 2	2
Area 4	3
Area 15	4

h. Prior to commencement of any future excavation and/or construction in or near the sub-areas covered by an engineered barrier, a safety plan for that sub-area is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations, and other USEPA guidance as available. At a minimum, the plan should address possible worker exposure to contaminated soil which may be present in the sub-area. Any contaminated soil removed, or excavated from, or disturbed in the sub-areas where any engineered barrier is present must be handled in accordance with all applicable laws and regulations.

i. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA's NFA determination in accordance with the program under which the determination was made. The failure to

comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Act.

j. The limitations or requirements of an ELUC apply in perpetuity or until:

(1) The Illinois EPA issues a new NFA determination approving modification or removal of the limitation/requirement; and

(2) A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

k. At no time shall this site be used in a manner inconsistent with the land use limitations established in an approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved; and (2) a new NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 IAC Part 742.

(1) Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC Part 742.

(2) Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

1. The Permittee must meet the applicable indoor inhalation remediation objectives both on-site and the impacted off-site properties in accordance with 35 IAC Part 742.

a. The Permittee must continue to address the primary objectives set forth in these documents entitled, “Revised Indoor Inhalation Exposure Route Evaluation and Work Plan” dated August 28, 2019 (Log No. B-147R-CA-96) and received by Illinois EPA on August 29, 2019; “Action Plan For Potential Man-Made Pathway Evaluation” dated November 25, 2019 (Log No. B-147R-CA-98) and received by Illinois EPA on November 26, 2019; “Soil Gas Pathway Evaluation Report” dated June 7, 2021 (Log No. B-147R-CA-111) and received by Illinois EPA on June 8, 2021; “Additional Info to the Revised Indoor Inhalation Exposure Route Eval And Work Plan Dated August 29, 2019 To Provide An Update on Changed Site Conditions” dated April 12,2024 (Log No. B-147R-CA-126) and received by Illinois EPA on April 16, 2024. Note, these documents are currently under review by the Illinois EPA.

b. Additional evaluation for the indoor inhalation exposure route requirements must be met for all SWMUs and PRSs listed in Condition II.B.

2. The Permittee is required to continue addressing the key objectives in these documents entitled, "Main Plant Area 10 Comprehensive Land Reuse Investigation Report" dated December 20, 2019 (Log No. B-147R-CA-99) and received by Illinois EPA on December 30, 2019; "Main Plant Land Reuse Investigation Data Submittal of General Background, Sampling Methods, Analytical Procedures, and Analytical Results for Areas" dated March 8, 2024 (Log No. B-147R-CA-125) and received by March 12, 2024. Note, these documents are currently under review by the Illinois EPA.

3. Additional corrective action activities must be carried out and additional information must be submitted to Illinois EPA, as necessary, to ensure all SWMUs and PRSs are properly remediated.

4. The requirements in Condition II.E and Section III of this permit must be met to address remediation of groundwater and hydrocarbon and refinery products.

E. REMEDIATION OF HYDROCARBON AND REFINERY PRODUCTS

Implementation of the bioremediation systems for impacted groundwater, treatment and reduction of free phase and residual product, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

1. Prior to the issuance of the permit issued May 29, 2018 (Log No. B-147R-M-17 and M-18), the Permittee had operated a Hydrocarbon Recovery System (HRS) to remove refinery product from above the water table. The HRS at the Former Wood River Main Plant was commissioned as an interim remedial measure (IRM) in 1993 to hydraulically recover subsurface mobile light non-aqueous phase liquids (LNAPL) from above the water table. The original system included twenty-one (21) HRS extraction wells. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS extraction wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness.

2. During 2016 and 2017, in an effort to provide an interim measure and to conduct an evaluation of bioremediation technologies, the Permittee proposed to replace the above-mentioned original HRS with alternative remedial system(s). The Permittee installed and started to operate the following three different hydrocarbon bioremediation systems in the northern and central part of the BP Main Plant on a pilot scale:

a. Biovent System (in the mid-section of Area 3); the Biovent System is designed to inject air into the vadose zone to provide oxygen and enhance in-situ aerobic bioremediation of hydrocarbons and refinery product at and above the water table as detailed in Attachment E;

b. Biosparge System (mainly in the eastern portion of Land Reuse Area 5 extending to portions of Land Reuse Areas 6 and 10); the Biosparge System is designed to inject air below the water table to provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in groundwater and the smear zone, as well as allow for biodegradation of volatilized hydrocarbons and residual product as it contributes to dissolved phase impacts in the vadose zone as detailed in Attachment E;

c. Air Sparge/Soil Vapor Extraction (AS/SVE) (in the northeastern corner of Area 8); Air Sparging is designed to inject air below the water table to volatilize hydrocarbons from groundwater and the smear zone and provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in the saturated zone. Soil Vapor Extraction is designed to recover volatilized hydrocarbons as necessary for ex-situ treatment, and to promote the flow of atmospheric air into the vadose zone to enhance aerobic bioremediation above the water table. This system is detailed in Attachment E;

The locations of the three pilot remediation systems within the facility are shown in Figure E-1 of Attachment E. Since installation of the pilot-scale remediation systems, they have undergone upgrades and optimizations in response to performance monitoring. BP completed significant modifications to the pilot-scale bioremediation systems and technologies in 2019-2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the Main Plant. In addition, passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those areas to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation. A mobile solar-powered biovent system was also put into service to address refinery product in 2024. Excluding the mobile solar-powered biovent system, the configuration and operation of the pilot-scale bioremediation systems is detailed in Attachment E, including a timeline of operations, enhancements, and modifications for each system.

3. The facility shut down the above-mentioned HRS in Condition II.E.1 above under the Temporary Authorization issued by Illinois EPA (effective date of December 5, 2017) provided the facility collected data as required, and submitted: (1) a Pilot-Scale Bioremediation System Performance Report for the pilot-scale tests identified in Condition II.E.2 above; and (2) a workplan for developing a site-wide hydrocarbon recovery/remediation system to address the hydrocarbon contamination in the groundwater and the smear zone above the facility's remedial objectives as defined in the workplan and applicable regulations, as approved by Illinois EPA. The workplan was required to provide a conceptual

plan to implement the hydrocarbon recovery/remediation systems for the entire facility in the groundwater and smear zone as well as an outline of the next steps in full-scale implementation of the hydrocarbon remedial systems. A report entitled, "Remedial Action Selection Report and Main Plant Remedy Roadmap" was received January 31, 2022, to meet this requirement. The document is currently under review by the Illinois EPA.

4. The Permittee shall operate, expand and use the pilot-scale Bioremediation Systems and technologies in order to remediate hydrocarbons and refinery product from the smear zone and vadose zone as it contributes to dissolved phase impacts. The number and location of Bioremediation Systems and Bioremediation wells, as detailed in Attachment E, can be modified to maintain or enhance remediation of hydrocarbons and refinery product. As the Permittee has continued to successfully operate these systems, activities associated with these systems shall be summarized in the Corrective Action Progress Reports required by Condition II.L.1.

5. As an interim remedial measure to address recoverable refinery product prior to the implementation of the Main Plant Remediation Plan, the Permittee shall perform interim removal action(s);

   a. Interim Removal Actions Shall occur when the 30-Day Average Mississippi River Stage as Calculated based on the Alton Dam Tailwater River stage is below 410 ft above MSL.

   b. Recoverable refinery product requiring interim removal shall be considered the product from those wells where most recent recoverability testing results indicate a product transmissivity of 2.0 ft^2/day or greater:

      (1) The refinery product recoverability shall be determined through product baildown testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method (calculation method described in ASTM E2856-13 or most current method);

      (2) Re-evaluation of wells exhibiting most recent transmissivity testing results above 2.0 ft^2/day and thicknesses equal to or greater than 0.5 feet will be conducted a minimum of once per year during seasonal low water table conditions;

      (3) Refinery product exhibiting transmissivity values below 2.0 ft^2/day will be addressed as part of the final remedy;

   c. Interim removal actions must include one of the following (for wells above 2.0 ft^2/day):

(1) Mobile LNAPL recovery system;

(2) Manual bailing and pumping; or

(3) Expansion of a pilot-scale bioremediation technology (i.e., AS/SVE, bioventing, or biosparging) into the area.

d. Interim remedial performance data will be used to re-evaluate LNAPL transmissivity over time.

F. SUMMARY OF RCRA CLOSURE, RCRA POST-CLOSURE AND RCRA CORRECTIVE ACTION COMPLETED AT THE NORTH CELL SPRAY POND 1 AND THE SOUTH FLARE PIT

1. The North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP) were regulated HWMUs in the permit issued to this facility on September 30, 1993. Since that time, BP has been providing post-closure care of these two HWMUs in accordance with the requirements of that permit. BP began pursuing a closure-by-removal demonstration for the NC-SP1 in 2002 and the SFP in 2005.

   a. With regard to the NC-SP1, on January 7, 2008, Illinois EPA approved a closure-by-removal demonstration. Based upon this approval, no further action is necessary at NC-SP1 in regards to RCRA closure, RCRA post-closure or RCRA corrective action.

   b. With regard to the SFP:

      (1) The Illinois EPA has determined that the facility has satisfied the groundwater requirements of Illinois EPA's May 29, 2007 (Log Nos. B-147-M-7 and M-13) and September 9, 2008 (Log No. PS08-030) letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

      (2) A closure-by-removal demonstration for the soils at the SFP, was approved by the Illinois EPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the HWMU. *A* certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP.

2. The ELUC was established for the SFP, which placed the following restrictions, at a minimum, on the future activities of the subject property:

a. All groundwater, including the perched groundwater, under the property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the property shall be handled in accordance with all applicable laws and regulations;

b. The property shall not be used for residential use. The property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IAC Part 742;

c. Any excavation and subsurface construction work on the property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to field screening tests for volatile organic compounds (VOCs). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil;

(2) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will must be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site-specific industrial/commercial remediation objectives (ROs) developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in II.F.2.e.1 above.

(4) Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory

results, may be reused as clean fill in other areas of the former BP Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off-site for disposal in accordance with 35 IAC Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

G. LAND REUSE PROCESS FOR AREAS 1 THROUGH 19

The purpose of the Land Reuse process is to allow for a potential redevelopment for each Land Reuse Area when proposed by the Permittee and approved by the Illinois EPA at the facility.

1. A NFA determination may be made for a Land Reuse Area and approved by the Illinois EPA in order to remove the Land Reuse Area from the definition of the facility subject to this permit for redevelopment by following the process described below:

   a. Assess and document the current conditions of the Land Reuse Area in the Current Conditions Report (CCR);

   b. Develop a Land Reuse Work Plan to investigate and address any data gaps necessary for a proper characterization of the Land Reuse Area;

   c. Conduct an investigation to collect soil and perched groundwater data for the Land Reuse Area;

   d. Analyze the collected data and perform a comprehensive risk assessment, as necessary;

   e. Identify the necessary remedial actions and institutional controls and incorporate them into the Land Reuse Investigation Report;

   f. Obtain a conditional NFA determination from the Illinois EPA for soil, perched groundwater and groundwater upon the Illinois EPA review and approval of the Land Reuse Investigation Report;

   g. Submit a draft ELUC for the Illinois EPA's review and approval;

   h. Upon the Illinois EPA's approval of a draft ELUC, record the ELUC on the property deed for the Land Reuse Area and submit a certified copy of the recorded ELUC to the Illinois EPA's review and approval;

i. Upon the Illinois EPA's approval of a certified ELUC, proceed with the development of the Land Reuse Area, which fully complies with the conditions of the Illinois EPA's approval letters regarding such activities; and

j. As necessary and applicable, submit final reports and required documentation of construction and any other required information to the Illinois EPA that satisfies conditions of the Illinois EPA approval letters, which may include an addendum to the ELUC and/or NFA letter.

2. The eventual removal of a Land Reuse Area from the terms and conditions of the facility's permit (so that its ownership can be transferred to another entity) will require that:

a. The Permittee must eventually receive a NFA determination for all Land Reuse Areas from the Illinois EPA for the soils, groundwater, and, as appropriate, perched groundwater and/or surface water within the Area by following the Land Reuse process and at the completion of the corrective action process;

b. The Permittee either receives a NFA determination for the groundwater in the vicinity of the Land Reuse Area from the Illinois EPA or demonstrates through the Land Reuse process that the contamination remaining at the site will not pose threat to human health and the environment under the appropriate intended use for the area during the Land Reuse Process for the purpose of redevelopment as described in Condition II.G.1 above.

c. The boundaries of any parcels established in accordance with the process approved by this permit must be defined by a professional land surveyor licensed to practice in the State of Illinois and meet the requirements of all statutes and regulations applicable to such efforts. The boundaries of any new parcel must first be approved by the Illinois EPA before a new PIN is obtained for the parcel. It must be noted that Illinois EPA has already approved the boundaries of nineteen (19) horizontal parcels within the facility.

d. Each parcel established in accordance with the Land Reuse process approved by this permit must obtain an individual and unique Real Estate Tax Index/PIN from Madison County.

e. At a minimum, as part of obtaining a NFA determination, an ELUC must be established which allows full access of the property for the Permittee in the future for any refinery product and/or groundwater monitoring or remediation efforts to complete any remaining corrective actions required under this permit within the timeline approved by the Illinois EPA.

3. To modify the definition of the facility covered by the permit, the Permittee will be required to submit a request to modify the permit in accordance with 35 IAC

703, Subpart G. Such a request must be a Class 3 modification request, unless demonstrated otherwise, in accordance with the procedures set forth in 35 IAC 703.283.

4. The Illinois EPA must be able to enforce any efforts necessary to complete corrective action and achieve approved remediation objectives at the subject facility. This may be achieved through institutional controls, ordinances and the facility's permit.

5. As property (or parcels) with new PINs are established, it may be necessary to re-file ELUCs which have already been filed with the Madison County Recorder.

   a. This effort is necessary if the new parcel was created from a parcel for which an ELUC was already established.

   b. In addition to re-filing the required ELUC on the new parcel, it will be necessary to file documentation on the original parcel indicating that the original ELUC no longer applies to that parcel (it may also be necessary to file a revised ELUC on the original parcel) identifying any restrictions that still apply to that parcel of land.

H. CORRECTIVE MEASURES REQUIREMENTS

1. If it is determined that corrective measures must be taken at a SWMU, then the Permittee must implement a Corrective Measures Program (CMP) for such SWMUs in general accordance with the procedures set forth in Attachment D. The corrective measures implemented by the Permittee must be sufficient to ensure the appropriate requirements of 35 IAC Parts 302, 620, 724, and 742 are met.

2. The types of corrective measures which may be implemented include, but are not limited to:

   a. Removal of the contaminants or the contaminated media so that the remaining media meet remediation objectives developed in accordance with 35 IAC Part 742;

   b. Closing the SWMU as a landfill by establishing a proper final cover over the SWMU and then providing proper long-term monitoring/maintenance/management of: (1) leachate; (2) subsurface gas; (3) final cover system; and (4) groundwater;

   c. Establishing engineered barriers to restrict exposure to the contaminants remaining at the SWMU (necessary to certain remediation objectives developed in accordance with 35 IAC Part 742); and

d. Establishing institutional controls to restrict activities at the facility, as necessary, to support remediation objectives established in accordance with 35 IAC Part 742.

3. The CMP described in Attachment D consists of five (5) phases:

a. Phase I--conceptual design of the selected corrective measure.

b. Phase II--development of the final design plans for the corrective measure, including installation and operation/maintenance plans.

c. Phase III--actual construction/installation/implementation of the corrective measure.

d. Phase IV--operation/maintenance/monitoring, as necessary, of the corrective measure to ensure it is being properly implemented and is properly protecting human health and the environment.

e. Phase V--demonstration/verification that the corrective measure has been completed and that the established remediation objectives have been achieved.

f. Phases may be combined or skipped, depending on the actual corrective measure selected. The overall CMP implemented at a given SWMU must: (1) be logical in nature: and (2) allow for the Illinois EPA oversight and approval throughout the entire process. As such, it will be necessary for the Permittee to submit workplans and reports regarding all aspects of corrective measures for the Illinois EPA review and approval prior to carrying out any corrective measure activity.

4. A Phase I CMP workplan, or its equivalent, must be submitted to the Illinois EPA within ninety (90) days of the date that the Illinois EPA notifies the Permittee of the need for a CMP.

5. Subsequent CMP related workplans and reports must be submitted to the Illinois EPA for review and approval in accordance with a schedule approved by the Illinois EPA.

6. Once all corrective measures have been completed, a report must be developed documenting all efforts and results associated with the completed measure, including, as appropriate, information demonstrating the approved remediation objectives for the project have been achieved.

I. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s)

1. The Permittee shall notify the Illinois EPA in writing of any newly identified SWMU and/or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30)

days after discovery. The notification shall provide the following information, as available:

a. The location of the newly identified SWMU and/or AOC in relation to other SWMUs on a scaled map or drawing;

b. The type and past and present function of the unit;

c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);

d. The period during which the unit was operated;

e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU/AOC, to the extent available; and

f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU/AOC, the Illinois EPA may request in writing, that the Permittee prepare a SWMU Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this permit. This SWMU Assessment Plan must also propose investigations, including field investigations, if necessary, to determine the release potential to specific environmental media for the newly identified SWMU/AOC. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly identified SWMU/AOC to the environment.

3. Within ninety (90) days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall submit a SWMU Assessment Plan to the Illinois EPA for review and approval.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, conditionally approve, or disapprove the Plan in writing. If the Plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) days of receiving such written notification or according to the terms and schedule established within the Plan and any conditions placed on it. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised plan.

5. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in

the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.

6. Additional investigation plans and reports must be submitted to and approved by the Illinois EPA, as necessary, to ensure the nature and extent of contamination at the SWMU/AOC is adequately characterized. Once the contamination is characterized, the Permittee shall develop remedial objectives for the SMWU/AOC in accordance with 35 IAC Part 742; such objectives are subject to the Illinois EPA review and approval.

7. The Permittee must implement a CMP, as necessary, to properly address any contamination encountered during the assessment. Guidance regarding the implementation of this program will be provided at the time the Illinois EPA notifies the Permittee of the need for such a program.

8. All efforts carried out at newly identified SWMU/AOCs must meet the requirements of 35 IAC 724.201.

J. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs identified in the RCRA Facility Assessment (RFA) which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition II.I.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in condition II.H. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

K. INTERIM MEASURES/STABILIZATION

The Permittee shall carry out interim measures/stabilization activities to prevent or mitigate the migration of a release of hazardous substances into the environment, and to provide adequate protection to human health and the environment.

1. At any time during the corrective action process, the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of a RFI or a CMS prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal CMS.

2. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:

   a. Objectives of the interim measures; how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

   b. Design, construction, and maintenance requirements;

   c. Schedules for design and construction; and

   d. Schedules for progress reports.

3. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the other corrective action efforts being carried out at the facility or of any other portion of the permit.

4. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

5. Consistent with the annual reporting requirements of this permit, the Permittee shall submit a report assessing the effectiveness of any interim measures being carried out in accordance with this permit. Based on a review of this report, the Illinois EPA reserves the right to require additional interim measures be carried out if it is determined that the interim measure is unable to protect human health and the environment. This annual report should at a minimum contain the following information regarding each system which comprises the interim measure:

   a. A discussion of each system's operation during the year. This discussion should address: (1) actual daily, weekly and monthly flow rates through each system; (2) any periods when the systems were not operating; and (3) deviations from the design operating procedures for the system (such as problems with drawing an adequate vacuum, downtime due to equipment failure, etc.);

   b. Results of all monitoring efforts carried out during the year;

   c. A discussion of the effectiveness of the system supported as appropriate with data and calculations; and

d. Recommended changes, if any, which should be made to the system to improve its effectiveness.

6. The Illinois EPA reserves the right to require the Permittee to remove or treat soil if the Illinois EPA determines that contaminants are present in the soils at levels such that the remediation system is unable to protect human health and the environment. Remediation objectives for corrective measures will be established by the Illinois EPA at a later date.

7. The interim measure approved for a SWMU may not be sufficient to meet the final requirements for corrective action for remediation for the unit. The adequacy of the interim measure will be addressed upon the Illinois EPA review and approval of the RFI reports and the CMP, as required by this permit. As such, the Permittee may be required to expand this interim measure as necessary to address existing or additional contamination detected through RFI investigations.

8. The Illinois EPA reserves the right to require revision and modification of the interim measures implemented by the facility should it be determined by the Illinois EPA through information obtained through facility monitoring that the interim measures approved by this portion of the permit are ineffective in protecting human health and the environment.

L. REPORTING REQUIREMENTS

1. A Corrective Action Progress Report must be submitted summarizing the corrective action efforts completed during each quarter of the calendar year. This report must also contain a general description of the corrective action efforts to be completed during the next quarter of the calendar year.

   a. The reports should be submitted in accordance with the following schedule:

Reporting Period	**Report to be Submitted by the following**
January-March	May 1
April-June	August 1
July-September	November 1
October-December	March 1*

*Included in Annual Report required in Condition II.L.2 below.

   b. Each Corrective Action Progress Report must contain:

      (1) a summary of activities completed at each parcel during the quarter, including information regarding the amount of free product/groundwater/leachate removed on a weekly basis from various units during the quarter;

(2) a discussion of any problems encountered while conducting corrective action at each parcel during the quarter;

(3) A summary of the activities anticipated to be carried out during the next quarter.

2. A report must be submitted to Illinois EPA by March 1 of each year which summarizes corrective action program activities completed at the facility during the previous calendar year (i.e., the previous January 1 to December 31). This report must contain a compilation/summary of the information in the quarterly reports for the year, what was completed during the year, and what must still be done in the next year and in the following years.

3. Final reports must be submitted to Illinois EPA for review and approval when corrective action is complete for a given parcel. Such reports must be certified by an independent licensed professional engineer and a person of authority from the Permittee. This certification must meet the requirements of 35 IAC 702.126. These reports must contain be detailed in nature and contain sufficient information which (1) describes in detail all investigation/remediation efforts carried out in the parcel; and (2) the efforts were carried out in accordance with the approved plan and this permit.

M. COST ESTIMATES/FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The current cost-estimate for completing corrective action and groundwater remediation at the BP Main Plant by the facility is $87,922,423 in 2020 dollars. The Permittee shall prepare an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate as required in Condition IV.C.2. The cost-estimate for completing corrective action required in this permit must include 10% contingency.

2. The Permittee shall prepare a cost estimate for the completion of any corrective action required under this permit, in order to provide financial assurance for completion of corrective action, in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required under 35 IAC 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201 and this permit. These estimates must be based upon third party costs. The revised cost estimate for corrective action must be submitted to the Illinois EPA as necessary or requested by Illinois EPA.

3. The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in

35 IAC 724.243, in at least the amount of the cost estimate required under Condition II.M.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the submittal of the initial or revised cost estimates required under Condition II.M.1. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 IAC 724.246 at its discretion.

4. It must be noted that cost estimates and financial assurance must be provided for the operation of the groundwater remediation system required by Section III of this permit as such a system is necessary to meet the requirements of 35 IAC 724.201.

5. All cost estimates prepared under the requirements of Conditions II.M.1 through II.M.4 must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281.

6. Financial assurance for corrective action must be updated, as necessary, to reflect the current status of the RCRA corrective action program at this facility. In addition, this financial assurance must be adjusted annually for inflation.

SECTION III: GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Hazardous constituents associated with historical activities at the BP Main Plant have been detected in the groundwater across the site which exceed the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

The groundwater corrective action program required by this permit includes:

1. Control of the horizontal and vertical flow of the vertical column of groundwater in the uppermost aquifer such that groundwater flow is towards the interior of the BP Main Plant. This control of groundwater flow will be accomplished by withdrawing sufficient quantities of groundwater from the uppermost aquifer. Such flow control is necessary as a corrective measure to prevent further contaminant migration of on-site releases of product or waste, beyond the boundaries of the BP Main Plant and is the basis for the establishment of a Groundwater Management Zone (GMZ), except as provided in Condition III.A.5 below.

2. Verification that the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

3. Monitoring the quality and movement of the groundwater in the uppermost aquifer beneath the BP Main Plant to determine the effectiveness of the groundwater corrective action program, as well as, verify compliance with the GMZ.

4. Remediating and/or removing refinery hydrocarbon sources to groundwater impacts, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the BP Main Plant.

5. In the event that the Permittee is unable to demonstrate an inward gradient in the southeast corner of the facility, or in the vicinity of Land Reuse Area 9, compliance will be satisfied by demonstration that the groundwater quality at designated Sentry Observation Monitoring Wells in the southeast corner and/or Demonstration Wells in the vicinity of Land Reuse Area 9 meet applicable groundwater quality standards. The Permittee shall comply with the requirements of III.E.11 in the event that groundwater quality in these portions of the facility do not meet groundwater quality standards. Contingent actions could include

increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.

6. Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

B. IMPLEMENTATION

1. The Permittee shall implement the Groundwater Corrective Action Program established in this permit upon the effective date of this permit. On that date, the corrective action and groundwater monitoring requirements set forth in this permit shall supersede those previously established.

2. The Permittee shall carry out the corrective actions specified in this permit on the groundwater beneath the BP Main Plant. The “uppermost aquifer” refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer at this facility is a sand and gravel aquifer located approximately 30 feet below the ground surface (ft-bgs) and extending to a depth of about 101 to 113 ft-bgs to the top of the bedrock surface. This aquifer is commonly referred to as the "American Bottoms."

3. For the purposes of this permit and in accordance with 35 IAC Part 620 regulations, the sand and gravel aquifer has been designated Class I: Potable Resource Groundwater. The analytical results obtained from these groundwater monitoring wells shall be compared to the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1 or to established background values or other applicable standards as appropriate.

4. The Permittee must continue corrective action measures to the extent necessary to ensure that the groundwater protection standard is not exceeded to meet the requirements of 35 IAC 724.201.

C. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples from the uppermost aquifer. The location of these wells is specified in Figure C-2 of the approved permit application. Northing and Easting coordinates for wells are provided in Attachment F.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
GMZ Boundary Wells					
G005(8)	B-5D	44.00	386.10	406.10-386.10	UMA H
G006	B-6	44.00	384.01	404.01-384.01	UMA H
G008*	B-8D	50.00	378.21	408.21-378.21	UMA H
G021	C-11	49.50	382.27	417.27-382.27	UMA C
G023	C-13	49.50	381.74	416.74-381.74	UMA C
G04R	B-4R	59.50	382.54	402.54-382.54	UMA H
G045	G-5	40.87	402.67	412.67-402.67	UMA H
G055	G-15	52.19	393.02	413.02-393.02	UMA H
G059	G-19	45.00	384.33	404.33-384.33	UMA C
G062	G-22	45.00	388.01	408.01-388.01	UMA H
R063	G-23R	46.24	385.58	405.82-385.82	UMA H
G067#	G-27	49.00	386.28	406.28-386.28	UMA H
G068@	G-28	50.00	392.24	414.24-392.24	UMA H
G073	G-33	44.00	387.15	407.15-387.15	UMA H
G079	G-39	40.00	383.12	404.12-384.12	UMA C
G084	G32R	45.00	389.13	409.13-389.33	UMA H
G085	G-26R	54.15	388.59	408.94-388.94	UMA H
G111	SWMU12-MW02	38.17	393.89	404.06-394.06	UMA H
G112	SWMU12-GH1	43.22	388.87	408.87-388.87	UMA C
G32R	H32R	44.50	384.64	405.34-385.34	UMA C
G35A	G35A	32.20	397.95	408.15-398.15	UMA H
G35B	G35B	40.20	390.26	400.46-390.46	UMA H
G37	H-37	46.00	386.47	401.47-386.47	UMA C
G5B	G-5B	75.85	367.73	377.73-367.73	UMA H
G500(7)	G500	29.39	401.06	411.06-401.06	UMA C
G69R	G-29R	59.96	385.87	405.87-385.87	UMA H
G74L	G-34	60.00	386.69	406.69-386.69	UMA H
G75L	G-35	60.00	386.51	406.51-386.51	UMA H
G76L	G-36	60.00	385.81	405.81-385.81	UMA H
G91	M-1D	39.70	388.13	398.13-388.13	UMA H
G92	M-2D	40.40	386.08	401.08-386.08	UMA H
G93L	M-3D	40.80	386.18	401.18-386.18	UMA H
H31B	H-31B	75.02	357.32	367.32-357.32	UMA H
RG36	H36R	60.43	384.94	404.27-389.57	UMA H
R302&	R302	33.20	399.84	410.04-400.04	Cahokia Clay
G303	RP-3D	39.85	393.24	398.74-393.74	UMA C
G503(8)	G08A	32.00	396.20	406.20-396.20	UMA H
G504(8)	R067	32.12	404.38	409.68-404.68	UMA H
G505(8)	R068	37.70	403.90	414.20-404.20	UMA H

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
Observation Monitoring Wells					
G002	G-01R	37.32	391.34	411.16-391.56	UMA C
G009	B-9	49.00	382.66	407.66-382.66	UMA H
G020	C-10	49.50	382.50	417.50-382.50	UMA C
R042(3A)	R042	37.20	393.48	403.48-394.02	UMA H
G048	G-8	48.00	381.68	401.68-381.68	UMA H
G057(4)	G-17	35.02	391.90	411.90-391.90	UMA C
G058(4)	G18	36.00	391.27	411.27-391.27	UMA C
R083(3A)	R083	38.79	393.44	403.98-394.52	UMA H
G10L	H-20	58.43	371.82	396.82-376.82	UMA H
G14L	H-24	57.00	372.85	397.85-377.85	UMA H
G16L	H-26A	55.00	378.24	408.24-378.24	UMA H
G22R	C-12R	54.70	378.10	398.10-378.10	UMA C
G30R	H-30R	43.04	387.98	408.63-388.63	UMA H
G31D	C-21C	70.00	357.98	362.98-357.98	UMA H
G39+	H-39	42.10	385.74	400.74-385.74	UMA H
G84L	H-4	59.00	374.19	399.19-379.19	UMA H
G87L	H-7	51.50	377.68	402.68-382.68	UMA C
G92L	H-12	69.00	373.82	410.82-378.82	UMA H
G98L	H-18	52.50	378.22	403.22-383.22	UMA C
G301	RP-1	49.00	378.38	388.38-378.38	UMA H
G305	RP-5	49.00	381.06	391.06-381.06	UMA C
G307	RP-7D	49.00	383.13	393.13-383.13	UMA H
G501(3A)	G501	40.89	392.55	403.09-393.63	UMA H
G502(3A)(8)	G502	35.55	393.75	404.29-394.83	UMA H
Sampling Only Network(5)					
G031	C-21A	35.00	393.18	403.18-393.18	Cahokia Clay
G065	G-25	55.00	389.58	409.58-389.58	UMA H
G082	G-42	40.00	388.81	409.81-388.81	UMA C
R11L	H-21R	57.47	371.85	391.85-371.85	UMA C
G19	H-29	47.24	386.42	401.42-386.42	UMA H
R31L(8)	R31L	55.00	373.10	378.10-373.10	UMA H
G33	H-33	44.00	387.37	407.37-387.37	UMA C
G71L	G-31	58.70	387.25	407.25-387.25	UMA H
G97L	H-17	58.00	377.09	402.09-382.09	UMA H
G306	RP-6	49.00	381.34	391.34-381.34	UMA H
Gauging Only Network					
G016	C-6	49.50	381.00	416.00-381.00	UMA C

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
G046	G-6	50.00	391.37	411.37-391.37	UMA H
G050	G-10	44.00	386.65	406.65-386.65	UMA C
G31R[8]	H-31R	42.22	389.88	410.08-390.08	UMA H
G83L	H-3	52.50	375.09	400.09-380.09	UMA H
G86L	H-6	64.30	376.92	401.92-381.92	UMA H
G89L	H-9	53.50	375.96	400.96-380.96	UMA H
G99L[8]	H-19	53.50	376.60	402.10-382.10	UMA H
G128[2]	G128	33.65	395.86	406.04-396.26	UMA H
G506	A8MW04	50.00	383.34	418.34-383.34	UMA H
G507	A8MW05	48.00	383.74	413.74-383.74	UMA H
G508	A8MW06	48.00	381.97	416.97-381.97	UMA H
LNAPL Monitoring network [6]					
G011	C-1	49.50	380.30	415.30-380.30	UMA C
G027	C-17	40.00	390.32	400.32-390.32	UMA C
G049	G-9	47.00	382.75	402.75-382.75	UMA H
G13L	H-23	51.50	380.14	408.64-388.64	UMA H
G34	H-34	38.47	393.11	403.11-393.11	UMA C
G96L	H-16	58.50	373.28	393.28-378.28	UMA H
G417	B-17	51.00	380.48	400.48-380.48	UMA H
G603	RC-3	54.00	377.3	397.30-377.30	UMA H
G604	RC-4	51.46	379.92	399.92-379.92	UMA H
G605	RC-5	51.19	378.91	398.91-378.91	UMA H
G613	RC-13	63.12	368.38	403.38-373.38	UMA H
G614	RC-14	61.81	369.99	404.99-374.99	UMA H
G615	RC-15	59.66	370.48	405.48-375.48	UMA H
G617	RC-17	58.00	370.91	403.91-386.91	UMA H
G618	RC-18	57.50	371.78	411.78-376.78	UMA H
G619	RC-19	58.00	369.3	407.30-372.30	UMA H
G620	RC-20	85.36	344.51	406.28-349.64	UMA H
G509[9]	B-14	54.83	376.37	396.37-376.37	UMA H
G510+[8]	C-9	+	+	+	unknown
G511	G-11	43.08	388.38	408.21-388.21	UMA H
G512[9]	G-12	45.37	386.12	406.25-386.25	UMA H
G513	G-40	40.00	388.26	409.26-389.26	UMA C
G514[9]	G-47	38.67	389.33	407.66-389.66	UMA C
G515+[9]	Q-14	+	+	+	unknown
G516	A3MW01	45.00	384.8	414.80-384.80	UMA H
G517	A3MW02	50.00	380.5	415.50-380.50	UMA H
G518	A6MW01	50.00	380.01	415.01-380.01	UMA H
G519	A6MW02	50.00	382.17	417.17-382.17	UMA C
G520	A6MW03	55.00	376.26	416.26-376.26	UMA H

G521	A8MW02	50.00	379.67	414.67-379.67	UMA H
G522	A9BH05	37.00	391.29	405.29-391.29	UMA C
G523	LS-1	33.87	394.71	414.71-394.71	UMA C
G524(9)	SVE-2	36.62	395.97	416.50-396.50	UMA C
Demonstration Wells					
R032(3B)	R032	39.27	388.99	399.47-389.71	UMA C
R034(3B)	C-24R	35.24	393.64	403.88-393.88	UMA C
R035(3B)	C-25AR	35.57	392.04	402.50-392.72	UMA C
G304(3B)	RP-4D	45.75	385.51	396.34-386.34	UMA C

Notes: * = Groundwater sampling only required at G008 when G503 is dry.
+ = Well construction information is incomplete.
# = Groundwater sampling only required at G067 when G504 is dry.
@ = Groundwater sampling only required at G068 when G505 is dry.
& = R302 was installed as a water table well and G302 was abandoned (G302 had screened interval 393.63-383.63). It appears a benzene pipeline release from the neighboring site (ID No. 1191150025) may be the source of contamination previously measured at G302. IEPA will require the neighboring site to delineate onto BP property. The contamination detected at the screened interval for former G302/RP-2D must continue to be monitored due to contaminant levels previously detected. As the Illinois EPA is working with Shell Oil Products US to delineate benzene contamination associated with a benzene pipeline release at BOL site ID No. 1191150025, BP will not be required to install a well at the screened interval of approximately 393.63-383.63 at this time.
1 = Top of casing and ground surface elevation measurements are from the 2020 Monitoring Well Survey unless otherwise noted.
2 = Groundwater gauging only at G128 due to known benzene release from Shell Oil pipeline in 1986 and the requirement for the permittee associated with site 1191150002 sampling G128.
3A = Sentry Well used to demonstrate contaminant control in the southeast portion of the GMZ.
3B = Sentry Well used to demonstrate contaminant control in the vicinity of Land Reuse Area 9.
4 = Also a designated Sentinel Well under the Riverfront RCRA Permit.
5 = Groundwater sampling only, well will still be gauged when sampled in accordance with Condition III.F.1; however, water level data will not be utilized for developing potentiometric surface maps or evaluation of hydraulic gradients as required under Condition III.E.6.
6 = LNAPL monitoring only, groundwater sampling not required (32 wells).
7 = G500 installed on November 20, 2017 as the well listed in the May 29, 2018 RCRA Permit as IEPA Well No. Gl13 "to be installed." The designation G500 was used because there is a different well designated as G113 under the Riverfront RCRA Permit.
8 = Top of casing and ground surface elevation measurements measured on the following dates: June 17, 2021 (G31R, GOSA, C-9); March 7, 2022 (G005, G99L, G502); and September 19, 2023 (R31L, R067, R068).

9 = Top of casing and ground surface elevation measurements are from 2015 Monitoring Well Survey.
10 = Well designations are identified based on zones within the uppermost aquifer being monitored: wells behaving as perched wells (Cahokia Perched); within the silty sandy layer of the Cahokia Sand facies (UMA C); within the coarse sand and gravel of the Henry formation (UMA H).
11 = Per Condition IV.C.1.a, G078, G030, G97L, and G87L require a new or replacement well or well pairs be installed within ninety (90) days to monitor the previously screened interval. Of those wells, G078 and G030 no longer exist because the wells were damaged or plugged.

Additional Notes:
"Ft-bgs" = refers to the number of feet below the ground surface.
"Ft-MSL" = refers to the number of feet referenced to mean sea level.
"Stick-up" = refers to the height of the reference survey datum. This point is determined with + 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

2. The Permittee shall maintain the Gradient Control Wells (Cone of Depression (COD) Wells) identified in the table below to allow for the withdrawal of contaminated groundwater, as well as, the measurement of water levels to verify the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Elevation (ft. MSL)	Well Screen Length (ft.)
Gradient Control Wells				
HW1B	HW01-B	75.00	356.12	300
HW2A	HW02-A	75.00	355.71	300
HW2B	HW02-B	75.00	356.37	300

Note: The Gradient Control Wells are horizontal wells.

3. Construction of each monitoring well/piezometer must be in accordance with the "Monitoring Well Diagram" and "Well Completion Report" forms located on the Illinois EPA website, unless otherwise approved in writing by the Illinois EPA. All new monitoring wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs contained in the "Field Boring Log" form on the Illinois EPA website, unless otherwise approved by the Illinois EPA.

4. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.C.1 and III.C.2 are damaged, or the structural integrity has been compromised causing the well not to serve its function or to act as a contaminant pathway. A proposal for the replacement of the subject well shall accompany the notification. The well shall not be plugged

until the new well is on-line and monitoring data has been obtained and verified unless the well is extremely damaged or would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.

5. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.

6. The Permittee shall submit boring logs, construction diagrams and datasheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All pertinent information should be submitted to the appropriate State agencies.

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

7. All wells/piezometers shall be clearly identified and shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

8. All groundwater monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed, and maintained in accordance with 77 IAC Part 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition III.C.4.

D. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and their concentration limits comprise the groundwater protection standard for the groundwater monitoring wells found in Conditions III.C.1.

Field Parameters	Storet	Units
pH	00400	Standard Units
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(˚F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Bottom of Well #	72020	Ft MSL
Elevation of Measuring Point (Top of casing)##	72110	Ft MSL

Shall be determined during the first semi-annual sampling event each year.
Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition III.I.9.a.

Hazardous Constituents	**Storet No.**	**Concentration Limits (mg/L)**
Metals		
Antimony	01097	0.006
Arsenic	01002	0.01**
Barium	01007	2.0
Chromium	01034	0.1
Lead	01051	0.0075
Nickel	01067	0.1
Selenium	01147	0.05
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
Benzene	34030	0.005
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
4-Methylphenol (p-cresol)	77146	0.035
Benzo(a)anthracene	34526	0.00013
Benzo(a)pyrene	34247	0.0002
Benzo(b)fluoranthene	34230	0.00018
Benzo(k)fluoranthene	34242	0.00017
Bis(2-ethylhexyl)phthalate	39100	0.006

Chrysene	34320	0.0015
Dibenzo(a,h)anthracene	34556	0.0003
Naphthalene	34696	0.14
Phenol	34466	0.035
Biogeochemical[1]		
Analytes		
Dissolved iron	N/A	--
Dissolved sulfate	N/A	--
Dissolved manganese	N/A	--

-- Not available
N/A = Not Applicable
1 = To monitor natural attenuation conditions
** = Site-specific concentration limit may be used if approved by the Illinois EPA.

2. Alternate concentration limits may be established where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment.

   a. Where a hazardous constituent has a standard in 35 IAC Part 620, the facility must apply for an adjusted standard as outlined in Section 28.1 of the Environmental Protection Act (Act) or reapply once corrective measures have been implemented pursuant to 35 IAC 620.450.

   b. For those hazardous constituents without a 35 IAC 620 standard, the alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

E. GROUNDWATER CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the Groundwater Corrective Action Program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.C.1 for the hazardous constituents listed in Condition III.D.1 above.

2. In accordance with 35 IAC 620.250, a GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from the facility. The GMZ must be monitored and maintained as follows:

   a. The GMZ horizontal and vertical extent is monitored with program monitoring wells measuring concentrations of hazardous constituents in Condition III.D.1 in groundwater.

i. The following groundwater monitoring wells shall define the outermost horizontal extent of the approved GMZ: G005, G006, G008, G021, G023, G04R, G045, G055, G059, G062, R063, G067, G068, G073, G079, G084, G085, G111, G112, G32R, G37, G5B, G35A, G35B, G500, G69R, G74L, G75L, G76L, G91, G92, G93L, H31B, RG36, R302, G303, G503, G504, G505.

ii. The vertical boundaries of the GMZ shall range from the approximate top of the uppermost aquifer (30 feet bgs) to the top of the bedrock surface at the BP Main Plant facility. As required by Condition IV.C.1.b, wells must be proposed to better define the vertical extent.

b. The results of monitoring the GMZ shall be submitted to the Illinois EPA semi-annually in accordance with the schedule found in Condition III.I.2.

c. The GMZ expires when all groundwater monitoring wells within the GMZ have attained the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1.

d. The appropriate Class I concentration limits shall be considered attained when groundwater monitoring results meet the appropriate concentration limit for two (2) consecutive years. A Mann-Kendall trend analysis based on eight (8) quarters of data shall be submitted for Illinois EPA review and approval unless otherwise approved.

e. An evaluation of the GMZ shall be submitted in a report for Illinois EPA review and approval, a minimum of every five (5) years, in accordance with the guidance document, "Re-evaluation of Groundwater Management Zones at RCRA Facilities" found at the Illinois EPA website. Statistical analysis required by III.H must also be included.

3. The Groundwater Corrective Action Program shall control the horizontal and vertical flow in the vertical column of water present in the uppermost aquifer beneath the facility and monitor the position and rate of migration of the hazardous constituents released to groundwater as follows:

a. The pumping from the Gradient Control Wells (also referred to as Cone of Depression (COD) wells) shall maintain the cone of depression to ensure groundwater flow is adequately controlled in the uppermost aquifer, except as provided in Condition III.A.

b. The pumping rate from each Gradient Control Well (COD well) shall be recorded each business day. This data shall be used to calculate the monthly average withdrawal rate for the Gradient Control System.

4. The Permittee shall monitor the groundwater horizontal and vertical gradients in the uppermost aquifer beneath the facility.

5. The Permittee shall record the following measurements and submit to the Illinois EPA semi-annually as required by Condition III.I.2.

   a. A record of the amount of groundwater withdrawn each day by the Gradient Control Wells (COD wells).

   b. Quarterly monitoring of the piezometric head at wells identified in Condition III.C.1 and III.C.2 above to demonstrate that groundwater flow is properly controlled throughout the contaminated area requiring corrective action.

   c. The measured thickness of hydrocarbon product encountered at each well identified in Condition III.C.1 and III.C.2.

6. The Permittee shall determine the groundwater flow rate (i.e., seepage velocity in ft/day) and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1.

7. The groundwater quality in the uppermost aquifer shall be monitored on a quarterly or semi-annual basis at each of the wells identified in Condition III.C.1, and submitted to the Illinois EPA semi-annually, as identified in Condition III.I.2.

8. If the groundwater gradient is not maintained, as required by Condition III.E.3, or contamination is migrating beyond the GMZ Boundary Wells, the Permittee shall submit an application for a permit modification, as required by Condition III.J.

9. Prior to making any changes on-site which might affect the overall program associated with controlling the groundwater flow as required by Condition III.E.3 of the permit (i.e., maintain and verify an inward gradient), the Permittee must obtain written permission from the Illinois EPA. Detailed information regarding the changes shall be submitted to the Illinois EPA at least 120 days prior to the date that the change is to be made. Disapproval or approval with modifications of any written requests for changes shall be subject to the appeal provisions of Section 40 of the Act.

10. The Permittee shall maintain all equipment associated with withdrawal and treatment of water withdrawn from the uppermost aquifer to adequately control groundwater flow. This includes maintenance of any pollution control equipment (i.e., air pollution and water pollution control equipment) necessary for these activities.

11. In the event that the Permittee is unable to demonstrate an inward groundwater gradient based upon groundwater elevation data in the Southeast portion of the

GMZ, and/or in the vicinity of Land Reuse Area 9 for the GMZ (western portion of the GMZ), during a monitoring event, the Permittee will take the following actions:

a. The Permittee will review the groundwater quality data for the most recent sampling event for the Sentry Observation Monitoring Wells (G042R, G083R, G501, and G502) for the southeast corner of the GMZ, and/or Demonstration Wells (R032, R034, R035, and G304) for the vicinity of Land Reuse Area 9.

b. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

c. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells or Demonstration Wells, does not meet permit-defined requirements for VOCs, the Permittee shall:

    i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

    ii. Perform a "Resampling Event" for the Sentry Observation Monitoring Wells and/or Demonstration Wells within thirty (30) days of the date the determination is made.

d. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c meets permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

e. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c does not meet the permit-defined requirements for VOCs, the Permittee shall:

    i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

    ii. Initiate "Contingency Monitoring" consisting of monthly groundwater gauging and monitoring for a period of three (3) months for the Southeast portion of the GMZ, and/or in the vicinity of Land Reuse Area 9, as follows:

1. For the Southeast portion of the GMZ, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine (9) monitoring wells in order to develop a groundwater flow gradient for the southeast portion of the GMZ: wells G301, G305, R042, R083, G501, G502, G005, G92, and G112.

2. For the vicinity of Land Reuse Area 9, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following four (4) monitoring wells in order to develop a groundwater flow gradient for the vicinity of Land Reuse Area 9 of the GMZ: R032, R034, R035, and G304.

3. The Contingency Monitoring shall include monthly groundwater sampling for a period of three (3) months for the Sentry Observation Monitoring Wells R042, R083, G501, and G502 for the southeast area, and/or the Demonstration Wells R032, R034, R035and G304 for Land Reuse Area 9.

f. If the three (3) monthly groundwater gauging potentiometric maps from Contingency Monitoring demonstrate an inward gradient, and the groundwater quality data from the three (3) monthly sampling events for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

g. If the monthly groundwater gauging potentiometric maps for Contingency Monitoring do not demonstrate an inward gradient, and the groundwater quality data from the sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii does not meet the permit-defined requirements for VOCs, the Permittee shall submit a written report to the Illinois EPA:

i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

ii. Submit a written report to the Illinois EPA within thirty (30) days of the date the determination is made describing the actions to be taken.

iii. Install additional well(s) at locations approved by the Illinois EPA.

iv. Implement an Illinois EPA-approved groundwater monitoring program for the new wells on a monthly basis for three (3) months.

v. Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner or in the vicinity of Land Reuse Area 9, including but not limited to, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.

h. Design and implement Contingent Corrective Measures approved by the Illinois EPA.

12. The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L.1. A discussion must also be provided in reports required by Condition III.I.6.

a. Within 90 days submit a Class 1* modification request to propose a procedure for evaluating the indoor inhalation pathway for dissolved groundwater concentrations measured at all groundwater monitoring wells located at the property boundary and off-site locations each time groundwater is sampled. The proposal may include a procedure using the Johnson & Ettinger Calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor).

F. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well at least quarterly and each time groundwater is sampled in accordance with Condition III.I.3.

2. The Permittee shall report the surveyed elevation of stick-up and ground surface referenced to MSL once every five (5) years or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.I.9.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually in accordance with Condition III.I.10. The mandatory measurement shall be taken during the second quarter sampling event each year.

G. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall follow the techniques and procedures described in Exhibit C-1 of the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.C.1:

1. Samples shall be collected by the techniques described for low-flow sample collection in Section 2.2 of Exhibit C-1.

2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Section 2.2 of Exhibit C-1.

3. Samples shall be analyzed according to the procedures specified in Section 7 of Appendix B. Groundwater analysis must be in accordance with the most current version of the applicable methods found in USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition (SW-846) and finalized updates.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section 2.2 of Exhibit C-1.

H. STATISTICAL METHODS

The Permittee shall evaluate the quality of groundwater samples collected during semi-annual sampling events identified in Condition III.E to determine trends and demonstrate effectiveness of corrective action as follows:

1. The GMZ Boundary Wells and Observation Monitoring Wells, as identified in Condition III.C.1, shall be used for statistical evaluations of groundwater quality data as follows:
   a. The groundwater quality data shall be statistically evaluated annually for the constituents identified in Condition III.D.1, in accordance with Exhibit C-3 of the approved permit application.
   b. The results of the statistical evaluations shall be discussed and included within the required 5-year GMZ Evaluation reports required by Condition III.I.11.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions III.D, III.E, and III.F into the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.D. and III.E shall be collected and reported as identified in the table below. The results of the analyses conducted on the

groundwater quality samples shall be submitted in accordance with this schedule. All additional data collected for the groundwater monitoring program as specified in Conditions III.D, III.E and III.F shall also be submitted to the Illinois EPA in accordance with this schedule.

Sampling Event of Calendar Year	Samples to be Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January - February	August 1
Second Quarter	April - May	August 1
Third Quarter	July - August	February 1
Fourth Quarter	October - November	February 1

3. Groundwater surface elevation data measured pursuant to Condition III.F.1, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2.

4. Groundwater withdrawal rates collected and calculated pursuant to Condition III.E.5.a shall be submitted semi-annually in accordance with the schedule identified in Condition III.I.2.

5. Gradient control measurements collected pursuant to Condition III.E.5.b shall be collected at least quarterly and submitted to the Illinois EPA semi-annually as identified in Condition III.I.2.

6. Free product thickness data measured pursuant to Condition III.E.5.c, and reduction of hydrocarbons and refinery product data collected in accordance with Condition II.E of the Corrective Action Section, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2. Reporting information must also be included in Corrective Action Progress Reports required by Condition II.L.1.

7. The groundwater flow rate and direction, determined pursuant to Condition III.E.6, shall be submitted as a part of the first and second semi-annual reports as identified in Condition III.I.2.

8. Groundwater quality samples collected to meet the requirements of Condition III.E.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in Condition III.I.2. The extent of dissolved contamination must be depicted on figures as needed to define the extent of contamination.

9. The Permittee shall report the surveyed elevation, as required by Condition III.F.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

a. For wells identified in Condition III.C.1 above, every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.

b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every five (5) years (during the second quarter sampling event) or whenever the elevation changes.

10. Elevation of the bottom of each monitoring well identified in Condition III.C.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the second quarter sampling event (Storet 72020).

11. Statistical evaluations, as required by Condition III.H, shall be submitted to the Illinois EPA as a part of the required 5-year GMZ Evaluation reports required by Condition III.E.2.e.

12. Information required by Conditions III.I.2, III.I.3, III.I.9 and III.I.10 must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in the form, "Formatting Requirements for the 01 (and 02) Record of the Electronically Submitted Groundwater and Leachate Data" (LPC 160) located on the Illinois EPA website and in accordance with the schedule found in Condition III.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found at the Illinois EPA website.

13. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. Only one (1) copy of the LPC 592 must accompany the submittal. However, the Permittee must submit one (1) original paper submittal of each notice or report submitted to the Illinois EPA, and a minimum of two (2) electronic copies for all additional Illinois EPA copies (i.e. Permit Section and regional Field Operation Section). Additional paper copies must be provided upon Illinois EPA request. The form is not to be used for permit modification requests.

14. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data, drawings, and text (as necessary) to accurately describe the information contained in the submittal.

15. The Permittee shall submit a written report to the Illinois EPA, in accordance with the schedule found in Condition III.I.2, which discusses the effectiveness of the Groundwater Corrective Action Program. At a minimum, the report must:

a. Address the information requirements in Conditions III.C, III.D, III.E and III.F.

b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition III.D.

c. Provide a discussion of any change in the quality of groundwater beneath the facility which has resulted from the corrective action.

16. If the Permittee evaluation, when required by Condition III.E.11, determines verification of contaminant control is necessary due to a lack of inward gradient, the Permittee will complete the following reporting and notification requirements in III.E.11:

a. Notify the Illinois EPA in writing within seven (7) days of the date the determination resampling is required.

b. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring is required.

c. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring does not meet the requirements for inward gradient and the permit-defined requirements for VOCs, the Permittee shall take steps to implement additional corrective measures as outlined in Condition III.E.12.g, and:

i. Submit a written report to the Illinois EPA within thirty (30) days describing the actions to be taken.

ii. Take necessary actions to meet applicable groundwater standards at GMZ Boundary wells.

17. Upon approval of the proposal required by Condition III.E.12, if the indoor inhalation exposure route evaluation required by Condition III.E.12 demonstrates that the indoor inhalation pathway is complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval.

18. If the Permittee determines that groundwater flow is not being adequately controlled, except as required by Conditions III.E.11 and III.I.16 regarding contaminant control in the Southeast portion of the GMZ and/or in the vicinity of Land Reuse Area 9 (western portion of the GMZ), or the contaminant control evaluations indicate contaminants are migrating beyond the GMZ boundaries, the Permittee shall:

a. Notify the Illinois EPA in writing within seven (7) days of the date that this determination is made.

b. Take actions as necessary to regain the control of groundwater flow as required by Condition III.E.3.

c. Submit a written report to the Illinois EPA within thirty (30) days describing the actions taken to regain control of groundwater flow. In addition, the report must contain information which demonstrates that groundwater flow is being adequately controlled.

d. Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the permit may be modified by the Illinois EPA in accordance with 35 IAC 702.183 and 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification in this section of the regulations include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of permit issuance, and new regulations.

SECTION IV: SPECIAL CONDITIONS

A. REQUIRED FORMS

1. The Permittee shall provide a completed Illinois EPA permit application form LPC-PA23 with all additional information, permit modifications, and permit applications that are submitted to the Illinois EPA Bureau of Land.

2. The Permittee shall submit a current 39(i) certification and supporting documentation with all applications for a permit.

Note: If the Permittee desires to add additional staff as delegated signatories for future modifications, certifications, etc., the Permittee must meet the requirements of 35 IAC 702.126 and the delegated signatory individuals should also send in an individual 39(i) certification form.

B. REPOSITORY

1. The Permittee shall maintain a repository at the Wood River Public Library, located at 326 E. Ferguson Avenue, Wood River, Illinois. The following information shall be sent to the repository:
   a. A copy of the approved renewed RCRA corrective action permit.
   b. All permit applications and permit modification requests.
   c. All Illinois EPA responses to modification requests made to the RCRA corrective action permit (Log No. B-147R2).

C. COMPLIANCE SCHEDULE

1. The following revisions must be met with regards to groundwater:

   a. Within ninety (90) days of the effective date of this permit, install a new or replacement well or well pairs for G078, G030, G97L, and G87L to monitor the previously screened interval. It is noted only G078 no longer exists because the well was damaged.
   b. Within ninety (90) days of the effective date of this permit, propose monitoring wells with screens positioned to adequately define the vertical boundary of the GMZ in Condition III.E.2.a.
   c. A Water Well Survey (WWS) must be provided within ninety (90) days of the effective date of this permit to include a WWS as described in 35 IAC 1600.210 and the guidance document entitled, “Well Survey Procedures at Bureau of Land Permitted Facilities” provided as Attachment G to the permit.

2. The Permittee must prepare and submit an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required in accordance with 35 IAC 724.201. This cost estimate must include a minimum of 10% contingency for all items necessary to complete corrective action.

SECTION V: STANDARD CONDITIONS

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act (Act) or Subtitle G, except for prohibitions against development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Illinois Administrative Code (IAC) 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and 702.186. The filing of a request by the Permittee for a permit modification or reissuance, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)

3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 IAC 705.202)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 IAC 702.160)

5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC Code 702.141 and 703.242)

6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 IAC 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 IAC 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 IAC 702.125.

8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)

9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 IAC 702.144)

10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 IAC 702.145)

11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)

12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

    d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 IAC 702.149)

13. MONITORING AND RECORDS. (35 IAC 702.150)

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from 35 IAC

721, Appendix A. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall include:

i. The date(s), exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical technique(s) or method(s) used; and

vi. The result(s) of such analyses. (35 IAC 702.150)

14. REPORTING PLANNED CHANGES. The Permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 IAC 703.280. (35 IAC 702.152(a)).

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage, or disposal of hazardous waste; and for a facility being modified the Permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

a. The Permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

2. If, within fifteen (15) days of the date of submission of the letter in paragraph (a), the Permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived, and the Permittee may commence treatment, storage, or disposal of hazardous waste. (35 IAC 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 IAC 702.152(b))

17. TRANSFER OF PERMITS. This permit may not be transferred by the Permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 IAC 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than ninety (90) days prior to the scheduled change. (35 IAC 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 IAC 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162. (35 IAC 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger human health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:

i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.
ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days. (35 IAC .152(f) and 703.245(b)).

21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 18, 19 and 20, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g)).

22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 IAC 702.152(h))

23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency
Bureau of Land
Permit Section - #33
2520 West Iles Avenue
Post Office Box 19276
Springfield, Illinois 62794-9276

24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 IAC 702.126. (35 IAC .151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC Part 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions, and modifications to these documents:

    a. Post-closure plan as required by 35 IAC 724.218(a) and this permit.

    b. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.

    c. Operating record as required by 35 IAC 724.173 and this permit.

    d. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 IAC Part 722.

28. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c).

29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d).

30. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 IAC 722.117(a)(8).

PREPAREDNESS AND PREVENTION

31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or

non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131)

32. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132.

33. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in the contingency plan and this permit as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133)

34. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134.

35. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements.

36. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

RECORD KEEPING

37. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

POST-CLOSURE

38. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan.

39. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans, or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d).

40. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be:

a. Adjusted for inflation either sixty (60) days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within thirty (30) days after close of the firm's fiscal year.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.

c. Kept on record at the facility and updated. (35 IAC 724.244).

d. Maintained at the value approved by the Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification.

41. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by Standard Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245.
Financial assurance documents submitted to the Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
2520 West Iles Avenue
P.O. Box 19276
Springfield, IL 62794-9276

42. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

SECTION VI: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the permit are summarized below. This summary table is provided to "highlight" the various reporting and notification requirements of this permit but is not meant to supersede the requirements of the various sections of this permit.

Condition	Action	Due Date
Section II: Corrective Action		
H.4	Submit Phase I CMP Workplan.	Within 90 days of notification from Illinois EPA
I.1	Notification of Newly Identified SWMU/AOCs.	Within 30 days of discovery
I.3	Submittal of Assessment Plan for Newly Identified SWMU.	Within 90 days of request for plan from Illinois EPA
I.5	Submittal of SWMU Assessment Report for Newly Identified SWMU.	In accordance with schedule in assessment plan
J	Notification of Release from Existing SWMU.	Within 30 days of discovery
II.M.2	Annual Cost Estimate for Corrective Action (excluding cost estimates adjusted for annual inflation only)	As necessary or requested by Illinois EPA
II.L.1	Quarterly Corrective Action Progress Report: January – March April – June July-September October – December	 May 1 August 1 November 1 March 1
II.L.2	Annual Report of Corrective Action Program Activities with Quarterly Report for October-December	March 1 of each year
II.L.3	Final Report for each parcel/area	As corrective action is completed
Section III: Groundwater Corrective Action Program		
C.4	Notification that well has been damaged or its structural integrity compromised.	Within 30 days of identification
C.6	Boring logs, construction diagrams and datasheets from installation and development of new/replaced well.	Within 30 days after well installed

C.1 General schedule for collection and reporting of groundwater data:

Sampling Event of Calendar year	Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January-February	August 1
Second Quarter	April-May	August 1
Third Quarter	July-August	February 1
Fourth Quarter	October-November	February 1

I.3	Groundwater surface elevation data.	Quarterly as set forth in Condition III.I.2
I.4	Groundwater withdrawal rates.	Quarterly as set forth in Condition III.I.2
I.5	Gradient control measurements.	Semi-annually as set forth in Condition III.I.2
I.6	Free product thickness.	Semi-annually as set forth in Condition III.I.2 and quarterly per Condition II.M.1.
I.7	Groundwater flow rate and direction.	Annually as set forth in Condition III.I.2
I.8	Groundwater quality results.	Semi-annually as set forth in Condition III.I.2
I.9	The surveyed elevation of the top of well casing.	Every 5 years
I.10	Elevation of the bottom of each monitoring well.	Second quarter as set forth in Condition III.I.2
I.11	Report every 5 years the summary of annual statistical calculations	Every 5 years within GMZ evaluations
I.12	Electronic reporting of groundwater data	Semi-annually as set forth in Condition III.I.2
I.15	Report to Illinois EPA on effectiveness of corrective action program.	Semi-annually
I.16.a	Contaminants in Sentry Observation Wells or Demonstration Wells require resampling	Within 7 days of the determination
I.16.b	Contingency Monitoring is required	Within 7 days of the determination
I.16.c.i	Gradient is not maintained and VOCs are not met	Within 7 days of the date the determination is made
I.16.c.ii	Notify the Illinois EPA in writing describing the actions to be taken	Within 30 days
I.18.a	Notify the Illinois EPA in writing that groundwater flow is not being adequately controlled	Within 7 days of the date the determination is made

I.18.b	Submit a report to Illinois EPA describing the actions taken to regain control of groundwater flow.	Within 30 days
I.18.c	Submit a request for permit modification to Illinois EPA describing any changes to the corrective action program to regain control of groundwater flow.	Within 60 days
J.1	Modification of groundwater corrective action program.	Within 90 days of determination existing program does not meet the requirements of 35 IAC 724.201
Section IV: Special Conditions		
A.1	Submit LPC-PA23 form.	With all additional information, permit modifications, and permit applications
A.2	Submit 39i certification form.	With all permit applications
Section V: Standard Conditions		
6	Submit complete application for new permit	At least 180 days prior to permit expiration
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time
14	Notify Illinois EPA of planned physical alterations or additions.	As soon as possible
16	Notify Illinois EPA of changes which may result in permit noncompliance.	Advanced written notice to the Illinois EPA
17	Application for permit modification indicating permit is to be transferred.	90 days prior to change in ownership
20	Report to Illinois EPA any non-compliance which may endanger health or environment.	
	- via telephone	Within 24 hours after discovery
	- in writing	Within 5 days after discovery
21	Report all other instances of noncompliance.	At the time monitoring reports are submitted

34	Application for permit modification amending post-closure plan.	60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred
40.a	Adjust post-closure cost estimates for inflation.	Within 60 days before anniversary date, or within 30 days after close of the firm's fiscal year.
40.b	Revision post-closure cost estimates.	As needed, within 90 days of discovery of revision
41	Change in financial assurance mechanism for post-closure.	As needed
42	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding

ATTACHMENTS

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

1. RCRA Post-Closure Renewal Application (Log No. B-147R2) dated October 8, 2020.

2. Additional Information for B-147R2- Replacement Pages submitted 1) Condition C.8.1.5 – Page 13 and 2) Exhibit C-1, Table 1- Page 4, dated May 10, 2022.

3. Time extension request for submittal of a response to the IEPA RCRA Permit Renewal Application NOD letter, dated July 3, 2024.

4. "Response to Illinois EPA Comments dated July 18, 2024" dated August 1, 2024.

5. Additional Information for B-147R2. Replacement pages, for Section C, dated August 29, 2024.

ATTACHMENT B
LOCATION MAP & DRAWING OF PERMITTED UNITS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

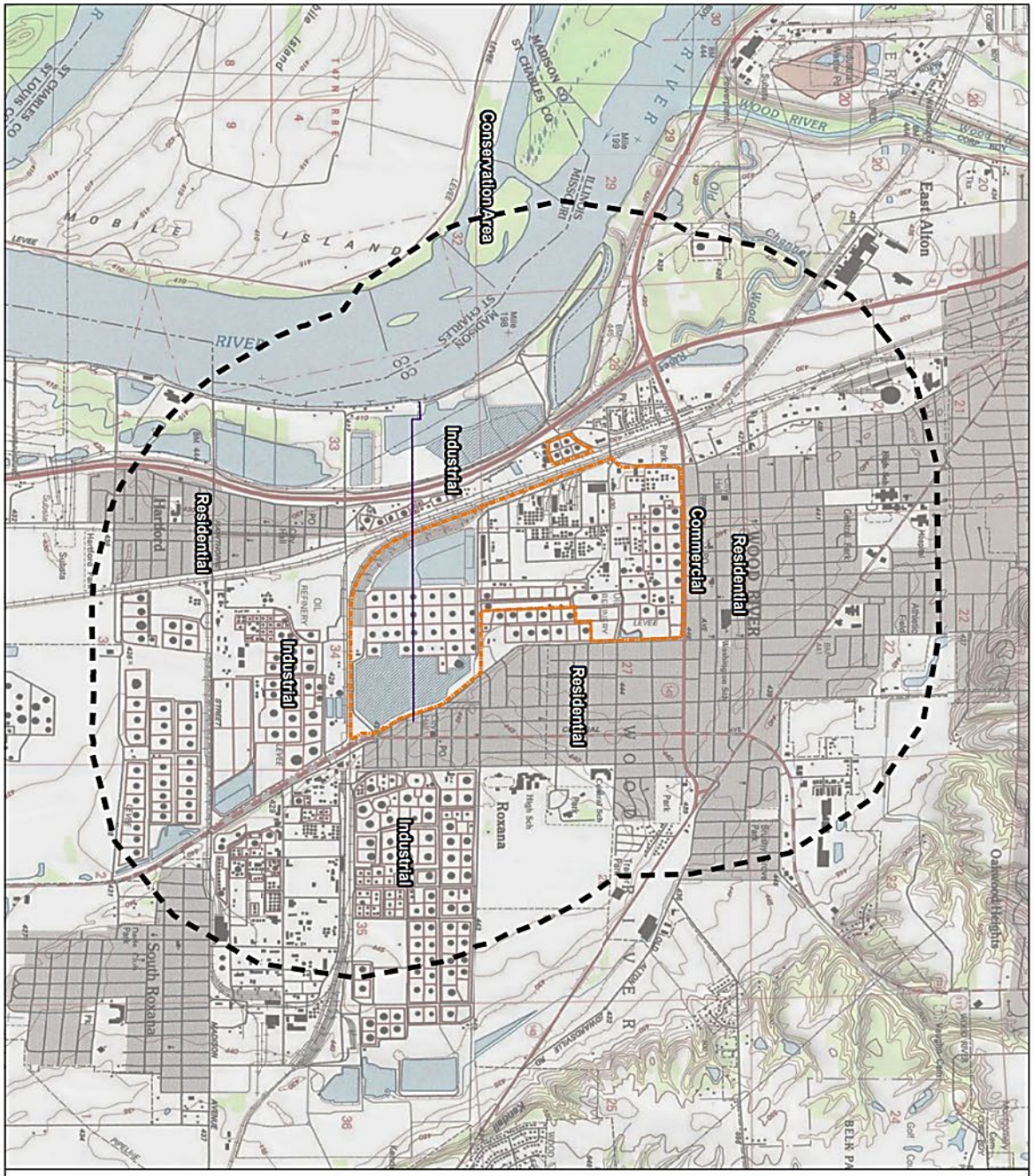


FIGURE B-1

BP MAIN PLANT PROPERTY
+ 1 MILE TOPOGRAPHIC MAP
WITH SURROUNDING LAND USE
BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

wood.
11933 CLAYTON ROAD, SUITE 215
BALLWIN, MO 63011

bp

Job No:
Drawn By:
Reviewed By:
Date: 7/28/2020

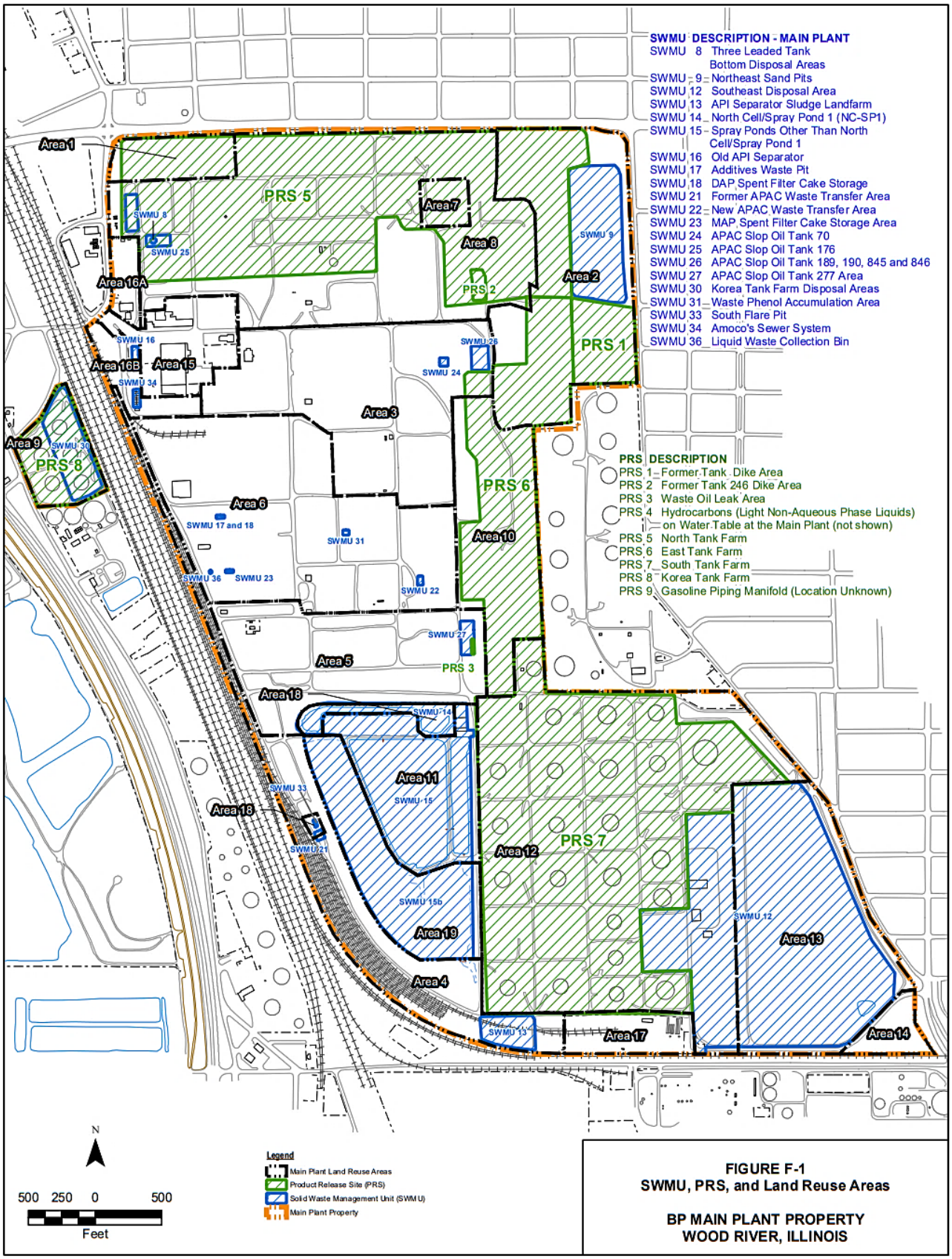
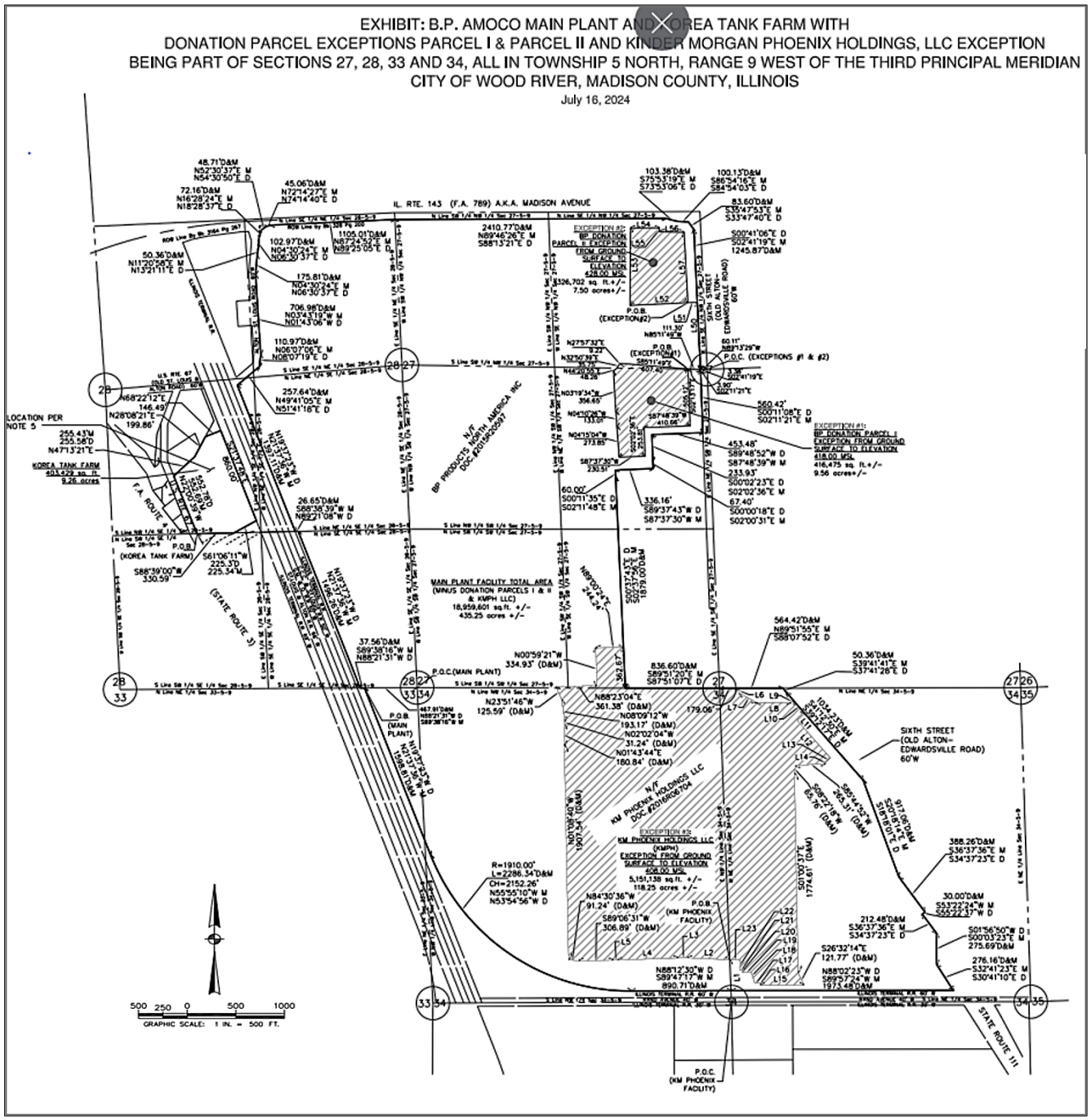


FIGURE F-1
SWMU, PRS, and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

EXHIBIT: B.P. AMOCO MAIN PLANT AND KOREA TANK FARM WITH
DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION
BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS
July 16, 2024



ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

The table below summarizes the plans/reports/documents submitted to Illinois EPA regarding the corrective action efforts at the BP/Main Plant facility in Wood River, Illinois.

Note:

CCR = Current Conditions Report
GMZ = Groundwater Management Zone
NC-SP1 = North Cell of Spray Pond 1
RFI = RCRA Facility Investigation
SFP = South Flare Pit
SSI = Statistically Significant Increase

Log No.	Submittal	Status
B-147	RCRA Permit issued to facility, Section IV contains corrective action requirements.	Approved September 30, 1993
B-147	Proposed GMZ	Approved April 6, 1994
B-147-CA-1	RFI Phase I workplan	Approved September 7, 1994
B-147-CA-2	RFI Phase I report	Approved June 5, 2001
B-147-CA-3	Supplemental RFI Phase I report	Approved June 5, 2001
B-147-CA-4	Conceptual RFI Phase II/III workplan	Superseded by CA-7
B-147-CA-5	Investigation Workplan for Areas 1 and 2	Approved August 15, 2000
B-147-CA-6	Engineered Barrier Specification Report	Superseded by CA-9
B-147-CA-7	RFI Phase II/III workplan	Approved February 5, 2002
B-147-CA-8	Human Exposures Controlled (CA725) Demonstration	Superseded by CA-12
B-147-CA-9	Engineered Barrier Specification Report	Approved August 3, 2001
B-147-CA-10	“Comfort Letter” request for soils in Area 1	Approved July 9, 2001

Log No.	Submittal	Status
B-147-CA-11	No Further Action Determination for Area 1	Approved December 5, 2001
B-147-CA-12	Human Exposures Controlled (CA725) Demonstration	Approved October 9, 2001
B-147-CA-13	Request to incorporate two releases in Area 12 into corrective action program	Superseded by CA-16
B-147-CA-14	NFA for Area 2	Approved August 13, 2002
B-147-CA-15	Groundwater action Releases Under Control (CA750) Demonstration	Approved March 18, 2002
B-147-CA-16	Request to Incorporate two releases in Area 12 into corrective action program	Approved September 13, 2002
B-147-CA-17	CCR/Characterization Workplan for Area 4	Approved January 10, 2002
B-147-CA-18	GMZ Re-Evaluation	Approved March 13, 2002
B-147-CA-19	CCR/Characterization Workplan for Area 19	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-20	CCR/Characterization Workplan for Area 15	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-21	City of Wood River Ordinance and MOU to restrict groundwater use	Approved March 28, 2002
B-147-CA-22	CCR/Characterization workplan for Area 9	Approved September 5, 2002
B-147-CA-23	Modifications to Approved Phase II/III RFI workplan (CA-7)	Approved June 21, 2002
B-147-CA-24	CCR/Characterization Workplan for Area 6	Approved September 5, 2002

Log No.	Submittal	Status
B-147-CA-25	CCR/Characterization workplan for Area 5	Approved September 27, 2002
B-147-CA-26	Revised CCR/Characterization workplan for Area 15	Approved September 27, 2002
B-147-CA-27	CCR/Characterization Workplan for Area 3	Approved September 27, 2002
B-147-CA-28	Comments on IEPA's January 10, 2002 letter regarding Area 4 (CA-17)	Approved September 5, 2002
B-147-CA-29	Draft ELUC for Area 1	Approved January 10, 2003
B-147-CA-30	Investigation Report for Area 4	Approved August 22, 2003
B-147-CA-31	Investigation Report for Area 15	Approved November 19, 2003
B-147-CA-32	Revised Corrective Action Schedule	Approved February 7, 2003
B-147-CA-33	CCR/Characterization Workplan for Area 7/8	Approved August 7, 2003
B-147-CA-34	Revised Corrective Action Schedule	Superseded by B-147-CA-45
B-147-CA-35	Report on soil removal activities in Area 2	Approved August 11, 2003
B-147-CA-36	Area 15 Report-Addendum 1	Approved November 19, 2003
B-147-CA-37	Area 15 Report-Addendum 2	Approved November 19, 2003
B-147-CA-38	Extension request for submitting Area 12 CCR/Workplan	Approved December 30, 2004
B-147-CA-40	Draft ELUC for Area 2	Approved January 29, 2003
B-147-CA-41	CCR/Characterization Workplan for Area 10	Approved June 4, 2003

Log No.	Submittal	Status
B-147-CA-42	Soil Removal Activities Report at Area 15	Approved June 16, 2004
B-147-CA-43	Draft ELUC for Area 15	Approved August 23, 2004
B-147-CA-44	Soil Removal Activities Report at Area 4	Approved September 15, 2004
B-147-CA-45	Revised Corrective Action Schedule	Approved December 30, 2004
B-147-CA-46	Recorded ELUC for Area 15	Approved September 29, 2005
B-147-CA-47	Draft ELUC for Area 4	Approved June 1, 2005
B-147-CA-48	Recorded ELUC for Area 1	Approved March 25, 2005
B-147-CA-49	Recorded ELUC for Area 2	Approved March 29, 2005
B-147-CA-50	Updated RFI Phase II/III Project Plan Schedule	Approved September 21, 2005
B-147-CA-51	2004-05 CCR Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved December 29, 2005
B-147-CA-52	Recorded ELUC for Area 4	Approved September 29, 2005
B-147-CA-53	Submittal regarding facility's GMZ	Approved January 24, 2006
B-147-CA-54	Summary of Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved August 11, 2008
B-147-CA-55	Reevaluation of GMZ	Approved January 21, 2009
B-147-CA-56	Updated RFI Phase II/III Project Plan Schedule	Superseded by B-147R
B-147-CA-57	Investigation Report for Area 3	Soil comments e-mailed by IEPA February 25, 2008
B-147-CA-58	Investigation Report for Area 5	Disapproved June 22, 2007

Log No.	Submittal	Status
B-147-CA-59	Investigation Report for Area 6	Superseded by B-147R-CA-29
B-147-CA-60	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-61	Underground Piping Investigation Work Plan	Approved April 4, 2007 (eventually superseded by CA-90)
B-147-CA-62	Re-evaluation of GMZ	Approved January 21, 2009
B-147-CA-63	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-64	Underground Piping Work Plan for 7 and 8 Areas	Superseded by CA- 90
B-147-CA-65	Investigation Report for Area 19	Approved December 6, 2007
B-147-CA-66	Draft White Paper – Property Transfer Process	Approved March 31, 2009
B-147-CA-67	Demonstration that detection monitoring SS1s at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-68	Information regarding two releases in Area 8	Approved August 13, 2007
B-147-CA-69	Addendum to Area 5 Report	On January 30, 2009, IEPA required additional investigation be conducted in Area 5.
B-147-CA-70	Supplemental Report for Soil Sampling of NC-SP1 and SFP	Approved January 7, 2008 (NFA determination made for NC-SP1; additional work required for SFP).
B-147-CA-71	Area 5 Land Reuse Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.

Log No.	Submittal	Status
B-147-CA-72	Corrective Action Excavation in Area 5	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-73	Area 5 Analytical Reports for Perched Groundwater	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-74	2007 Annual Current Conditions Report – Phytoremediation at Tank 293	Approved August 11, 2008
B-147-CA-75	Area 5 Land Reuse Inventory Report and closure Plan, Revision 1	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA- 76	Area 10 Land Reuse Investigation and Closure Plan	Superseded by B-147R-CA-4
B-147-CA-77	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-78	Comments on IEPA's December 6, 2007 letter regarding the Area 19 Land Reuse Investigation Report and Closure Plan (CA-65)	Approved April 13, 2009
B-147-CA-79	Area 9 Land Reuse Report	Superseded by B-147R-CA-15
B-147-CA-80	Site-Wide Class II GW Determination	Disapproved December 17, 2012
B-147-CA-81	Area 7/8 Land Reuse Investigation Report and Closure Plan	Superseded by B-147R-CA-27
B-147-CA-82	2007 Annual Current Conditions Report, Phytoremediation/Landfarming at Tank 293	Approved August 11, 2008
B-147-CA-83	Additional information regarding two releases in Area 8 (see CA-68)	Received June 4, 2008

Log No.	Submittal	Status
B-147-CA-84	Area 16 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-85	Demonstration that detection monitoring SS1s at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-86	Area 17 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-87	Underground Pipeline Work Plan	Superseded by B-147-CA-90
B-147-CA-88	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved January 6, 2009
B-147-CA-89	Additional information regarding Area 5 Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-90	Underground Product Pipeline Investigation Workplan – Revision 1	Approved April 13, 2009
B-147-CA-91	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of renewal permit.
B-147-CA-92	Response to Comments, Area 6 Land Reuse Investigation Report	Superseded by B-147R-CA-21
B-147-CA-93	CCR for Phytoremediation/Landfarming	Approved November 20, 2009
B-147-CA-94	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-95	Requested changes to IEPA's April 13, 2009 approval of the Underground Product Pipeline Investigation Workplan	Approved July 6, 2009
B-147-CA-96	Letter Regarding Vertical Parceling	Approved March 3, 2010

Log No.	Submittal	Status
B-147-CA-97	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-98	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-99	Proposal to evaluate: (1) the hydrocarbon recovery system at facility; and (2) arsenic impacts in Well RG36	Approved February 24, 2010
B-147-CA-100	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-101	Shallow investigation of South Flare Pit.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-102	Current Condition Report for phytoremediation landforming at Tank 293.	Approved July 12, 2011
B-147-CA-103	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-104	Response to request for improvement to hydrocarbon recovery system.	Approved August 31, 2011
B-147-CA-105	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-106	Response to February 24, 2010 letter requiring improvements to hydrocarbon recovery system.	Approved August 31, 2011.
B-147-CA-107	Site-wide Geology Report and cone penetrometer logs.	Approved December 17, 2012

Log No.	Submittal	Status
B-147-CA-108	Demonstration Regarding SSIs for NCSP1/SFP (2Q10)	Approved August 31, 2011
B-147-CA-109	SSI Demonstration for SFP (3Q10)	Approved August 31, 2011
B-147R	Renewed RCRA Permit	Approved March 4, 2011
B-147R-CA-1	2010 Report for Phytoremediation/Landfarming at Tank 293	Approved July 12, 2011
B-147R-CA-2	Submittal Regarding GMZ Boundary Wells	Approved August 31, 2011
B-147R-CA-3	Area 11 CCR/Characterization Workplan	Approved January 24, 2012
B-147R-CA-4	Area 10 Comprehensive Report	Received May 5, 2011
B-147R-CA-5	Information Regarding the Arsenic Levels at Monitoring Wells RG36	Approved October 29, 2013
B-147R-CA-6	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011 (see also B-147R-CA-12)
B-147R-CA-7	Draft ELUC for Area 2, excluding Donation Parcel	Superseded by B-147R-CA-11
R B-147-CA-8	Additional Information Regarding the Arsenic Levels at Monitoring Well RG36	Disapproved October 29, 2013
B-147R-CA-9	Draft ELUC for South Flare Pit	Superseded by B-147R-CA-18
B-147R-CA-10	Area 13 CCR/Characterization Work Plan	Approved October 26, 2012
B-147R-CA-11	Draft ELUC for Area 2, Excluding Donation Parcel	Approved November 3, 2011
B-147R-CA-12	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011

Log No.	Submittal	Status
B-147R-CA-13	Area 14 CCR/Characterization Workplan	Approved July 12, 2012
B-147R-CA-14	Response to August 31, 2011 IEPA letter (see R-CA-2)—improvements to HRS and GMZ	Approved October 29, 2013
B-147R-CA-15	Area 9 Comprehensive Report	Received December 15, 2011
B-147R-CA-16	Recorded ELUC for Donation Parcel in Area 2	Approved March 13, 2012
B-147R-CA-17	Recorded ELUC for Area 2, excluding Donation Parcel	Approved February 27, 2012
B-147R-CA-18	Revised Draft ELUC for South Flare Pit	Approved August 11, 2014
B-147R-CA-19	Area 5 Comprehensive Report	Received February 2, 2012
B-147R-CA-20	2011 Report for Phytoremediation-Landfarming Project at Tank 293	Approved December 21, 2012
B-147R-CA-21	Area 6 Report	Received March 16, 2012
B-147R-CA-22	GMZ Re-Evaluation	Approved October 29, 2013
B-147R-CA-23	Site-Wide Class 2 Groundwater Demonstration	Approved December 17, 2012
B-147R-CA-24	Area 3 Current Conditions Report/Characterization Plan	Received May 10, 2012
B-147R-CA-25	Area 17 comprehensive land reuse investigation report and remediation plan	Received October 25, 2012
B-147R-CA-26	Extension request for submittal of response to 12/17/12 letter re: sitewide Class 2 Groundwater demonstration and cone penetration test.	Approved December 3, 2014
B-147R-CA-27	Area 7/8 comprehensive land reuse investigation report and remediation plan	Received December 17, 2012

Log No.	Submittal	Status
B-147R-CA-28	Response to comments for the sitewide class 2 groundwater demonstration	Approved December 3, 2014
B-147R-CA-29	2012 annual current condition report: phytoremediation/landfarming remedial measures at Tank 293.	Approved November 13, 2013
B-147R-CA-30	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Approved February 9, 2016
B-147R-CA-31	Area 2 donation parcel ii current conditions rpt/vapor intrusion wp	Superseded by B-147R-CA-35
B-147R-CA-33	Response to 10/29/13 letter (condition 2.3(iv))	Approved February 9, 2016
B-147R-CA-34	Tank 293 annual current conditions report	Approved December 3, 2014
B-147R-CA-35	Area 2 donation parcel ii current conditions rpt and vapor intrusion wp.	Approved October 24, 2014
B-147R-CA-36	Response/schedule to 10/29/13 letter and 12/19/13 meeting	Approved June 10, 2014
B-147R-CA-37	Updated financial assurance cost estimates	Approved August 2, 2017
B-147R-CA-38	Extension request to respond to IEPA’s 12/29/13 letter	Approved June 10, 2014
B-147R-CA-39	Response to IEPA 2/14/13 email comments on the Area 9 Investigation Report (B-147R-CA-15)	Received May 5, 2014
B-147R-CA-40	Information Re: Existing HRS	Approved April 4, 2016
B-147R-CA-41	Updated Regarding HRS Evaluation	Approved April 4, 2016
B-147R-CA-42	Updated Regarding the Cone of Depression (COD) Evaluation	Approved January 19, 2016

Log No.	Submittal	Status
B-147R-CA-43	Information Regarding filing ELUC	Approved October 27, 2015
B-147R-CA-44	Extension Request (GW)	Approved July 18, 2017
B-147R-CA-45	Area 16 Investigation Report and Remediation Plan	Approved June 14, 2016
B-147R-CA-46	Response to Comments Regarding Site-Wide Class II GW Demonstration	Received December 24, 2014
B-147R-CA-47	60 day extension Request (GW)	Approved July 18, 2017
B-147R-CA-48	Annual 2014 Current Conditions Report for Tanlk293	Approved January 16, 2015
B-147R-CA-49	GMZ Well Evaluation Report	Approved July 18, 2017
B-147R-CA-50	Potential TACO Based CA for Tank 293	Received June 17, 2015
B-147R-CA-51	Area 2 Donation Parcel II CCR & Vapor Intrusion Work Plan	Superseded by B-147R-CA-57 and R-CA-59
B-147R-CA-52	COD Well Performance Evaluation Report	Approved January 19, 2016
B-147R-CA-53	ELUC Submittal	Received July 15, 2015
B-147R-CA-54	GMZ Re-evaluation Report	Approved July 18, 2017
B-147R-CA-55	Evaluation of Significant Increase	Received April 23, 2015
B-147R-CA-56	COD Well Evaluation and Status Report	Approved January 19,. 2016
B-147R-CA-57	Area 2 Donation Parcel II – Boundary Approval request	Approved August 22, 2016
B-147R-CA-58	ELUC	Approved July 18, 2016
B-147R-CA-59	Area 2 Donation Parcel II – Vapor Intrusion Report	Approved August 22, 2016
B-147R-CA-60	HRS Evaluation Update	Approved April 4, 2016
B-147R-CA-61	HRS Evaluation Update	Approved April 4, 2016

Log No.	Submittal	Status
B-147R-CA-63	2015 Annual CCR for Tank 293	Received March 1, 2016
B-147R--CA-64	Draft ELUC for Donation Parcel Area 2 (7.5-ac)	Approved February 28, 2017
B-147R--CA-65	Draft ELUC for Donation Parcel Area 2	Approved February 28, 2017
B-147R--CA-77	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres -Top layer)	Approved May 4, 2017
B-147R--CA-78	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres – Beneath the top layer)	Approved April 21, 2017
B-147R--CA-79	4th Quarter 2016 Demonstration Report (SSIE)	Received April 24, 2017
B-147R--CA-80	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Received June 22, 2017
B-147R--CA-81	Proposed ELUC	Received July 10, 2017
B-147R-CA-82	Response to IEPA 7/18/27 letter regarding GMZ wells	Received October 16, 2017
B-147R-CA-83	Extension request for submittal of cost estimate	Received October 30, 2017
B-147R-CA-84	GMZ monitoring wells	Received October 16, 2017
B-147R-CA-85	Plan for GMZ optimization for compliance commitment agreement	Received January2, 2018
B-147R-CA-86	Interim progress report - bioremediation pilot systems operations	Received April 2, 2018
B-147R-CA-87	Fourth Quarter 2017 GW demonstration report	Received April 12, 2018

Log No.	Submittal	Status
B-147R-CA-88	Response to IEPA's 7/18/17 GMZ wells letter	Received May 1, 2018
B-147R-CA-89	GW Monitoring Optimization Report	Approved January 19, 2023
B-147R-CA-90	Time Extension Request	Approved June 24, 2019
B-147R-CA-91	Remedial Action Selection Report and Main Plant Remedy Roadmap	Approved February 11, 2020
B-147R-CA-92	Performance Report-Pilot-Scale Bioremediation Systems	Approved February 11, 2020
B-147R-CA-93	Indoor Inhalation Exposure Route Evaluation & Work Plan	Denied May 30, 2019
B-147R-CA-94	State-wide Arsenic/Inorganic Demonstration Report	Approved June 24, 2019
B-147R-CA-95	4th Quarter 2018 Demonstration Report (Statistically Significant Increase Evaluation)	Approved February 27, 2020
B-147R-CA-96	Revised Indoor Inhalation Exposure Route Evaluation and Work plan	Received August 29, 2019
B-147R-CA-97	Site-wide inorganics and metals evaluation work plan schedule update letter	Received November 5, 2019
B-147R-CA-98	Action Plan for potential manmade pathway evaluation	Received November 26, 2019
B-147R-CA-99	Main Plant Area 10 Comprehensive land reuse Investigation Report	Received December 20, 2019
B-147R-CA-100		
B-147R-CA-101	2019 Annual Tank 293 Current Conditions Report	Received February 28, 2020
B-147R-CA-102	Documentation of monitoring well installation and abandonment	Received March 27, 2020
B-147R-CA-103	Proposed modification to 2Q 2020 GW Gauging & Monitoring in response to COVID-19 pandemic	
B-147R-CA-104	4th Quarter 2019 Demonstration Report	Received May 21, 2020

Log No.	Submittal	Status
B-147R-CA-104	4th Quarter 2019 Demonstration Report (Statistically Significant Increase Evaluation)	Received April 30, 2020
B-147R-CA-105	RCRA Land reuse investigation assessments	Received June 22, 2020
B-147R-CA-106	Notification of COD Pumping and Equipment Status	Received July 29, 2020
B-147R-CA-107	COD pumping and equipment status update	Received September 16, 2020
B-147R-CA-108	Request to update Main Plant Observation Monitoring Well Abandonment of G047	Received September 23, 2020
B-147R-CA-109	Site-wide inorganics and metals evaluation work plan	Received November 302020
B-147R-CA-110	Groundwater Management Zone Re-evaluation	Received December 21, 2020
B-147R-CA-111	Soil Gas Pathway Evaluation Report	Received June 8, 2021
B-147R-CA-112	Results in accordance with Site-Wide Inorganics and Metals Evaluation Report submitted on 12/20/18	Received January 26, 2022
B-147R-CA-113	Remedial Action Selection Report & Main Plant Remedy Roadmap. This is a follow up on IEPA correspondence dated 2-11-20	Received January 31, 2022
B-147R-CA-114	Monitoring Well Condition	Approved January 19, 2023
B-147R-CA-115	Proposed upgrades to the Cone of Depression (COD) Well System	Approved January 19, 2023
B-147R-CA-116	4th Quarter 2021 Demonstration Report	Received May 3, 2022
B-147R-CA-117	Northern GMZ Monitoring Wells G067/G068	Approved January 19, 2023
B-147R-CA-118	Well replacement extension request	Approved April 21, 2023
B-147R-CA-119	4th Quarter 2022 Demonstration Report	
B-147R-CA-120	Documentation of monitoring well installation and abandonment	Received July 21, 2023

Log No.	Submittal	Status
B-147R-CA-121	Main Plant GMZ Well G078 Well Condition Notification letter in accordance with Condition V.D.4 of the RCRA permit	Received July 13, 2023
B-147R-CA-122	Corrective Action Mod request for the Korea tank Farm (Area 9) at the Main Plant	Approved November 20, 2023
B-147R-CA-123	Gradient Control Well G668 and G669 Condition Notification	Received September 13, 2023
B-147R-CA-124	Main Plant Observation Well G97L Well Conditions Notification letter in accordance with ConditionV.D.4 of the RCRA	Received January 30, 2024
B-147R-CA-125	Main plant land reuse investigation data submittal of general background, sampling methods, analytical procedures, and analytical results for areas	Received March 12, 2024
B-147R-CA-126	Additional info to the revised indoor inhalation exposure route eval and work plan dated 8/29/19 to provide an update on changed site conditions	Received April 16, 2024
B-147R-CA-127	Response to recommendation to vent well cap in the 8/3/23 Inspection Report	Received April 24, 2024
B-147R-CA-128	Main Plant Observation well G87L well condition Notification letter in accordance with Condition V.D.4 of RCRA permit	Received July 31, 2024

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

1.0 INTRODUCTION/PURPOSE

RCRA corrective action projects typically consist of two phases: (1) A RCRA Facility Investigation (RFI) where an investigation is conducted at the solid waste management units (SWMU's) of concern at a facility; and (2) implementation of corrective measures needed to properly address any contaminant encountered during the RFI. This document has been developed to outline the procedures to be carried out to implement a corrective measure program.

2.0 BRIEF OVERVIEW OF A RCRA CORRECTIVE MEASURES PROGRAM

Typically, at the end of an RFI, the concentration of contaminants present in the soil/sediments/groundwater/surface waters at a SWMU or other area of concern (AOC) is compared to remediation objectives developed in accordance with 35 IAC Part 742. If the contaminant levels are above these objectives, then some type of corrective measure must be completed to achieve these objectives. In addition, certain corrective measures may need to be carried out to support the established remediation objectives (i.e., the establishment of engineered barriers and/or institutional controls). However, at a unit where waste or high levels of contamination remains, a decision may be made to close the unit as a landfill and then provide post-closure rather than removing the material and/or achieving remediation objectives developed in accordance with 35 IAC Part 742.

To allow for a logical and orderly progression in developing and implementing necessary corrective measures, the Corrective Measures Program (CMP) being carried out in accordance with this RCRA permit should be carried out in five phases which build on each other. It is not necessary for a corrective measures program at a given SWMU or other AOC to follow these five (5) phases step-by-step; rather, phases can be combined and/or skipped, depending on the actual remedial measure selected. The overall CMP implemented must set forth a logical path for its implementation and allow for Illinois EPA oversight and approval throughout the entire process.

A brief discussion of the five (5) phases of a CMP is as follows:

1. Phase I is the conceptual design of the selected corrective measure(s).

2. Phase II is the development of final design plans for the corrective measure, including installation and operation/maintenance plans.

3. Phase III is the actual construction/installation of the selected corrective measure.

4. Phase IV is the operation, maintenance, and monitoring of the selected corrective measure to ensure it is properly protecting human health and the environment.

5. Phase V is the final demonstration/verification that the implemented corrective measure achieved the approved remedial objectives.

Sections 3.0 through 7.0 which follow provide a more detailed discussion of each of these five phases. Section 8.0 has been developed to describe the CMP which may be used in lieu of the afore-mentioned five phase procedure when soil removal is the selected remedy. It must be noted that work plans, reports, etc. must be developed to document how the Permittee carries out the required corrective measures program at each SWMU or other AOC. All such documents must be reviewed and approved by the Illinois EPA prior to their implementation.

3.0 PHASE I OF THE CMP

Phase I of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and other AOCs and provides a conceptual design for these measures. The main criteria for the Illinois EPA review are whether the proposed corrective measures are able to achieve the final cleanup objectives previously established by the Permittee and the Illinois EPA and/or provide the necessary institutional controls to prevent the migration of contaminants from the SWMU of concern. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

1. Introduction/Purpose. This section should contain: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.

2. Existing Site Conditions. This section should contain a summary of the investigative activities conducted for each of the units of concern. Investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.

3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this section. The potential for additional future migration of contamination for each of the units of concern must then be evaluated, especially those units which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.); and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).

4. Corrective Measures Objectives. This section should discuss the general objectives of the proposed corrective measure to be constructed/installed, and the ability of the proposed

corrective measure to achieve the established remediation objectives (unless the selected corrective measure is closure as a landfill which will require proper establishment of a final cover and proper post-closure care of the closed unit).

5. Identification of Options Available. This section should contain a brief discussion of the various options available to achieve the corrective measures objectives for each unit. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each remedial option.

6. Description of Selected Corrective Measure. This section should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected corrective measure will be effective.

7. Identification of Design Criteria. This section should identify what information must be available to design the selected corrective measure.

8. Review of Available Information. This section should contain an evaluation of the existing information to ensure that it is sufficient to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required additional information.

9. Procedures for Completing the Design. This section should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:

    a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.

    b. A description of the procedures which will be used to complete the design of the corrective measure.

    c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;

    d. Significant data to be used in the design effort;

    e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);

    f. Sample calculations to be used in the design effort;

    g. Conceptual process/schematic diagrams;

h. A site plan showing a preliminary layout of the selected corrective measure;

i. Tables giving preliminary mass balances;

j. Site safety and security provisions.

This information will form the technical basis for the detailed design of the remedial measure and the preparation of construction plans/specifications.

10. Identification of Required Permits. This section should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.

11. Long Lead Procurement Time Considerations. This section should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.

12. Project Management. This section should contain information regarding the procedures and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 PHASE II OF THE CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective action (Phase II of the CMP). Upon final completion of the design, a Final Design Report, consisting of final plans, specifications, construction work plan, etc., must be submitted to the Illinois EPA for review and approval.

Several documents must be submitted to the Illinois EPA as part of Phase II of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase II of the CMP.

1. Final Design Report and Construction Work Plan. The Final Design Report and Construction Work Plan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc., in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:

b. Introduction/Purpose. This portion of the document should: (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.

c. Detailed Plans of the Design System, including the following:

1) Plan views;

2) Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;

3) Dimensions and relative elevations of structures;

4) Location and outline form of the equipment;

5) Ground elevations; and

6) Descriptive notations, as necessary, for clarity.

c. Technical Specifications. Complete technical specifications for the construction of the system, including, but are not limited to, the following:

1) All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the project;

2) The type, size, strength, and operating characteristics of the equipment;

3) The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;

4) Electrical apparatus, wiring and meters;

5) Construction materials;

6) Chemicals, when used;

7) Miscellaneous appurtenances;

8) Instruction for testing materials and equipment as necessary; and

9) Availability of soil boring information.

d. Project Management. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and

qualifications if key personnel who will direct corrective measures construction/installation must be provided in the work plan.

e. Construction Quality Assurance/Quality Control. A construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.

f. Schedule. The work plan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted.

g. Waste Management Practices. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures and provide a description of the procedures for appropriate characterization and management of these wastes.

h. Required Permits. Copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure must be provided in the report. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.

i. Cleanup Verification. The report must contain the procedures which will be followed that the approved remediation objectives have been achieved when operation of the system is completed.

2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase II of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.

a. Introduction and Purpose. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

b. System Description. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the permit should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

c. Operation and Maintenance Procedures. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:

1) Description of tasks for operation;

2) Description of tasks for maintenance;

3) Description of prescribed treatment or operation conditions; and

4) Schedule showing the frequency of each operation and maintenance task.

d. Inspection Schedule. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look for during the inspection procedure, specific inspection items, and frequency of the inspections.

e. Waste Management Practices. This portion of the document should provide a description of the wastes generated by the corrective measure, and the appropriate procedures for proper characterization/management of these wastes.

f. Contingency Procedures. This portion of the document should provide a description of the procedures which will address the following items:

1) System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;

2) Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure fails. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.

3) Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 PHASE III OF THE CMP

Once the final design report is approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

1. Summary of activities completed during the reporting period;

2. An estimate of the percentage of the work completed;

3. Summaries of all actual or proposed changes to the approved plans and specifications or its implementation;

4. Summaries of all actual or potential problems encountered during the reporting period;

5. Proposal for correcting any problems; and

6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Completion Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.

2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase II.

3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure. Justification regarding the need to vary from the approved plans and specifications must also be provided.

4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.

5. As built drawings, including identification of any variations from the approved plans, technical specifications and drawings.

6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.

7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.

8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re testing efforts.
9. Photographs documenting the various phases of construction.

10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.

11. A certification meeting the requirements of 35 IAC 702.126 by an independent qualified, licensed professional engineer and by an authorized representative of the owner/operator.

6.0 PHASE IV OF THE CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved plans and specifications (this is Phase IV of the CMP). During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports include the following:

1. Introduction. A brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

2. System Description. A description of the corrective measures constructed/installed at the site, and identify significant equipment.

3. Monitoring Results. A description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.

4. Effectiveness Determination. Calculations and other relevant documentation which demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.

5. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under Item 4 above, recommendations on continued operation of the corrective measure must be provided. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided.

7.0 PHASE V OF THE CMP

Once all corrective measures have been completed, a report must be developed documenting all the efforts which were carried out as part of implementing the corrective measure and demonstrating, as appropriate, that the approved remediation objectives have been achieved.

This report should contain a compilation of all previous reports and also contain sufficient information to demonstrate that the approved remediation objectives have been achieved. It must be noted that such a report will not be developed for a unit closed as a landfill until the post-closure care period has been completed.

8.0 PROCEDURES WHICH SHOULD BE FOLLOWED WHEN SOIL REMOVAL IS THE SELECTED CORRECTIVE MEASURE

Sections 2.0 through 6.0 above describe the procedures which should be followed when it is necessary to design a physical corrective measure (e.g., a final cover system, certain type of treatment system, etc.). However, such detail is not necessary if excavation/removal is selected as the remedial action for the contaminated soil encountered at the site. In general, a work plan should be developed for this effort (for Illinois EPA review and approval) which fully describes each step to be used in removing the contaminated soil from the property. This includes a description of (1) the equipment utilized in the removal effort, (2) the pattern followed in removing the soil; (3) the depth to which the soil will be removed; (4) management of the soil on-site after it is removed from the ground; (5) loading areas; (6) the ultimate destination of the soil; and (7) any other steps critical to the removal effort.

One way to conduct a soil removal effort is to collect and analyze a sufficient number of soil samples to clearly determine the horizontal and vertical extent of soil contamination prior to conducting the soil removal effort. The boundaries of soil which must be removed are defined by the Illinois EPA established cleanup objectives for the project. Soil excavation must extend to sample locations where soil test results indicate that the remediation objectives are met. Closure verification sampling is not necessary in such cases, if a registered professional engineer oversees the soil removal effort and certifies that the remediation limits extend to these boundaries.

Another way to conduct a soil removal effort is to collect and analyze a limited number of soil samples prior to the soil removal effort and to rely mainly on field observation to determine the extent of the soil removal. In such cases closure verification sampling is necessary. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation. The following sampling/analysis effort is necessary to demonstrate that the remaining soil meets the established cleanup objectives:

1. A grid system should be established over the excavation.

2. Samples should be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

3. Samples should be collected at 6-inch to 12-inch below the ground surface (bgs) along the excavation sidewalls at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

4. Collection/analysis of all required samples must be in accordance with the procedures set forth in the approved plan.

5. Soil samples which must be analyzed for volatile organic compounds (VOCs) must be collected in accordance with the procedures set forth in Method 5035 of SW-846. In addition, such samples must be collected 6-inch to 12-inch beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

6. No random sampling may be conducted to verify achievement of cleanup objectives have been met.

Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Additional samples must be collected and analyzed in accordance with the procedures described above from areas where additional soil has been removed.

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

Updated as of September 2024

A. SUMMARY

The following subsections detail the historical and current remediation systems operated at the BP Main Plant to mitigate hydrocarbons and refinery product in accordance with Condition II.E of the facility's permit.

Historical remedial operations included a Hydrocarbon Recovery System (HRS) as an interim remedial measure (IRM), as discussed in Section C, below.

Current remedial operations include three pilot-scale Bioremediation Systems as successors to the HRS, which reached its limit of effectiveness. The Bioremediation Systems are being operated to mitigate hydrocarbons and refinery product, and to provide information on long-term performance and other essential data to evaluate the full-scale implementation of hydrocarbon and other refinery related product remediation at the BP Main Plant facility. These Bioremediation Systems include:

- Central Bioventing System (Section E)
- Sothern Biosparging/Bioventing System (Section F)
- Northern Air Sparge/Soil Vapor Extraction System (AS/SVE) (Section G)

B. DEFINITIONS

"Bioremediation systems" means systems or technologies that enhance the biodegradation of hydrocarbons, and preferentially remove compounds that are typically more toxic which results in compositional change. The biodegradation processes affect refinery product from the smear zone and vadose zone as it contributes to soil vapor and dissolved phase impacts. Systems to accomplish this include bioventing, biosparging, and AS/SVE systems or some combination of systems designed to remediate hydrocarbons. It may also include other technologies that could enhance bioremediation such as infiltration galleries or ambient air introduction that can increase oxygen to the subsurface to enhance aerobic biodegradation.

"Hydrocarbon Remediation Well" means any type of well, including Bioremediation System wells, installed to remediate hydrocarbons, from the smear zone and vadose zone.

"Remediating refinery product" means the use of physical, chemical, or biological means to remove or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts in order to reduce the mass present at the Site.

"Smear Zone" means the vertical profile of hydrocarbon impacted soil located across the area of groundwater fluctuations, between the high and low groundwater elevations.

"Vadose Zone" means the vertical profile of unsaturated soils located above the water table.

C. HISTORICAL HYDROCARBON RECOVERY SYSTEM (HRS) OPERATION

The HRS at the BP Main Plant facility was commissioned as an IRM in 1993 to hydraulically recover subsurface mobile LNAPL from above the water table. The original system included twenty-one (21) HRS extraction wells as listed below. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness. As described in the technical memorandum by BP entitled, Hydrocarbon Recovery System (HRS) Evaluation, dated May 24, 2017, the HRS removed 6.5 million gallons of LNAPL over twenty-two (22) years of operation. However, despite this volume of mobile LNAPL having been removed, the HRS did not have a significant impact on dissolved phase concentrations in groundwater. Accordingly, installation and operation of three (3) pilot-scale bioremediation systems (as discussed below) was implemented as a replacement for the HRS, to provide information needed to design full-scale remedies to target the remaining LNAPL with the goal to reduce dissolved phase concentrations of benzene.

Identification of Historical/Inactive HRS Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
G601	RC-1	56.0	373.40	393.40 – 373.40
G602	RC-2	55.0	374.96	394.96 – 374.96
G603	RC-3	51.0	379.39	399.39 – 379.39
G604	RC-4	49.5	382.18	402.18 – 382.18
G606	RC-6	55.0	373.27	408.27 – 378.27
G607	RC-7	58.5	368.97	403.97 – 373.97
G608	RC-8	61.0	364.90	399.90 – 369.90
G609	RC-9	64.0	367.40	402.40 – 372.40
G610	RC-10	69.0	366.61	401.61 – 371.61
G611	RC-11	70.0	369.96	404.96 – 374.96
G612	RC-12	73.0	368.21	395.21 – 373.21
G615	RC-15	58.4	371.77	407.15 – 377.15
G617	RC-17	58.0	370.41	392.41 – 375.41
G618	RC-18	57.5	371.76	411.76 - 376.76
G619	RC-19	58.0	368.92	408.92 – 373.92
G629	RC-H-29	57.6	379.88	401.48 – 379.88
G605	RC-5	49.8	380.56	401.27 – 381.27

G613	RC-13	60.0	371.25	406.25 – 376.25
G614	RC-14	59.5	371.60	406.60 – 376.60
G616	RC-16	65.0	367.61	402.61 – 372.61
G620	RC-20	85.4	344.72	406.49 – 349.72

ft. MSL= feet above mean sea level

D. CURRENT HYDROCARBON REMEDIATION SYSTEMS OPERATIONS

BP is currently operating three (3) pilot-scale bioremediation systems and has implemented pilot-scale passive bioventing in two (2) additional areas for remediation of groundwater and destruction of LNAPL impacts. These remedial approaches focus on in-situ remediation of hydrocarbons by delivering increased oxygen to the subsurface via different mechanisms as opposed to hydraulic recovery. Biodegradation also has the added benefit of not only removing LNAPL mass but changing the chemical composition of LNAPL in the subsurface, through sparging and venting, to mitigate impact to dissolved phase groundwater conditions. The locations of the bioremediation systems are depicted on Figure E-1.

The primary objectives of these bioremediation systems include:

I. Progressing LNAPL remediation beyond what the HRS could achieve including dissolved phase risk reduction;

II. Identification of technology combinations that will be flexible across water table conditions and optimize vapor treatment;

III. Evaluation of alternative remedial approaches for hydrocarbon and LNAPL mitigation; and

IV. Support for selection and design of appropriate final remedies.

Performance of the initial pilot-scale systems was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018) and found enhanced biodegradation via all three (3) technologies (i.e., bioventing, biosparging, and AS/SVE) to be viable for remediation of groundwater and more effective at destruction of remaining LNAPL impacts than physical hydrocarbon recovery. The passive bioventing technologies implemented promote the same remedial mechanisms as active bioventing but utilize natural pressure changes between the vadose zone and surface to deliver oxygen into the vadose zone in the form of ambient air. The technologies all specifically enhance the removal rate of hydrocarbon compared to historical systems and promote compositional change to decrease concentrations of aromatic BTEX compounds at the site.

BP completed modifications to the pilot-scale bioremediation systems and technologies between 2019 to 2021 to maintain and enhance hydrocarbon remediation through

treatment of expanded site areas at the BP Main Plant Property. Installation of air injection wells, piezometers, and soil vapor monitoring points (VMPs) was initiated in 2019 and completed during First Quarter 2020. Surveying of the newly installed wells was also completed in First Quarter 2020. Installation of requisite equipment and start-up activities were completed in 2020 and 2021. Passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those area to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation.

The three (3) expansion pilot bioremediation systems continue to operate as of 2024. Any changes to the operations or configuration of the systems is documented through an annual update to Attachment C of the permit as required by Section IV.C.8 of the permit. Information presented in the following previously submitted Class 1* Permit modification requests has been incorporated into this exhibit: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024). The configuration and operation of the three pilot-scale bioremediation systems are detailed in Sections E (Central Biovent System), F (Southern Biosparge/Biovent System) and G (Northern AS/SVE System). Each section includes a timeline of operations, enhancements, and modifications for each system.

E. PILOT-SCALE CENTRAL BIOVENTING SYSTEM

A bioventing pilot test was performed to evaluate performance of this remedial approach and to quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/contaminants of concern (COCs) removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018). The pilot test finding is that bioventing is more effective at treating hydrocarbons through mass removal (biodegradation) and compositional change than physical removal of hydrocarbon.

The biovent system underwent an expansion in 2019-2020, including installation of additional biovent wells to treat a larger area to the west of the original biovent implementation area (Figure 3). Performance data from the initial pilot test was utilized in design of the expansion pilot system to more efficiently deliver oxygen into the subsurface. The monitoring network was also modified with the installation of additional piezometers and VMPs in 2019-2020. Active bioventing in six (6) biovent wells in the initial Central Biovent pilot system area was shut down in July 2020 and transitioned to passive bioventing in 2021 as part of the modifications to the current operating system. Full-time operation of the expanded Central Biovent System was initiated in April 2021.

The six (6) biovent wells from the initial biovent system area were converted to passive biovent wells by fitting one-way valves that allow ambient air into the vadose zone when

negative pressure is present in the subsurface. In April 2023, Main Plant Observation Well G050 was also fitted for passive bioventing as an IRM to address LNAPL.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-June 2020	Initial pilot wells operate with active bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
July 2020-March 2021	System shut down for completion of system expansions and electrical system upgrades.	
April 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A3BV-1A, A3BV-1B, A3BV-2A, A3BV2B, A3BV-3A, A3BV-3B, A3BV-4A, A3BV-4B, A3BV-5A, A3BV-5B, A3BV-6A, A3BV-6
December 2021- 2024 (ongoing)	Initial pilot wells used for passive bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
April 2023-2024 (ongoing)	Main Plant Observation Well used for passive bioventing.	G050

System Description

The pilot-scale biovent system equipment is designed to deliver sufficient air into the subsurface at low pressures to allow for aerobic respiration to dominate the treatment zone. Flow from a rotary vane compressor delivers air at total flow rates up to 60 standard cubic feet per minute (scfm) @ 10 pounds per square inch (psi), split into up to 12 of the 18 total biovent wells. Air from the compressor has a throttling valve, temperature indicator, check valve, and pressure indicator. The biovent process and instrumentation diagram is presented as Figure 2, and the biovent system schematic is presented as Figure 2A.

Flow from the equipment is routed through a 6-leg manifold. Each manifold leg has a flow control valve, rotameter-style flowmeter, and pressure gauge. Each manifold leg feeds up to two (2) biovent wells via aboveground piping. Each of the biovent well lateral legs has its own flow control valve and pressure indicator. Operation of each of the six (6) manifold legs is controlled with a normally closed solenoid controlled via a human machine interface (HMI) screen on an interior control panel. The system components are

plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting, heating, and ventilation).

Biovent configurations and flow rates are controlled by system valves, the Programmable Logic Controller (PLC) and HMI. The system is designed to operate up to 12 of the 18 total individual biovent points at a time in any combination. Individual point flow rates are between 1 to 20 scfm, with a combined rate of up to 60 scfm. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Biovent System Layout and Well Network

The pilot-scale biovent system layout and well network are depicted on Figure 3. The Central Biovent System remediation wells include 18 biovent wells, and performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biovent Wells: Eighteen (18) total biovent wells are present; six (6) were components of the initial system installation, and twelve (12) were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the water table under typical conditions.

Piezometers: Six (6) total piezometers were installed to monitor the shallow water table and identify LNAPL presence in the remediation areas. Piezometers supplement existing monitoring wells in the north (G99L) and south (G13L) of the expansion treatment area. One (1) additional deep monitoring well is present in the initial treatment area – A3AS-C.

Vapor Monitoring Points: A total of twenty (20) nested VMP locations are used to monitor the vadose zone to measure degradation. VMP depths are staggered to ensure granularity in measuring impacts and changing gradients. The twenty (20) nested VMPs are located at differing distances from the pilot test wells and throughout the treatment zones to allow for monitoring the influence of the system. Each location contains 3-4 nested VMPs for a total of 67 individual VMPs.

The wells comprising the Bioventing system are listed below:

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	366.19 - 361.19
A3BVS-S	A3BVS-S	25	406.27	416.27 - 406.27
A3BVS-D	A3BVS-D	35	396.20	406.20 – 396.20
A3BVNW-S	A3BVNW-S	25	406.05	416.05 – 406.05
A3BVNW-D	A3BVNW-D	35	396.11	406.11 – 396.11
A3BVNE-S	A3BVNE-S	25	406.27	416.27 – 406.27

A3BVNE-D	A3BVNE-D	35	396.28	406.28 – 396.28
A3BV-1A	A3BV-1A	32	397.77	407.77-397.77
A3BV-1B	A3BV-1B	32	397.24	407.24-397.24
A3BV-2A	A3BV-2A	32	397.72	407.72-397.72
A3BV-2B	A3BV-2B	32	397.02	407.02-397.02
A3BV-3A	A3BV-3A	32	398.35	408.35-398.35
A3BV-3B	A3BV-3B	32	399.09	409.09-399.09
A3BV-4A	A3BV-4A	32	396.96	406.96-396.96
A3BV-4B	A3BV-4B	32	397.71	407.71-397.71
A3BV-5A	A3BV-5A	32	398.58	408.58-398.58
A3BV-5B	A3BV-5B	32	398.77	408.77-398.77
A3BV-6A	A3BV-6A	32	399.35	409.35-399.35
A3BV-6B	A3BV-6B	32	399.16	409.16-399.16

Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3PZ-N	A3PZ-N	35	396.11	396.11 - 411.11
A3PZ-C	A3PZ-C	35	396.22	396.22 - 411.22
A3PZ-S	A3PZ-S	35	396.14	396.14 - 411.14
A3PZ-N2	A3PZ-N2	34	394.64	404.64-394.64
A3PZ-C2	A3PZ-C2	35	394.61	404.61-394.61
A3PZ-S2	A3PZ-S2	36	394.66	404.66-394.66

Bioventing System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A3VMPNA-10	A3VMPNA-10	10	9.5-10	0.75
A3VMPNA-20	A3VMPNA-20	20	19.5-20	0.75
A3VMPNA-24	A3VMPNA-24	24	23.5-24	0.75
A3VMPNA-28	A3VMPNA-28	28	27.5-28	0.75
A3VMPNB-15	A3VMPNB-15	15	14.5-15	0.75
A3VMPNB-22	A3VMPNB-22	22	21.5-22	0.75
A3VMPNB-26	A3VMPNB-26	26	25.5-26	0.75
A3VMPNB-30	A3VMPNB-30	30	29.5-30	0.75
A3VMPC-10	A3VMPC-10	10	9.5-10	0.75
A3VMPC-20	A3VMPC-20	20	19.5-20	0.75
A3VMPC-24	A3VMPC-24	24	23.5-24	0.75
A3VMPC-28	A3VMPC-28	28	27.5-28	0.75
A3VMPSW-10	A3VMPSW-10	10	9.5-10	0.75
A3VMPSW-20	A3VMPSW-20	20	19.5-20	0.75
A3VMPSW-24	A3VMPSW-24	24	23.5-24	0.75

A3VMPSW-28	A3VMPSW-28	28	27.5-28	0.75
A3VMPSW-15	A3VMPSW-15	15	14.5-15	0.75
A3VMPSW-22	A3VMPSW-22	22	21.5-22	0.75
A3VMPSW-26	A3VMPSW-26	26	25.5-26	0.75
A3VMPSW-30	A3VMPSW-30	30	29.5-30	0.75
A3VMPSE-10	A3VMPSE-10	10	9.5-10	0.75
A3VMPSE-20	A3VMPSE-20	20	19.5-20	0.75
A3VMPSE-24	A3VMPSE-24	24	23.5-24	0.75
A3VMPSE-28	A3VMPSE-28	28	27.5-28	0.75
A3VMPSE-15	A3VMPSE-15	15	14.5-15	0.75
A3VMPSE-22	A3VMPSE-22	22	21.5-22	0.75
A3VMPSE-26	A3VMPSE-26	26	25.5-26	0.75
A3VMPSE-30	A3VMPSE-30	30	29.5-30	0.75
A3VMP1-S	A3VMP1-S	17	16-17	0.75
A3VMP1-M	A3VMP1-M	22	21-22	0.75
A3VMP1-D	A3VMP1-D	27	26-27	0.75
A3VMP2-S	A3VMP2-S	17	16-17	0.75
A3VMP2-M	A3VMP2-M	22	21-22	0.75
A3VMP2-D	A3VMP2-D	27	26-27	0.75
A3VMP3-S	A3VMP3-S	17	16-17	0.75
A3VMP3-M	A3VMP3-M	22	21-22	0.75
A3VMP3-D	A3VMP3-D	27	26-27	0.75
A3VMP4-S	A3VMP4-S	17	16-17	0.75
A3VMP4-M	A3VMP4-M	22	21-22	0.75
A3VMP4-D	A3VMP4-D	27	26-27	0.75
A3VMP5-S	A3VMP5-S	17	16-17	0.75
A3VMP5-M	A3VMP5-M	22	21-22	0.75
A3VMP5-D	A3VMP5-D	27	26-27	0.75
A3VMP6-S	A3VMP6-S	17	16-17	0.75
A3VMP6-M	A3VMP6-M	22	21-22	0.75
A3VMP6-D	A3VMP6-D	27	26-27	0.75
A3VMP7-S	A3VMP7-S	17	16-17	0.75
A3VMP7-M	A3VMP7-M	22	21-22	0.75
A3VMP7-D	A3VMP7-D	27	26-27	0.75
A3VMP8-S	A3VMP8-S	17	16-17	0.75
A3VMP8-M	A3VMP8-M	22	21-22	0.75
A3VMP8-D	A3VMP8-D	27	26-27	0.75
A3VMP9-S	A3VMP9-S	17	16-17	0.75
A3VMP9-M	A3VMP9-M	22	21-22	0.75
A3VMP9-D	A3VMP9-D	27	26-27	0.75
A3VMP10-S	A3VMP10-S	17	16-17	0.75
A3VMP10-M	A3VMP10-M	22	21-22	0.75
A3VMP10-D	A3VMP10-D	27	26-27	0.75
A3VMP11-S	A3VMP11-S	17	16-17	0.75
A3VMP11-M	A3VMP11-M	22	21-22	0.75
A3VMP11-D	A3VMP11-D	27	26-27	0.75

A3VMP12-S	A3VMP12-S	17	16-17	0.75
A3VMP12-M	A3VMP12-M	22	21-22	0.75
A3VMP12-D	A3VMP12-D	27	26-27	0.75
A3VMP13-S	A3VMP13-S	17	16-17	0.75
A3VMP13-M	A3VMP13-M	22	21-22	0.75
A3VMP13-D	A3VMP13-D	27	26-27	0.75

Bioventing System Area Deep Monitoring Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	361.19 - 366.19

F. PILOT-SCALE SOUTHERN BIOSPARGE/BIOVENT SYSTEM

A biosparging/bioventing pilot test was performed to evaluate the performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The test was also intended to determine the efficiency of using a horizontal well for sparging, and whether this approach could potentially be used to serve as a barrier for contaminant migration in the dissolved phase. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that biosparging/bioventing is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The biosparge system was modified to treat a larger area to the north and west of the original implementation area and to include use of bioventing. When operating under the expanded bioventing scenario, flow from the existing compressor is routed through a flow amplifying air eductor and manifold to deliver air to 36 vertical biovent wells (as opposed to the original single horizontal biosparge well). The monitoring network was also expanded with the addition of piezometers and VMPs. The wells associated with the bioparge/biovent system expansion were installed in 2019-2020. Active biosparging in the horizontal well was shut down in September 2020 as part of the modifications to the current operating system. Full-time operation of the modified and expanded Southern Biosparge/Biovent System was initiated in July 2021.

In April 2023, BP Main Plant Observation Well G16L was converted to a passive biovent well by fitting a one-way valve to allow ambient air into the vadose zone when negative pressure is present in the subsurface. In December 2023, G16L was then converted to an active biovent well as part of the Pilot-Scale Southern Biosparge/Biovent System.

A timeline of system operations is provided below.

Time Period	Description	Wells

April 2017-September 2020	Initial horizontal well operates with active biosparging.	A5HBS
October 2020-June 2021	System shut down for completion of system expansions and electrical system upgrades.	
July 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A5BV-1, A5BV-2, A5BV-3, A5BV-4, A5BV-5, A5BV-6, A5BV-7, A5BV-8, A5BV-9, A5BV-10, A5BV-11, A5BV-12, A5BV-13, A5BV-14, A5BV-15, A5BV-16, A5BV-17, A5BV-18, A5BV-19, A5BV-20, A5BV-21, A5BV-22, A5BV-23, A5BV-24, A5BV-25, A5BV-26, A5BV-27, A5BV-28, A5BV-29, A5BV-30, A5BV-31, A5BV-32, A5BV-33, A5BV-34, A5BV-35
April 2023-November 2023	Main Plant Observation Well used for passive bioventing.	G16L
December 2023-2024 (ongoing)	Main Plant Observation Well used for active bioventing.	G16L

System Description

The biosparge/biovent pilot test system is designed to deliver air into the subsurface at moderate flow rates and pressure. The biosparge scenario volatizes VOCs in the saturated zone and enhances biodegradation of those impacts via inducing aerobic conditions. The biovent scenario delivers air to the vadose zone to ensure aerobic conditions are present which enhances hydrocarbon biodegradation. Flow from a compressor delivers air at flow rates up to 150 scfm at 40 psi. Air from the compressor has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. The biosparge/biovent process and instrumentation diagram is presented as Figure 4, and the biosparge/biovent process flow schematic is presented as Figure 4A.

Under the biosparge scenario, flow from the equipment is routed directly to the biosparge horizontal well with a flow control valve, flowmeter, pressure regulator, and pressure

gauge. Operation of the well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge configurations and flow rates are controlled by system valves, the pressure regulator, PLC and HMI. The system is designed to operate the biosparge well at flow rates between 30 and 150 scfm but typically operates in the range of 50 to 85 scfm total flow. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Under the biovent configuration, rather than running compressed air directly to the biosparge horizontal well, compressed air is run through an air eductor to boost flow rates up to 240 scfm at 10 psi in a manifold building with 36 manifold points. Each well on the manifold is equipped with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of each well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The manifold components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge System Layout and Well Network

The biosparge/biovent system layout and well network are depicted on Figure 5. The Biosparge Remediation Well includes the horizontal biosparge well. There are 35 biovent remediation wells in the Southern Biosparge/Biovent System area, plus the monitoring well (G16L) to which bioventing is being applied. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biosparge Horizontal Well:

One (1) horizontal biosparge well was installed for the pilot test. The biosparge well construction described below was designed to be placed at the bottom of groundwater impacts to create an oxygen curtain through which impacted water should pass. The screened portion of the well is 150 feet long and placed perpendicular to groundwater flow; the screen length allows for groundwater flow to be influenced within the targeted area even with minor temporal variations in groundwater flow.

Horizontal biosparge well construction specifications are summarized below:

I. Horizontal directional drilling methodology;
II. Installed at a depth of 45 ft-bgs;
III. Screen length of 150 feet;
IV. Riser length of 240 to 250 feet on each end of well (630 feet total length horizontally);
V. 3-inch diameter, HDPE construction;

VI. Custom slotting to uniformly sparge approximately 2 to 10 scfm per 10 horizontal feet of screen.

Biovent Wells:
Thirty-five (35) biovent wells were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the groundwater table under typical conditions. In December 2023, G16L was converted to an active biovent well, for a current total of thirty-six (36) biovent wells.

Piezometers:
A total of twenty-two (22) piezometers were installed at three different depths – fifteen (15) shallow, six (6) mid, and one (1) deep to monitor the vertical extent of impacts in the water table. In the biosparge area, seven (7) wells were installed upgradient of the biosparge well and twelve (12) wells downgradient. In the biovent area, three (3) additional piezometers supplement existing monitoring wells in the treatment area (A6MW03, G048, and G049).

Vapor Monitoring Points:
Twenty-eight (28) nested VMPs were installed to monitor the vadose zone impacts. Each set of nested points contains two (2) to three (3) depths of monitoring points to assess the vadose zone vertically for a total of 81 points. VMP placement is meant to measure influence at different depths and measure the extent of influence perpendicular from the well screen orientation.

The wells comprising the Biosparging system are listed below:

Biosparging Hydrocarbon Remediation Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5HBS*	A5HBS	45	varies*	(150 ft long)*

*Horizontal Well

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5BV-1	A5BV-1	36	395.27	405.27-395.27
A5BV-2	A5BV-2	36	396.77	406.77-396.77
A5BV-3	A5BV-3	36	396.08	406.08-396.08
A5BV-4	A5BV-4	36	395.99	405.99-395.99

A5BV-5	A5BV-5	36	395.93	405.93-395.93
A5BV-6	A5BV-6	36	394.65	404.65-394.65
A5BV-7	A5BV-7	36	395.51	405.51-395.51
A5BV-8	A5BV-8	36	NS	NS
A5BV-9	A5BV-9	36	396.53	406.53-396.53
A5BV-10	A5BV-10	36	396.45	406.45-396.45
A5BV-11	A5BV-11	36	396.33	406.33-396.33
A5BV-12	A5BV-12	36	396.32	406.32-396.32
A5BV-13	A5BV-13	34	397.05	407.05-397.05
A5BV-14	A5BV-14	36	397.62	407.62-397.62
A5BV-15	A5BV-15	36	NS	NS
A5BV-16	A5BV-16	36	NS	NS
A5BV-17	A5BV-17	36	396.39	406.39-396.39
A5BV-18	A5BV-18	36	396.38	406.38-396.38
A5BV-20	A5BV-20	36	395.21	405.21-395.21
A5BV-21	A5BV-21	36	395.26	405.26-395.23
A5BV-22	A5BV-22	36	397.00	407.00-397.00
A5BV-23	A5BV-23	38	391.95	406.95-391.95
A5BV-24	A5BV-24	41	391.75	406.75-391.75
A5BV-25	A5BV-25	41	391.38	406.38-391.38
A5BV-26	A5BV-26	36	397.40	407.40-397.40
A5BV-27	A5BV-27	38	395.68	405.68-395.68
A5BV-28	A5BV-28	38	393.43	408.43-393.43
A5BV-29	A5BV-29	38	395.04	410.04-395.04
A5BV-31	A5BV-31	38	394.73	409.73-394.73
A5BV-32	A5BV-32	33	398.32	408.32-398.32
A5BV-33	A5BV-33	34	397.61	407.61-397.61
A5BV-34	A5BV-34	38	391.53	406.53-391.53
A5BV-35	A5BV-35	38	391.48	406.48-391.48
A5BV-36	A5BV-36	38	391.65	406.65-391.65

NS – Not surveyed, in a health and safety exclusion zone during surveying.

Biosparging/Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5PZN-S	A5PZN-S	40	389.29	389.29 - 399.29
A5PZNW-S	A5PZNW-S	38	391.56	391.56 - 401.56
A5PZNW-M	A5PZNW-M	45	384.51	384.51 - 389.51
A5PZW-S	A5PZW-S	39.5	390.44	390.44 - 400.44
A5PZW-M	A5PZW-M	45	385.07	385.07 - 390.07
A5PZW-D	A5PZW-D	65	365.04	365.04 - 370.04
A5PZW-S1	A5PZW-S1	40	389.51	389.51 - 399.51
A5PZW-S2	A5PZW-S2	40	389.85	389.85 - 399.85

A5PZSW-S	A5PZSW-S	40	389.82	389.82 - 399.82
A5PZSW-M	A5PZSW-M	45	384.86	384.86 - 389.86
A5PZNE-S	A5PZNE-S	40	389.51	389.51 - 399.51
A5PZNE-M	A5PZNE-M	45	384.51	384.51 - 389.51
A5PZE-S1	A5PZE-S1	40	389.93	389.93 - 399.93
A5PZE-S2	A5PZE-S2	40	390.72	390.72 - 400.72
A5PZE-M	A5PZE-M	45	384.62	384.62 - 389.62
A5PZSE-S	A5PZSE-S	40	389.79	389.79 - 399.79
A5PZSE-M	A5PZSE-M	45	384.71	384.71 - 389.71
A5PZS-S1	A5PZS-S1	40	389.51	389.51 - 399.51
A5PZS-S2	A5PZS-S2	40	389.90	389.90 - 399.90
A5PZ-1	A5PZ-1	40	392.47	402.47-392.47
A5PZ-2	A5PZ-2	40	391.59	401.59-391.59
A5PZ-3	A5PZ-3	40	NS	NS

Biosparging System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A5VMPNW-S	A5VMPNW-S	10	9.5-10	0.75
A5VMPNW-M	A5VMPNW-M	20	19.5-20	0.75
A5VMPNW-D	A5VMPNW-D	25	24.5-25	0.75
A5VMPSW-S	A5VMPSW-S	10	9.5-10	0.75
A5VMPSW-M	A5VMPSW-M	20	19.5-20	0.75
A5VMPSW-D	A5VMPSW-D	25	24.5-25	0.75
A5VMPW-S	A5VMPW-S	10	9.5-10	0.75
A5VMPW-M	A5VMPW-M	20	19.5-20	0.75
A5VMPW-D	A5VMPW-D	25	24.5-25	0.75
A5VMPE-S	A5VMPE-S	10	9.5-10	0.75
A5VMPE-M	A5VMPE-M	20	19.5-20	0.75
A5VMPE-D	A5VMPE-D	25	24.5-25	0.75
A5VMP1-S	A5VMP1-S	23	22-23	0.75
A5VMP1-M	A5VMP1-M	28	27-28	0.75
A5VMP2-S	A5VMP2-S	23	22-23	0.75
A5VMP2-M	A5VMP2-M	28	27-28	0.75
A5VMP2-D	A5VMP2-D	33	32-33	0.75
A5VMP3-S	A5VMP3-S	22	21-22	0.75
A5VMP3-M	A5VMP3-M	27	26-27	0.75
A5VMP3-D	A5VMP3-D	32	31-32	0.75
A5VMP4-S	A5VMP4-S	22	21-22	0.75
A5VMP4-M	A5VMP4-M	29	28-29	0.75
A5VMP4-D	A5VMP4-D	33	32-33	0.75
A5VMP5-S	A5VMP5-S	23	22-23	0.75
A5VMP5-M	A5VMP5-M	28	27-28	0.75
A5VMP6-S	A5VMP6-S	21	20-21	0.75

A5VMP6-M	A5VMP6-M	26	25-26	0.75
A5VMP6-D	A5VMP6-D	31	30-31	0.75
A5VMP7-S	A5VMP7-S	21	20-21	0.75
A5VMP7-M	A5VMP7-M	26	25-26	0.75
A5VMP7-D	A5VMP7-D	31	30-31	0.75
A5VMP8-S	A5VMP8-S	22	21-22	0.75
A5VMP8-M	A5VMP8-M	27	26-27	0.75
A5VMP8-D	A5VMP8-D	32	31-32	0.75
A5VMP9-S	A5VMP9-S	20	19-20	0.75
A5VMP9-M	A5VMP9-M	25	24-25	0.75
A5VMP10-S	A5VMP10-S	20	19-20	0.75
A5VMP10-M	A5VMP10-M	25	24-25	0.75
A5VMP10-D	A5VMP10-D	30	29-30	0.75
A5VMP11-S	A5VMP11-S	22	21-22	0.75
A5VMP11-M	A5VMP11-M	27	26-27	0.75
A5VMP11-D	A5VMP11-D	32	31-32	0.75
A5VMP12-S	A5VMP12-S	22	21-22	0.75
A5VMP12-M	A5VMP12-M	27	26-27	0.75
A5VMP12-D	A5VMP12-D	32	31-32	0.75
A5VMP13-S	A5VMP13-S	22	21-22	0.75
A5VMP13-M	A5VMP13-M	27	26-27	0.75
A5VMP13-D	A5VMP13-D	32	31-32	0.75
A5VMP14-S	A5VMP14-S	22	21-22	0.75
A5VMP14-M	A5VMP14-M	27	26-27	0.75
A5VMP14-D	A5VMP14-D	32	31-32	0.75
A5VMP15-S	A5VMP15-S	22	21-22	0.75
A5VMP15-M	A5VMP15-M	27	26-27	0.75
A5VMP15-D	A5VMP15-D	32	31-32	0.75
A5VMP16-S	A5VMP16-S	22	21-22	0.75
A5VMP16-M	A5VMP16-M	27	26-27	0.75
A5VMP16-D	A5VMP16-D	32	31-32	0.75
A5VMP17-S	A5VMP17-S	22	21-22	0.75
A5VMP17-M	A5VMP17-M	27	26-27	0.75
A5VMP17-D	A5VMP17-D	32	31-32	0.75
A5VMP18-S	A5VMP18-S	22	21-22	0.75
A5VMP18-M	A5VMP18-M	27	26-27	0.75
A5VMP18-D	A5VMP18-D	32	31-32	0.75
A5VMP19-S	A5VMP19-S	22	21-22	0.75
A5VMP19-M	A5VMP19-M	27	26-27	0.75
A5VMP19-D	A5VMP19-D	32	31-32	0.75
A5VMP20-S	A5VMP20-S	24	23-24	0.75
A5VMP20-M	A5VMP20-M	28	27-28	0.75
A5VMP20-D	A5VMP20-D	32	31-32	0.75
A5VMP21-S	A5VMP21-S	22	21-22	0.75
A5VMP21-M	A5VMP21-M	27	26-27	0.75
A5VMP21-D	A5VMP21-D	32	31-32	0.75

A5VMP22-S	A5VMP22-S	22	21-22	0.75
A5VMP22-M	A5VMP22-M	27	26-27	0.75
A5VMP22-D	A5VMP22-D	35	34-35	0.75
A5VMP23-S	A5VMP23-S	22	21-22	0.75
A5VMP23-M	A5VMP23-M	27	26-27	0.75
A5VMP23-D	A5VMP23-D	32	31-32	0.75
A5VMP24-S	A5VMP24-S	23	22-23	0.75
A5VMP24-M	A5VMP24-M	28	27-28	0.75
A5VMP24-D	A5VMP24-D	32	31-32	0.75

G. PILOT-SCALE AIR SPARGE / SOIL VAPOR EXTRACTION (AS/SVE) SYSTEM

An AS/SVE pilot test was performed to evaluate performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The AS/SVE test is evaluating the combined effects air sparging below the water table for stripping of contaminants and enhancing aerobic biodegradation in the vadose zone and below the water table via introduction of ambient air. SVE is specifically utilized when biodegradation is insufficient to control the VOCs in soil gas during sparging or bioventing. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that AS/SVE is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The AS/SVE extraction system was modified to treat a larger area to the south, east, and west of the original AS/SVE pilot test area. This included installation of additional air sparge and soil vapor extraction wells. To treat the additional loading, a catalytic oxidizer is being used for the treatment of off-gases, a change from the previous granular activated carbon off-gas treatment system. The monitoring network was also modified with the addition of piezometers and VMPs. All of the expansion wells were installed in 2019-2020. The initial AS/SVE pilot system was shut down in July 2020 as part of the modifications to the current operating system. Full-time operation of the expanded AS/SVE System was initiated in December 2020.

The four SVE wells and four shallow piezometers from the initial AS/SVE system area were converted to passive biovent wells in December 2021 by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface.

A timeline of system operations is provided below.

Time Period	Description	Wells
June 2017-July 2020	Initial pilot wells operate AS/SVE with granular	A8AS-N, A8AS-W, A8AS-E, A8AS-S, A8AS-C, A8SVE-NW, A8SVE-

	activated carbon (GAC) off-gas treatment.	NE, A8SVESW, A8SVE-SE
August 2020- November 2020	System shut down for completion of system expansions and electrical system upgrades.	
December 2020- 2024 (ongoing)	Expansion system wells operate AS/SVE with catalytic oxidizer off-gas treatment.	A8AS-1A, A8AS-1B, A8AS-1C, A8AS-2A, A8AS-2B, A8AS-2C, A8AS-3A, A8AS-3B, A8AS-3C, A8AS-4A, A8AS-4B, A8AS-4C, A8AS-5A, A8AS-5B, A8AS-5C, A8SVE-1A, A8SVE-1B, A8SVE-2A, A8SVE-2B, A8SVE-3A, A8SVE-3B
October 2022-2024 (ongoing)	Initial pilot SVE wells and shallow piezometers used for passive bioventing.	A8SVE-NW, A8SVE-NE, A8SVE-SW, A8SVE-SE, A8PZS-S, A8PZN-S, A8PZNE-S, A8PZSW-S

System Description

The AS/SVE pilot test system is designed to deliver air into the subsurface and capture resultant vapors. Flow from the AS compressor delivers air at total flow rates up to 150 scfm at 50 psi, split into up to fifteen (15) of the twenty (20) AS wells. Air from the blower has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 inches of water column (iw), split among up to six (6) of the ten (10) SVE wells. Vapors collected from the blower pass through throttling valves, a moisture knockout tank, dilution valve, vacuum gauges, and particulate filter prior to entering the blower. After exiting the blower discharged vapors pass through a flow meter, pressure gauge, and temperature gauge prior to passing through a heat exchanger and catalytic oxidizer prior to discharging through a stack. The off-gas treatment via a catalytic oxidizer was installed in the third quarter of 2020 and is a change from granular activated carbon treatment utilized during initial pilot test operation.

Condensate collected in the moisture separator is drained via an automated pumping system to a condensate holding tank within the enclosure. This condensate is periodically pumped out manually and discharged to the catch basin in the wash down pad for entry into the site groundwater treatment system. The AS/SVE process and instrumentation plan is presented as Figure 6, and the AS/SVE system schematic is presented as Figure 6A.

AS flow is routed through a five (5)-point manifold and split to reach up to fifteen (15) of the twenty (20) AS wells. Each manifold leg has a solenoid valve, flow control valve, rotameter-style flowmeter, and pressure gauge. SVE flow is collected through a four (4)-point manifold to up to six (6) of the ten (10) SVE wells. Each manifold leg has a flow control valve, pilot-tube flowmeter, and vacuum gauge.

The system components are plumbed in a modular/mobile enclosure with interior/exterior lighting and environmental controls (e.g. heating and ventilation). Operational controls for the system include programmed/automated controls in the form of a PLC with HMI, individual equipment components, and automated operation of the process control valves. The gas flow capacities of the AS/SVE system are controlled by the air compressor and the SVE blower. AS compressor flow rates to the individual air sparge wells are between 1 and 30 scfm, with a combined rate of up to 150 scfm at 50 psi. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 iw, split among the SVE wells. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

AS/SVE System Layout and Well Network

The AS/SVE system layout and well network are depicted on Figure 7. The Remediation Wells include twenty (20) AS wells and ten (10) SVE wells. At any given time, up to fifteen (15) AS wells and six (6) SVE wells can be active; the active Remediation Wells can be configured based on the capacity of the equipment and manifold listed above. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Air Sparge Wells: Twenty (20) AS wells were installed in the treatment areas. The AS wells were installed to the full depth of groundwater impacts.

SVE Wells: Ten (10) SVE wells were installed to capture vapors created by the AS wells. The wells were placed to cover the AS well layout to ensure capture of any generated vapors.

Piezometers: A total of sixteen (16) piezometers were installed at three different depths - shallow, mid, and deep to monitor the full extent of impacts in groundwater. In the expansion area, the piezometers supplement existing monitoring wells in the treatment area (G85L and G86L). In June 2023, R85L, R85D, and R85A were installed to replace G85L, which was plugged and abandoned in November 2023.

Vapor Monitoring Points: Seventeen (17) nested VMPs were installed to monitor the vadose zone impacts. Each nested point contains three depths of monitoring points to assess the full vadose zone vertically, for a total of fifty-one (51) total VMPs.

The wells comprising the AS/SVE system are listed below:

Active AS/SVE Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8AS-N	A8AS-N	50	390.49	395.49 – 390.49
A8AS-W	A8AS-W	50	390.51	395.51 – 390.51
A8AS-C	A8AS-C	50	390.74	395.74 – 390.74
A8AS-E	A8AS-E	45	395.59	400.59 – 395.59
A8AS-S	A8AS-S	45	395.71	400.71 – 395.71
A8SVE-NW	A8SVE-NW	35	405.55	415.55 – 405.55
A8SVE-NE	A8SVE-NE	35	405.49	415.49 – 405.49
A8SVE-SW	A8SVE-SW	35	405.71	415.71 – 405.71
A8SVE-SE	A8SVE-SE	35	405.64	415.64 – 405.64
A8AS-1A	A8AS-1A	67	373.53	378.53-373.53
A8AS-1B	A8AS-1B	67	373.57	378.57-373.57
A8-AS-1C	A8-AS-1C	70	369.62	374.62-369.62
A8AS-2A	A8AS-2A	67	373.28	378.28-373.28
A8AS-2B	A8AS-2B	67	372.67	377.67-372.67
A8AS-2C	A8AS-2C	70	369.06	374.06-369.06
A8-AS-3A	A8-AS-3A	65	375.59	380.59-375.59
A8AS-3B	A8AS-3B	67	372.66	377.66-372.66
A8-AS-3C	A8-AS-3C	70	368.98	373.98-368.98
A8-AS-4A	A8-AS-4A	65	376.67	381.67-376.67
A8-AS-4B	A8-AS-4B	65	375.83	380.83-375.83
A8-AS-4C	A8-AS-4C	65	375.25	380.25-375.25
A8-AS-5A	A8-AS-5A	65	376.87	381.87-376.87
A8-AS-5B	A8-AS-5B	65	376.71	381.71-376.71
A8-AS-5C	A8-AS-5C	65	376.10	381.10-376.10
A8SVE-1A	A8SVE-1A	25	415.27	425.27-415.27
A8SVE-1B	A8SVE-1B	25	411.49	421.49-411.49
A8SVE-2A	A8SVE-2A	25	415.73	425.73-415.73
A8SVE-2B	A8SVE-2B	25	413.82	423.82-413.82
A8SVE-3A	A8SVE-3A	25	416.91	426.91-416.91
A8SVE-3B	A8SVE-3B	25	416.31	426.31-416.31

AS/SVE System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8PZN-S	A8PZN-S	30	410.88	410.88 - 420.88
A8PZN-M	A8PZN-M	40	400.78	400.78 - 405.78
A8PZN-D	A8PZN-D	45	395.70	395.70 - 400.70
A8PZNW-S	A8PZNW-S	30	410.56	410.56 - 420.56
A8PZNW-M	A8PZNW-M	40	400.57	400.57 - 405.57
A8PZNW-D	A8PZNW-D	45	395.63	395.63 - 400.63

A8PZSE-S	A8PZSE-S	30	410.77	410.77 - 420.77
A8PZSE-M	A8PZSE-M	40	400.76	400.76 - 405.76
A8PZSE-D	A8PZSE-D	45	395.71	395.71 - 400.71
A8PZS-S	A8PZS-S	30	410.66	410.66 - 420.66
A8PZS-M	A8PZS-M	40	400.62	400.62 - 405.62
A8PZS-D	A8PZS-D	45	395.61	395.61 - 400.61
A8PZ-C	A8PZ-C	52	387.85	397.85-387.85
A8PZ-SE	A8PZ-SE	45	396.18	406.18-396.18
A8PZ-NE	A8PZ-NE	50	391.82	401.82-391.82
A8PZ-SW	A8PZ-SW	49	387.30	397.30-387.30

AS/SVE System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A8VMPN-S	A8VMPN-S	10	9.5-10	0.75
A8VMPN-M	A8VMPN-M	20	19.5-20	0.75
A8VMPN-D	A8VMPN-D	25	24.5-25	0.75
A8VMPNE-S	A8VMPNE-S	10	9.5-10	0.75
A8VMPNE-M	A8VMPNE-M	20	19.5-20	0.75
A8VMPNE-D	A8VMPNE-D	25	24.5-25	0.75
A8VMPS-S	A8VMPS-S	10	9.5-10	0.75
A8VMPS-M	A8VMPS-M	20	19.5-20	0.75
A8VMPS-D	A8VMPS-D	25	24.5-25	0.75
A8VMPSW-S	A8VMPSW-S	10	9.5-10	0.75
A8VMPSW-M	A8VMPSW-M	20	19.5-20	0.75
A8VMPSW-D	A8VMPSW-D	25	24.5-25	0.75
A8VMP1-S	A8VMP1-S	5	4-5	0.75
A8VMP1-M	A8VMP1-M	15	14-15	0.75
A8VMP1-D	A8VMP1-D	25	24-25	0.75
A8VMP2-S	A8VMP2-S	5	4-5	0.75
A8VMP2-M	A8VMP2-M	15	14-15	0.75
A8VMP2-D	A8VMP2-D	25	24-25	0.75
A8VMP3-S	A8VMP3-S	5	4-5	0.75
A8VMP3-M	A8VMP3-M	15	14-15	0.75
A8VMP3-D	A8VMP3-D	25	24-25	0.75
A8VMP4-S	A8VMP4-S	5	4-5	0.75
A8VMP4-M	A8VMP4-M	15	14-15	0.75
A8VMP4-D	A8VMP4-D	25	24-25	0.75
A8VMP5-S	A8VMP5-S	5	4-5	0.75
A8VMP5-M	A8VMP5-M	15	14-15	0.75
A8VMP5-D	A8VMP5-D	25	24-25	0.75
A8VMP6-S	A8VMP6-S	5	4-5	0.75
A8VMP6-M	A8VMP6-M	15	14-15	0.75
A8VMP6-D	A8VMP6-D	25	24-25	0.75

A8VMP7-S	A8VMP7-S	5	4-5	0.75
A8VMP7-M	A8VMP7-M	15	14-15	0.75
A8VMP7-D	A8VMP7-D	25	24-25	0.75
A8VMP8-S	A8VMP8-S	5	4-5	0.75
A8VMP8-M	A8VMP8-M	15	14-15	0.75
A8VMP8-D	A8VMP8-D	25	24-25	0.75
A8VMP9-S	A8VMP9-S	5	4-5	0.75
A8VMP9-M	A8VMP9-M	15	14-15	0.75
A8VMP9-D	A8VMP9-D	25	24-25	0.75
A8VMP10-S	A8VMP10-S	5	4-5	0.75
A8VMP10-M	A8VMP10-M	15	14-15	0.75
A8VMP10-D	A8VMP10-D	25	24-25	0.75
A8VMP11-S	A8VMP11-S	5	4-5	0.75
A8VMP11-M	A8VMP11-M	15	14-15	0.75
A8VMP11-D	A8VMP11-D	25	24-25	0.75
A8VMP12-S	A8VMP12-S	5	4-5	0.75
A8VMP12-M	A8VMP12-M	15	14-15	0.75
A8VMP12-D	A8VMP12-D	25	24-25	0.75
A8VMP13-S	A8VMP13-S	5	4-5	0.75
A8VMP13-M	A8VMP13-M	15	14-15	0.75
A8VMP13-D	A8VMP13-D	25	24-25	0.75

Figures to Attachment E:

E-1 -- Site Plan
E-2 -- Process and Instrumentation Plan – Central Biovent System
E-2A- Process Flow Schematic Central Biovent Area
E-3 – Area 3 Biovent Expansion
E-4 -- Process and Instrumentation Plan – Southern Biosparge System
E-4A-Process Flow Schematic Southern Biosparge/Biovent Area
E-5 – Area 5 Biosparge/ Biovent System Area
E-6 – Process and Instrumentation Plan – Air Sparge/SVE System
E-6A-Process Flow Schematic Northern AS/SVE Area
E-7 – Northern Air Sparge/ Soil Vapor Extraction System Area

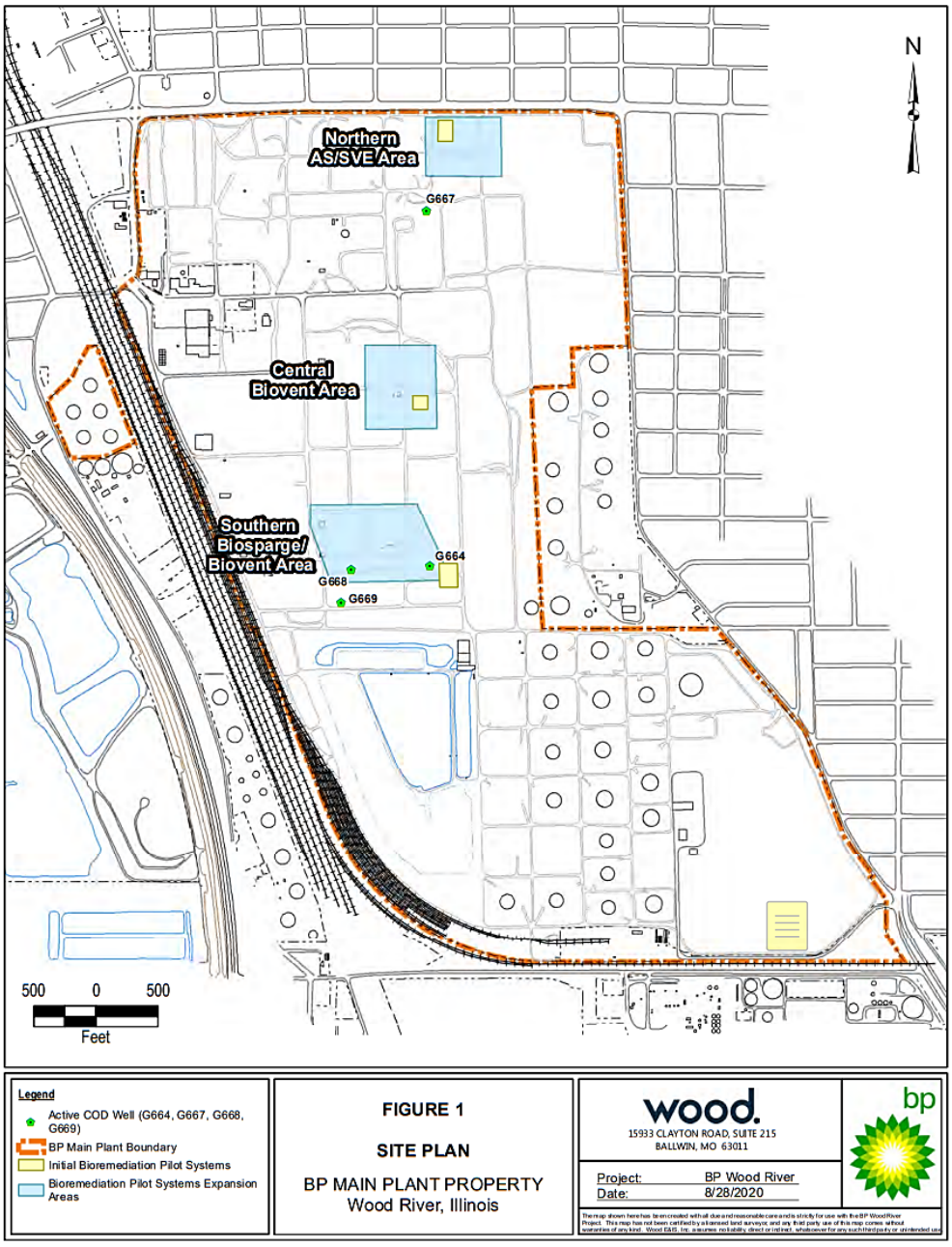


Figure E-1 -- Site Plan

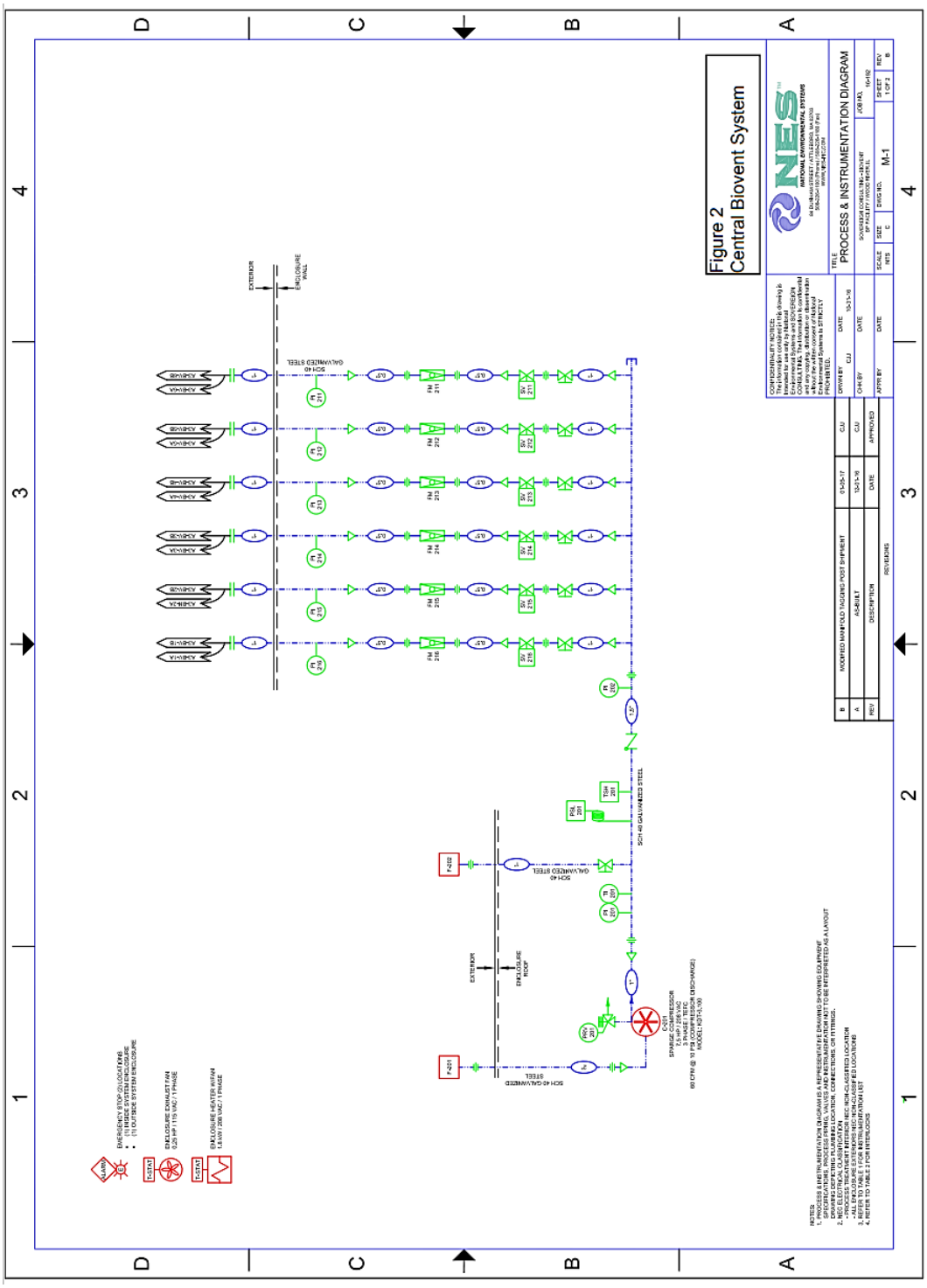


Figure E-2 -- Process and Instrumentation Plan – Central Biovent System

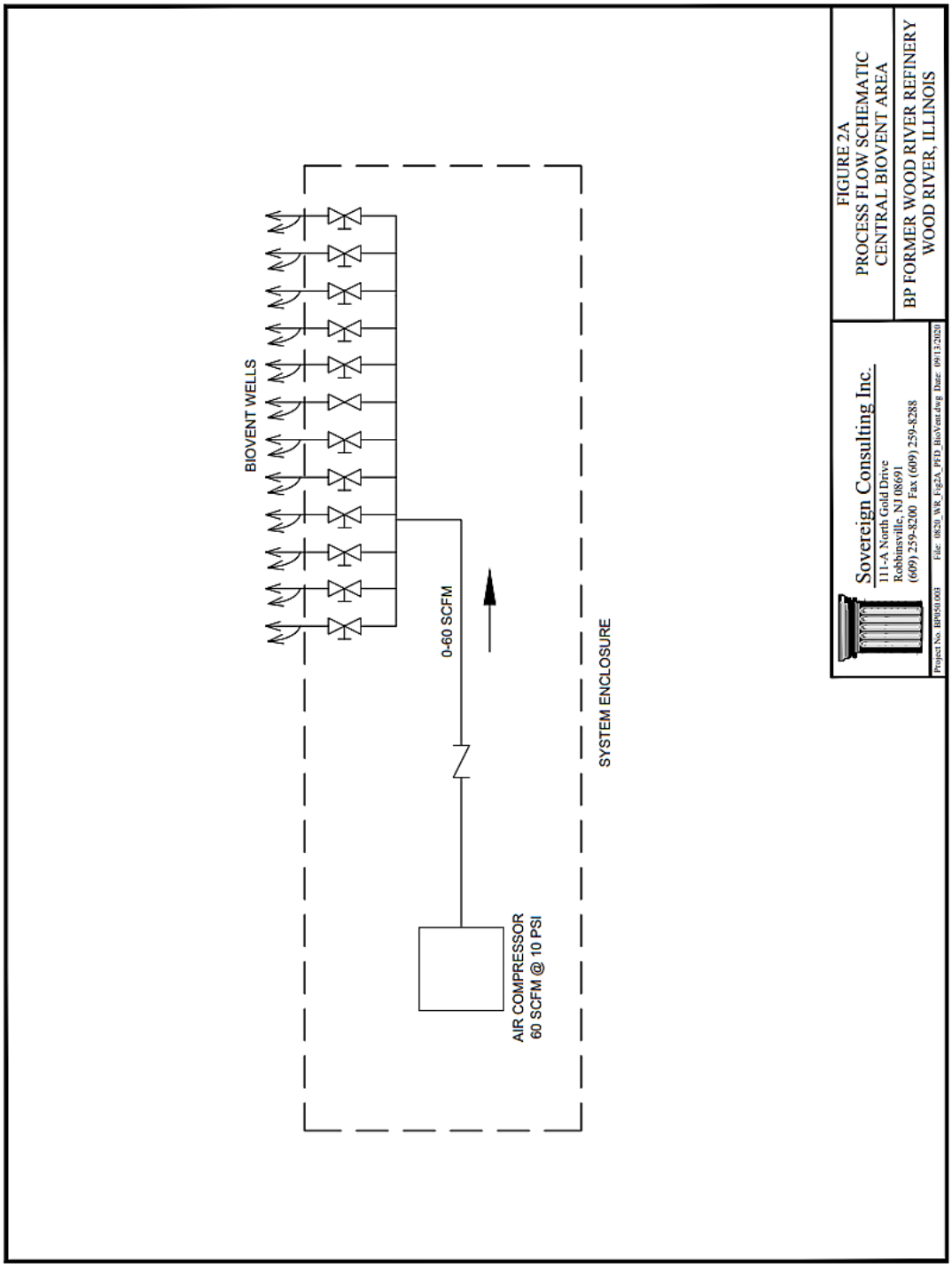


Figure E-2A- Process Flow Schematic Central Biovent Area

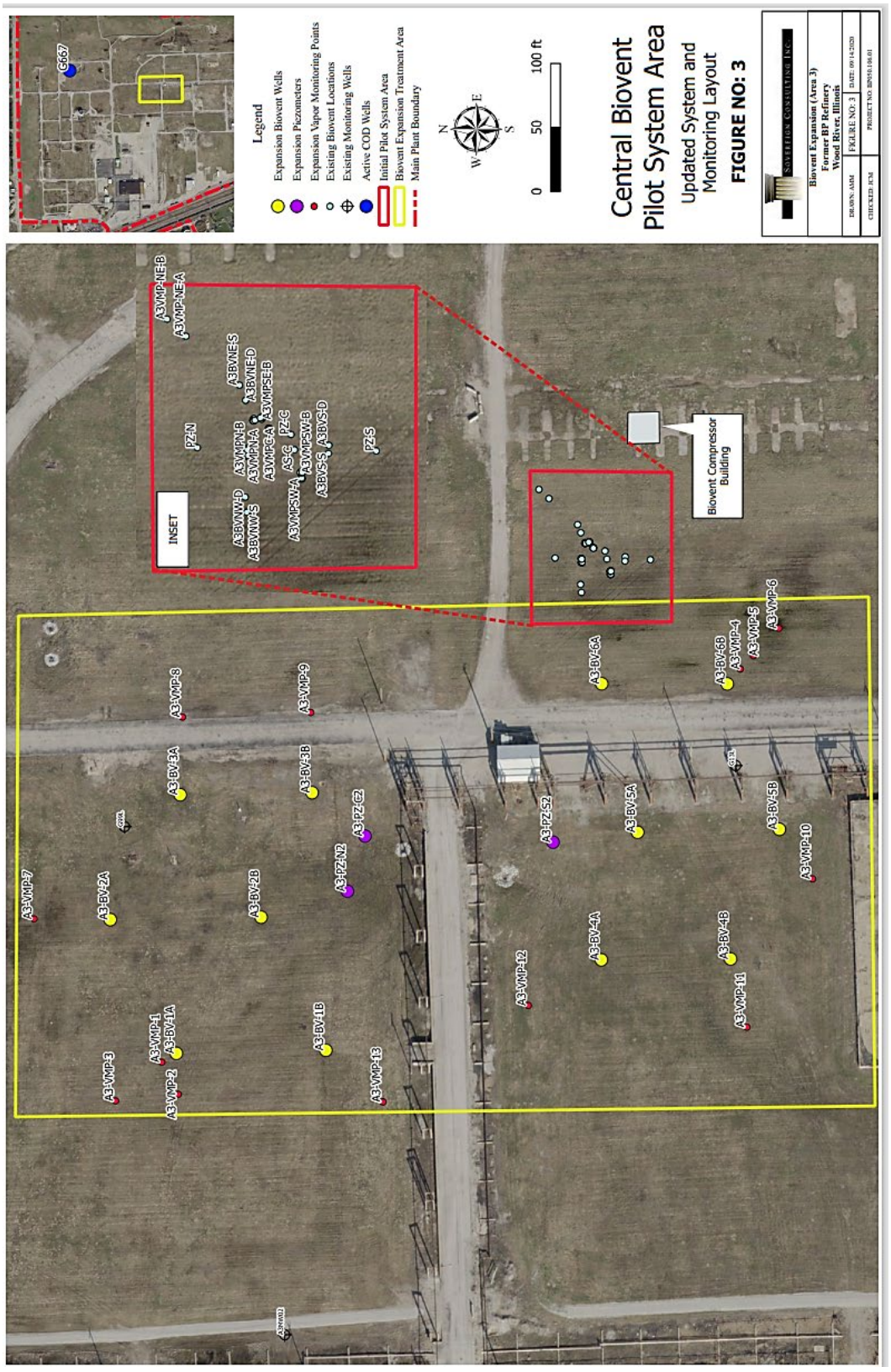


Figure E-3 – Area 3 Biovent Expansion

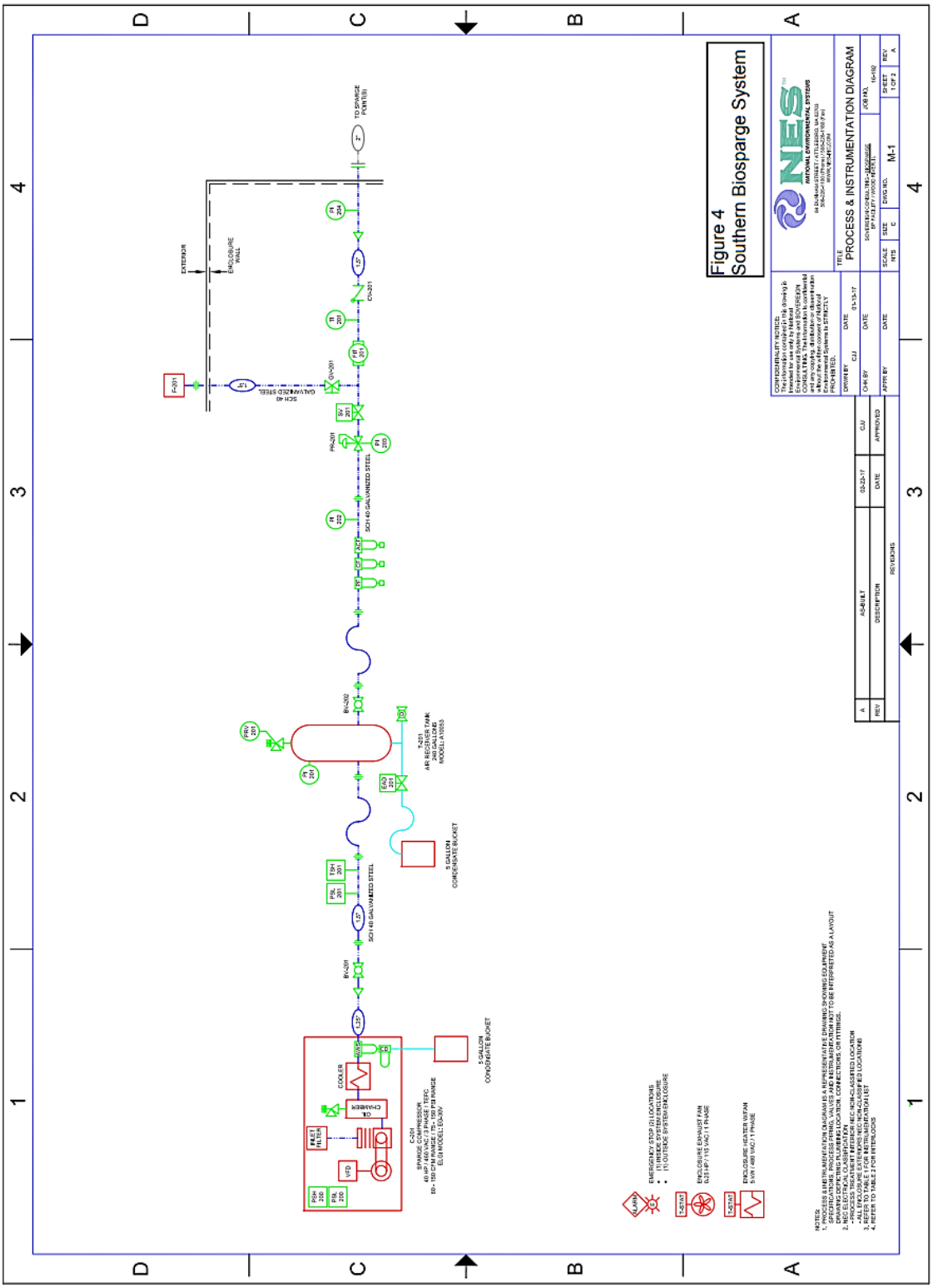


Figure E-4 -- Process and Instrumentation Plan – Southern Biosparge System

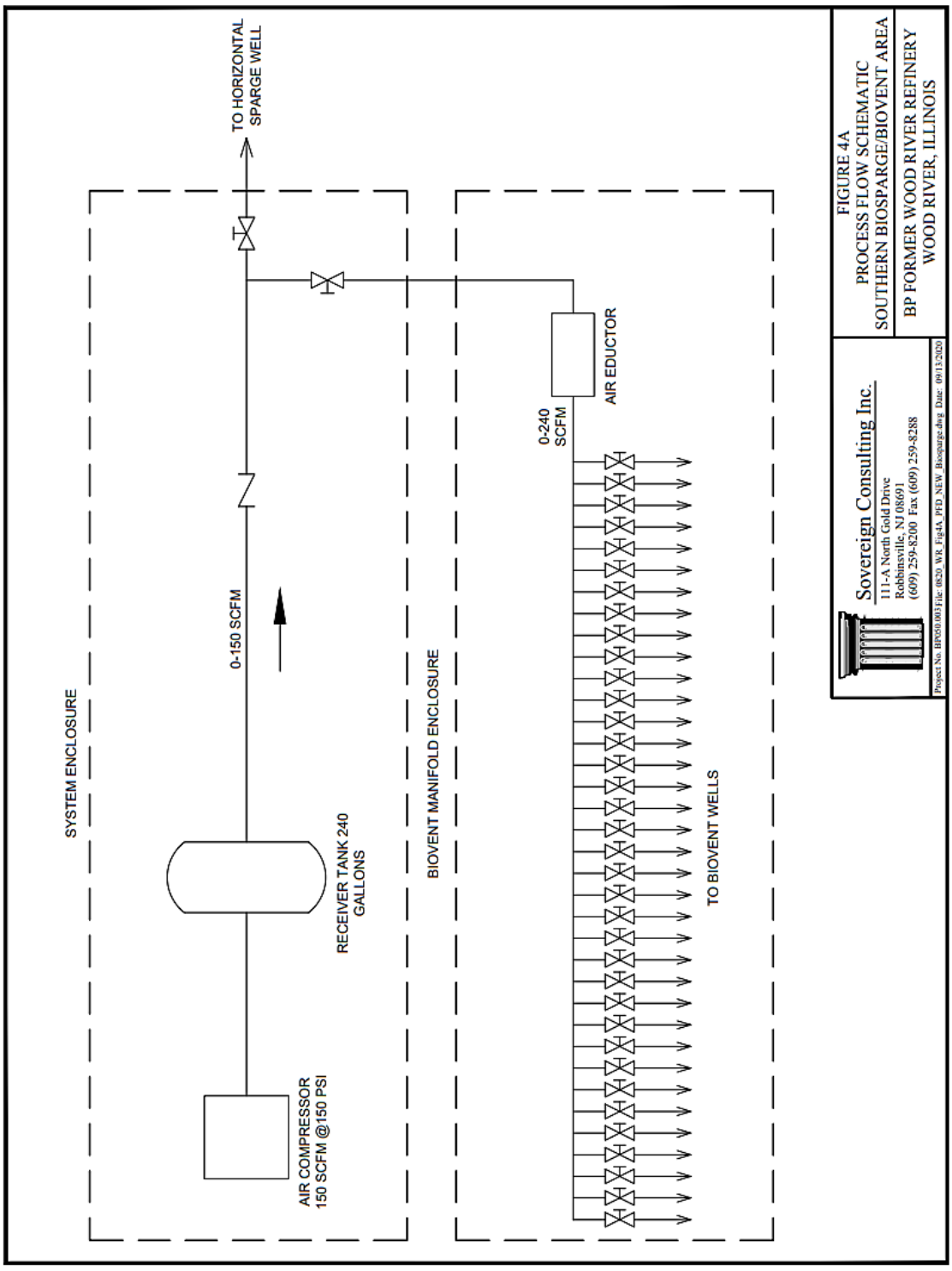


Figure E-4A-Process Flow Schematic Southern Biosparge/Biovent Area

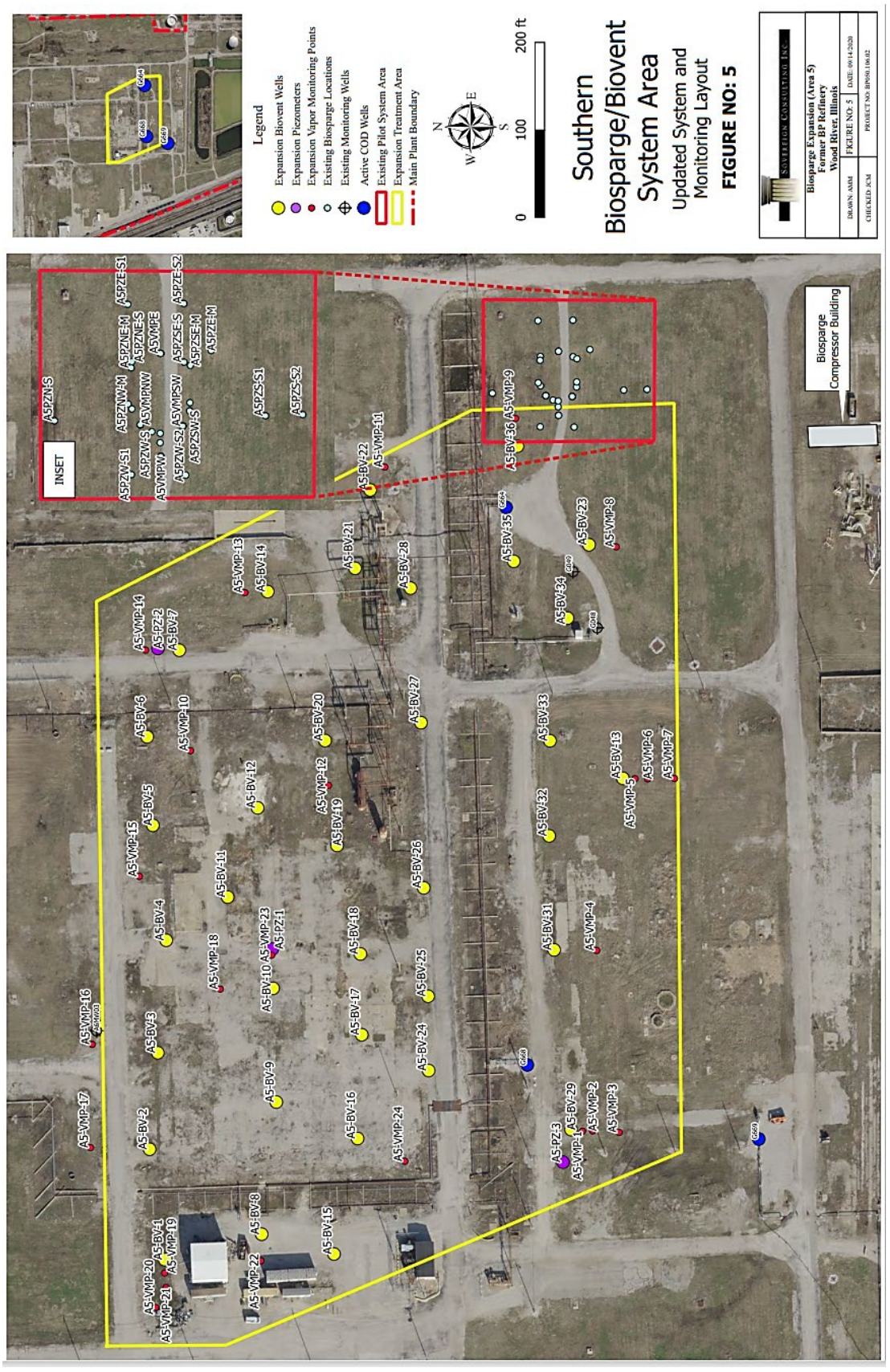

Legend
Expansion Biovent Wells
Expansion Piezometers
Expansion Vapor Monitoring Points
Existing Biosparge Locations
Existing Monitoring Wells
Active COD Wells
Existing Pilot System Area
Expansion Treatment Area
Main Plant Boundary
N
E
S
W
0
100
200 ft
Southern Biosparge/Biovent System Area
Updated System and Monitoring Layout
FIGURE NO: 5
Biosparge Expansion (Area 5)
Former BP Refinery
Wood River, Illinois
DRAWN: AMM
FIGURE NO: 5
DATE: 09/14/2020
CHECKED: JCM
PROJECT NO: BP050.106.02
INSET
Biosparge Compressor Building

Figure E-5 – Area 5 Biosparge/ Biovent System Area

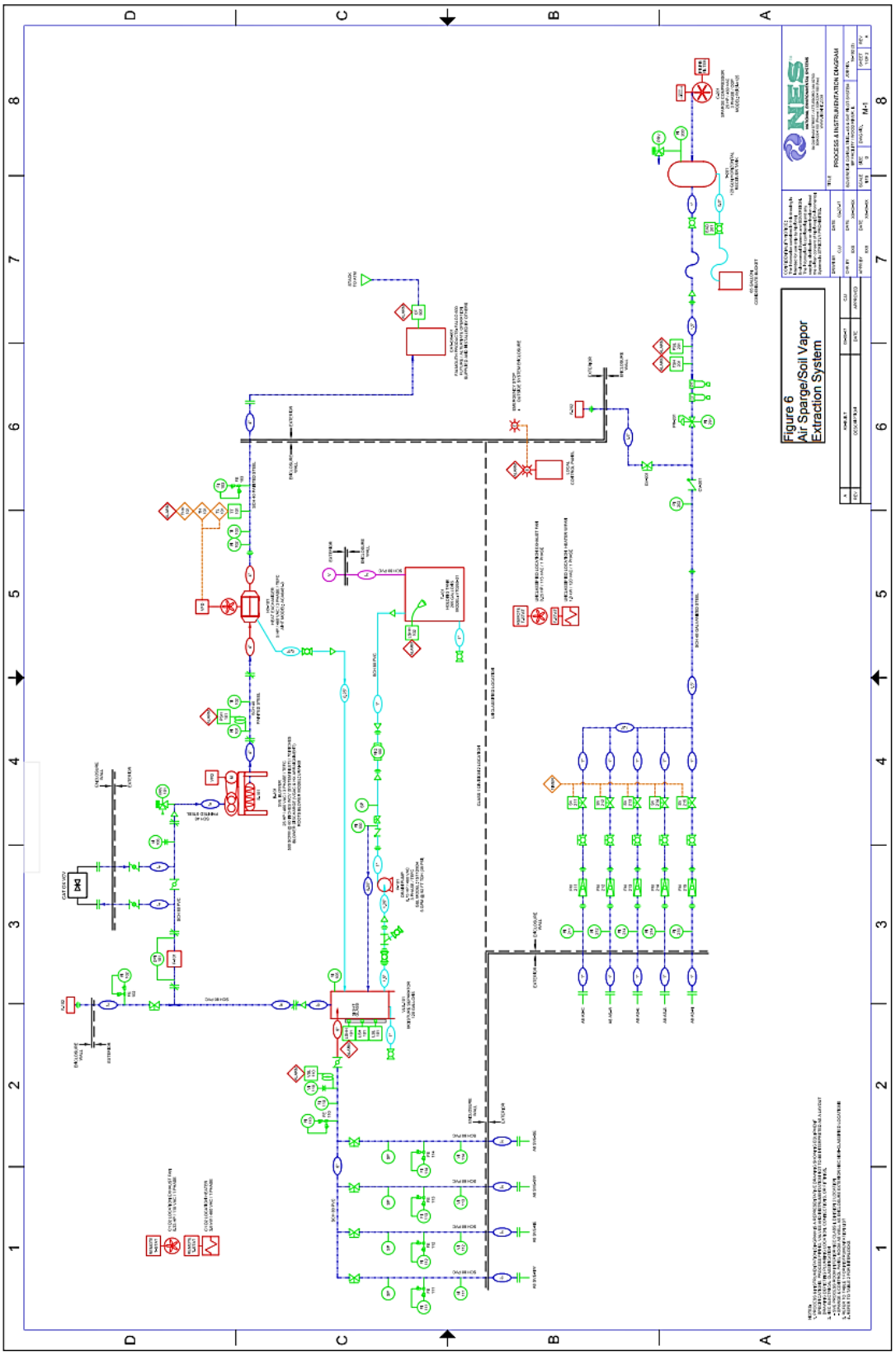


Figure E-6 – Process and Instrumentation Plan – Air Sparge/SVE System

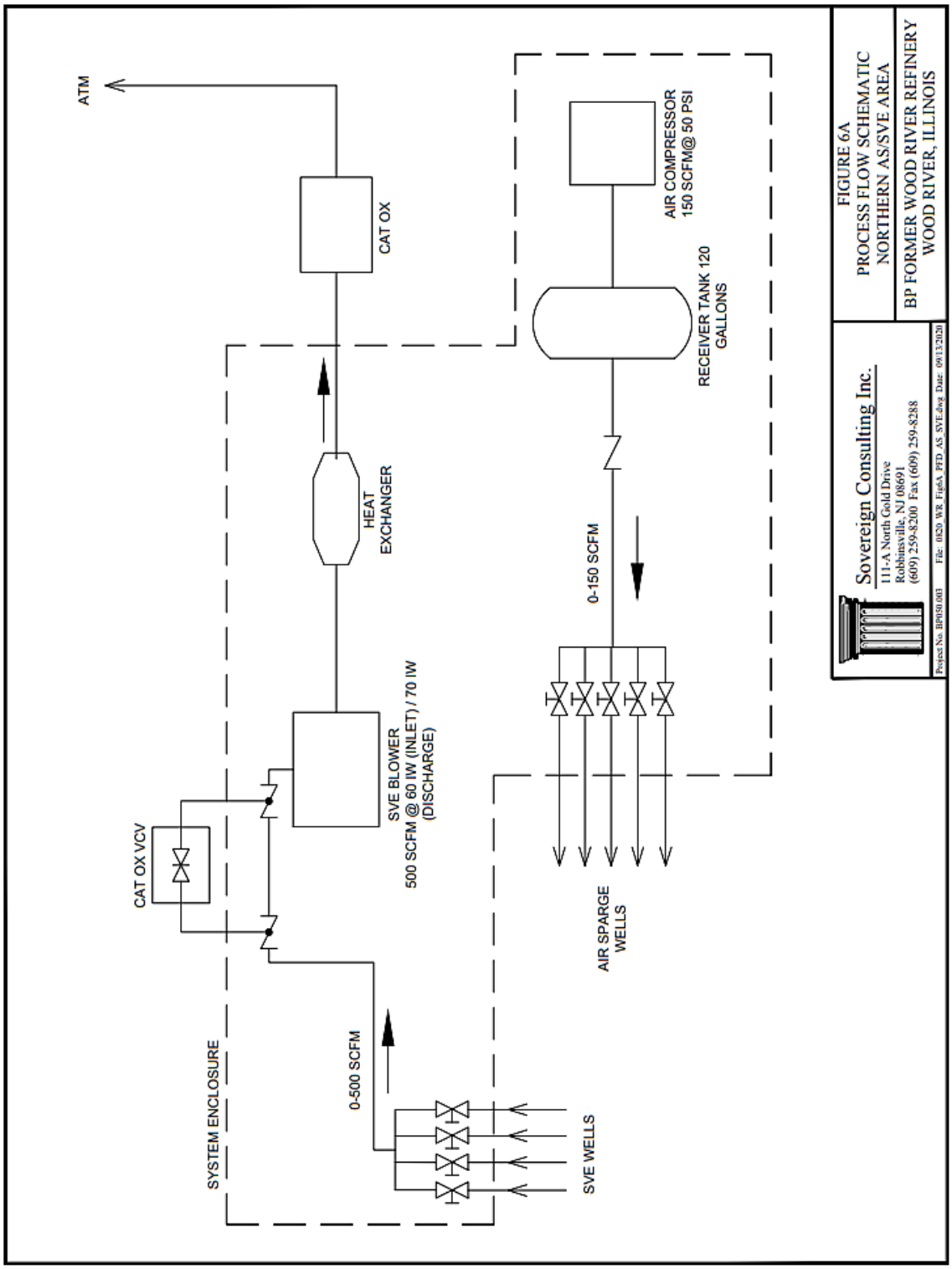


Figure E-6A-Process Flow Schematic Northern AS/SVE Area

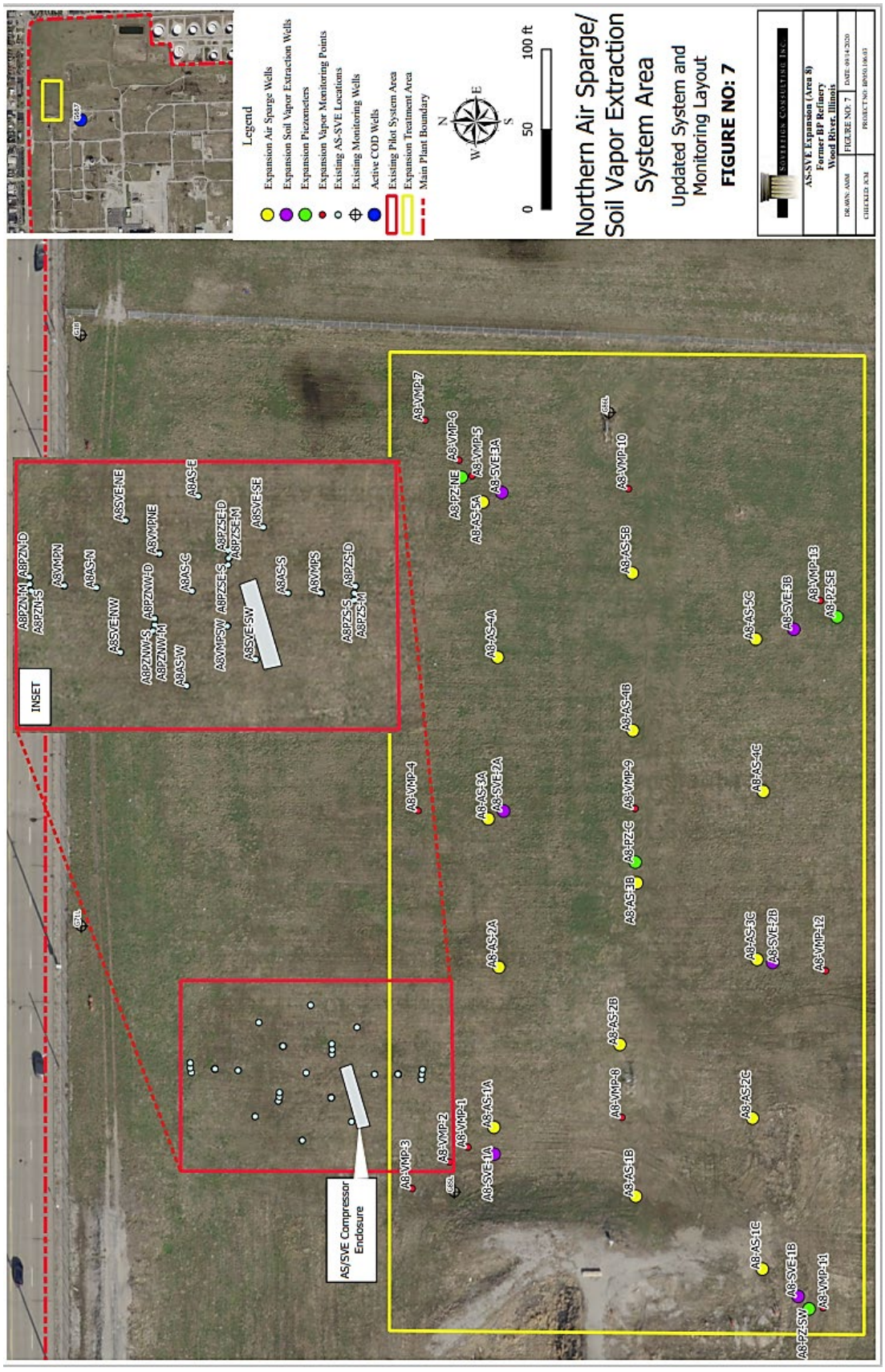


Figure E-7 – Northern Air Sparge/ Soil Vapor Extraction System Area

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

Facility Well ID	IEPA Well ID	Northing	Easting
G-01R	G002	2315679.6730	798263.3670
B-5D	G005	2320442.8070	794103.4080
B-6	G006	2321445.3990	792326.8380
B-8D	G008	2318701.1380	794139.4760
B-9	G009	2317504.0380	797808.5810
C-1	G011	2316145.9890	798128.1810
C-3	G013	2315486.7910	797313.6600
C-6	G016	2315568.4280	796545.3270
C-7	G017	2316068.8140	796709.5230
C-10	G020	2316846.4770	796084.5010
C-11	G021	2316032.8980	795553.1050
C-13	G023	2316726.7590	794627.7530
G-5	G045	2319331.7120	798107.7350
G-6	G046	2319352.1710	797717.7080
G-8	G048	2317665.9870	794905.3140
G-9	G049	2317730.1180	794933.0350
B-4R	G04R	2319383.4870	796886.7270
G-10	G050	2316647.7000	797276.8380
G-15	G055	2319304.5810	798579.1090
G-17	G057	2314016.8910	797192.5450
G18	G058	2313697.9150	797669.3160
G-19	G059	2314720.3470	796603.7740
G-22	G062	2316138.2830	798781.4700
G-24	G064	2317405.0010	798759.2780
G-25	G065	2318431.6080	798763.5760
G-27	G067	2317282.7860	798854.8410
G-28	G068	2317437.6450	798858.2920
G-33	G073	2316629.9380	798762.8210
G-39	G079	2314655.5710	796217.3950
G-42	G082	2315061.8680	796341.7040
G32R	G084	2315809.4730	798824.7170
G-26R	G085	2319412.1830	797888.5090
H-20	G10L	2318428.6930	796675.2540
SWMU12-MW02	G111	2321150.8470	792075.9720
G-H1	G112	2320408.7820	792141.5070
G128	G128	2321505.0490	791869.4520

H-23	G13L	2317555.5600	796223.3910
H-24	G14L	2318100.0690	796149.0410
Facility Well ID	**IEPA Well ID**	**Northing**	**Easting**
H-26A	G16L	2317933.9290	795414.3950
H-28	G18	2318392.0710	798666.2510
H-29	G19	2317302.5480	798664.2160
C-12R	G22R	2316821.8910	795303.2200
RP-1	G301	2318950.2690	793678.5400
RP-3D	G303	2317187.1060	793125.3120
RP-4D	G304	2316844.8760	794402.4720
RP-5	G305	2317182.2120	794484.3180
RP-6	G306	2317650.7810	794478.4090
RP-7D	G307	2318033.2090	794439.6030
H-30R	G30R	2316949.7660	798660.8350
H-31R	G31R	2316452.9700	798645.6100
H32R	G32R	2315452.6910	797881.6690
H-33	G33	2315831.1310	795895.8320
H-34	G34	2317227.4270	795061.9100
H-37	G37	2319887.0480	791941.2110
H-39	G39	2318294.9450	793276.9050
B-17	G417	2317985.3380	796482.1650
G-5B	G5B	2319331.6770	798112.5710
RC-1	G601	2317016.0710	797966.4900
RC-2	G602	2317021.1740	797306.8430
RC-3	G603	2317054.1820	796580.3380
RC-4	G604	2316673.2710	797256.1700
RC-5	G605	2317658.7670	794911.5820
RC-6	G606	2316366.9220	798334.8220
RC-7	G607	2316841.2620	798360.1430
RC-8	G608	2317174.6960	798373.7870
RC-9	G609	2317389.3470	798157.0880
RC-10	G610	2317589.3950	798369.7090
RC-11	G611	2317919.3640	798321.7330
RC-12	G612	2318326.6020	798335.2680
RC-13	G613	2317136.7880	795587.8480
RC-14	G614	2317659.8050	795257.5300
RC-15	G615	2317812.4390	795006.7230
RC-16	G616	2316988.7800	795311.7320
RC-17	G617	2316517.6020	797774.1780
RC-18	G618	2316620.1360	797976.4530
RC-19	G619	2316679.6860	798115.2650

RC-20	G620	2316673.3790	797366.0800
RC-H-29	G629	2317403.7210	798663.8640
G-29R	G69R	2317835.9950	798880.4770
Facility Well ID	**IEPA Well ID**	**Northing**	**Easting**
G-31	G71L	2318022.9480	798666.1450
G-34	G74L	2318878.5220	798776.9620
G-35	G75L	2318335.5340	798849.9300
G-36	G76L	2318005.7010	798852.2200
G-37	G77L	2317535.8570	798767.0950
H-3	G83L	2316856.7180	798243.9080
H-4	G84L	2317395.0430	798262.1620
H-6	G86L	2318343.7720	798335.5420
H-7	G87L	2315843.9780	797583.0780
H-9	G89L	2316801.1780	797725.1370
M-1D	G91	2320805.0380	793634.6680
H-11	G91L	2318078.0000	797797.7740
M-2D	G92	2320963.8860	793234.9600
H-12	G92L	2318520.0740	797772.2940
M-3D	G93L	2321139.3660	792810.7060
H-16	G96L	2318043.8500	797261.2130
H-17	G97L	2318509.0470	797205.0340
H-18	G98L	2315593.1660	796997.6950
H-19	G99L	2317507.8130	796699.9450
H-31B	H31B	2316448.2440	798648.0050
G-2D	R042	2319932.2010	793607.1120
G-23R	R063	2317101.3500	798768.1600
G-4DR	R083	2320117.5960	792916.8810
H-21R	R11L	2316250.0960	796182.4280
RP-2D	R302	2318146.3020	792164.0310
H36R	RG36	2318906.9170	796630.9950

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

In order to determine the impacts and potential impacts to potable water supply wells from soil, soil gas, or groundwater contamination, 35 IAC 1600, Subpart B establishes the minimum standards and requirements for performing water well surveys to ensure these wells are accurately identified and located. All Solid Waste permitted facilities, RCRA permitted facilities, and facilities pursuing RCRA closure, where exceedances of the applicable 35 IAC Part 620 groundwater quality standards (or in the case of RCRA closure, 35 IAC Part 742, Tier 1 groundwater remediation objectives), have the potential to impact potable water supply wells, must determine the existence and location of potable water supply wells as described in 35 IAC Part 1600 and this procedure. This procedure applies to projects that require the location of potable water wells to be identified as part of site investigation, corrective action activities, or Right to Know evaluation.

In order to meet these requirements, the facility in question must submit maps that identify the following:

1. All private, semi-private and non-community water system wells located at the property where the release occurred or within 200 feet of the property boundary where the release occurred;

2. All community water system wells located at the property where the release occurred or within 2,500 feet of the property boundary where the release occurred; and

3. All wellhead protection areas in which all or any portion of the property where the release occurred is located within that zone or area.

The facility must submit verification that all of the below sources have been investigated and the water well survey data (electronic, paper or physical) from these sources have been included on the map. This information shall be obtained from the following sources:

- Illinois State Geological Survey
- Illinois State Water Survey
- Illinois EPA Division of Public Water Supplies
- Illinois Department of Public Health
- County and Municipal Health Departments
- Local water supply entity (i.e., public water districts, public water supply companies), if data is not included in the previous listed sources.

If it is determined that groundwater contamination exceedances of the applicable 35 IAC Part 620, groundwater quality standards (or in the case of RCRA closure the 35 IAC Part 742, Tier 1,

groundwater remediation objectives), are measured or modeled to migrate off-site, the area of the water well survey must be expanded based on the measured and/or modeled groundwater plume.

NOTE: If contamination at a remediation site cannot be modeled due to geological constraints (i.e. bedrock), the information requested above shall be collected inside a survey area to be determined by the Illinois EPA on a site-by-site basis.

Documentation of the results of the water well survey or the expanded water well survey, must include the following information:

- Map(s) to appropriate scale showing the location of community water supply wells, potable water supply wells, and all applicable wellhead protection areas of the wells identified in the survey. The location of the measured and modeled contamination plume shall also be shown on the map(s) if the measured or modeled plume extends off-site.

- Tables of potable water supply wells and their respective wellhead protection areas.

- Narrative to supplement the map(s) and table(s) identified above. This includes the person(s) contacted as part of the survey, that person's title, sources of information used, field observations, etc.

- Certification by a Licensed Professional Engineer or Licensed Professional Geologist that the entities listed above have been contacted as part of the well survey and the information obtained is included in the map(s), table(s) and narrative.

When data sources as identified above do not appear to have adequately identified the location of potable wells or site-specific conditions warrant, additional investigation may be required. Such conditions include, but are not limited to:

- The local water supply entity does not bill a residence/business located within the search area, and the other record searches do not show a potable well on the property; or

- The water well survey does not appear to identify an accurate number of potable wells for the area when the locational information is compared to aerial photography or local zoning maps which identify residential and commercial structures.

The additional investigation must include, at a minimum, notification in the form of written communication to properties within the water well survey area and may include a physical well survey (e.g. face-to-face interviews with property owners, a reconnaissance survey looking for wellheads, etc.)

DOCUMENT 30

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397

JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

217/524-3301

APR 29 2025

Certified Mail
Return Receipt Requested
9589 0710 5270 0389 7040 84

BP Products North America, Inc.
Attn: Ms. Michelle Knapp
Liability Manager
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

IEPA - Division of Records Management
Releasable
MAY 09 2025
Reviewer: SAB

Re: 1191150001 -- Madison County
BP Products North American Inc./Main Plant
ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Permit Approval

Dear Ms. Knapp:

Enclosed is a final Resource Conservation and Recovery Act (RCRA) corrective action permit. The final permit decision is based on the administrative record contained in the Illinois EPA's files. The contents of the administrative record are described in Title 35 Illinois Administrative Code (IAC) 705.211.

Please read the permit carefully. Failure to meet any portion of the permit could result in civil and/or criminal penalties. The only comments received on the draft RCRA corrective action permit were from BP Products North American Inc./Main Plant (BP). The Illinois EPA's responses to BP's comments are attached to this letter.

This action shall constitute the Illinois EPA's final action on the subject submittal. The applicant may appeal this final decision to the Illinois Pollution Control Board pursuant to Section 40 of the Environment Protection Act (Act) by filing a petition for a hearing within 35 days after the date of issuance of the final decision. However, the 35-day period may be extended for a period of time not to exceed 90 days by written notice from the applicant and the Illinois EPA within the initial 35-day appeal period. If the owner or operator wishes to receive a 90-day extension, a written request that includes a statement of the date the final decision was received, along with a copy of this decision, must be sent to the Illinois EPA as soon as possible.

For information regarding the request for an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
2520 West Iles Avenue
Post Office Box 19276
Springfield, IL 62794-9276
217/782 5544

For information regarding the filing of an appeal, please contact:

Illinois Pollution Control Board
60 East Van Buren St., Suite 630
Chicago, IL 60605-1241
312/814-3620

For questions regarding the groundwater portions of the permit, contact Shawntay Dial by phone at 217/558-0177 or by email at Shawntay.Dial@Illinois.gov. For all other questions concerning this permit, please contact Omar Faruk, E.I.T by phone at 217/557-9764 or by email at Omar.Faruk@illinois.gov.

Sincerely,

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:OF:1191150001-RCRA-B147R2-Approval.docx
OF TNH AMB SDD

Attachments: 1. Illinois EPA's Response to Comments
2. RCRA Corrective Action Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Emily Keener, U.S. EPA – Region V
Michelle Knapp, BP Products North America, Inc
Michael Hoffman, WSP USA Environment & Infrastructure, Inc
Starlet S. Wright, Sovereign Consulting, Inc.

ILLINOIS EPA'S RESPONSE TO COMMENTS
BP Products North America Inc. – Main Plant
Draft Hazardous Waste Management RCRA Corrective Action Permit
Dated September 30, 2024

ILLINOIS EPA'S RESPONSE TO COMMENTS
BP Products North America Inc. – Main Plant
Draft Hazardous Waste Management RCRA Corrective Action Permit
Dated September 30, 2024 (Log No. B-147R2)

The Illinois EPA's responses below address comments from BP Products North America Inc. (BP) received by Illinois EPA on November 14, 2024 pertaining to the draft RCRA Corrective Action permit for BP issued on September 30, 2024. Note that italicized language on each comment, paraphrases the comments by BP (which is refer to as "bp" in its comment).

Comment 1: Fact Sheet I:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
The original RCRA permit issued to the facility in 1993 (Log No B-147) required post-closure care for the two hazardous waste management units, North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP), and also corrective action for any Solid Waste Management Units (SWMUs) at the facility under the requirements of 35 IAC 724.201. This permit was renewed in 2011 (Log No. B-147R), which also required a site-wide corrective action under 35 IAC 724.201. As the corrective action requirements were still not met at the facility, any remaining corrective action must still be addressed though the final RCRA corrective action permit. In addition, as described in Condition I.C.1 of the final RCRA corrective action permit, even though there are no regulated Hazardous Waste Management Units (HWMUs) operating or requiring closure/post-closure care, "the application of the other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site". As the corrective action has not been completed at the facility, the corrective action requirements and obligations under 35 AC 724.201 are applicable at this facility. The Condition remains unchanged. Please also see Comment 3. However, the Fact Sheet will not be included as a part of the final permit.

Comment 2: Fact Sheet IV.A:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1.

Comment 3: Fact Sheet IV.B:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
RCRA corrective action activities required in Section II of the final RCRA corrective action permit, as well as Section IV of the previous RCRA permit (Log No. B-147R), have been conducted in accordance with 35 IAC 724.201, not under 35 IAC 724.200 since the regulated units were approved for closure by removal. Section V (Groundwater Corrective Action Program) in the previous RCRA permit historically referenced 35 IAC 724.192 through 200 (Log No. B-147R) as the two hazardous waste management units (NC-SP1and SFP) previously required post-closure care. Under the final RCRA corrective action permit, as BP indicated in its comments, the former hazardous waste units were closed in accordance with the requirements of 35 IAC 724 Subpart G. In accordance with 35 IAC 724.210(c), it is appropriate to address remaining groundwater contamination from the former regulated units as well as from other SWMUs/Areas of Concern (AOCs) under corrective action section requirements in accordance with 35 IAC 724.201 as no other closure or post-closure care requirements remain for the two units. Condition IV.B remains unchanged. Please also refer to response to the Comment 1.

Comment 4: Fact Sheet IV.B.a:
Please revise hazardous waste constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA- 85 and 89).

ILLINOIS EPA RESPONSE
The hazardous waste constituent list and footnotes have been updated to reflect changes in the Fact Sheet. However, the Fact Sheet will not be included as a part of the final RCRA corrective action permit.

Comment 5: Fact Sheet IV.C:
As noted in Condition I.C.1 of the draft permit, Illinois EPA should revise this language in the Fact Sheet to clarify that some standard conditions are not applicable to this facility.

ILLINOIS EPA RESPONSE
The standard conditions are standard for all RCRA corrective action permits. However, if any of these conditions aren't applicable to BP, the corresponding requirements are not applicable. Circumstances may arise where regulations that

were not applicable at the time of issuing permit, becomes applicable at a later time. Condition I.C.1 remains unchanged.

Comment 6: Fact Sheet V.B:
Please revise the Water Pollution Control Permit No. to align with the current permit issued by Illinois EPA on September 16, 2024.

ILLINOIS EPA RESPONSE
Water Pollution Control Permit No. has been revised from "2020-EP-64994" to "2024-EP-71491" in the Fact Sheet.

Comment 7: Section I General Facility Description, Condition I.B.2.c:
Please revise to align with removal of the Area 2 Donation parcel I- Stormwater Detention Basin (9.56 acres) and the Kinder Morgan Phoenix holdings (KMPH) parcel (118.25 acres).

ILLINOIS EPA RESPONSE
The Second sentence of Condition I.B.2.c has been revised from "7.5" acres to "127.81" acres and from "Condition I.B.2.a (2)" to "Conditions I.B.2.a (1) and (3)".

Comment 8: Section I General Facility Description, Condition I.B.2.d:
Please revise to align with removal of only the KMPH parcel (118.25 acres).

ILLINOIS EPA RESPONSE
The Second sentence of Condition I.B.2.d, 2nd sentence has been revised from "17.06" acres to "118.25" acres and from "Conditions I.B.2.a (1) and (2)" to "Condition I.B.2.a (3)".

Comment 9: Section I General Facility Description, Condition I.C.1:
Please revise to include closure and post-closure care (35 IAC 724, Subpart G), financial (35 IAC 724, Subpart H), and 35 IAC 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit) in the list of requirements that are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.

ILLINOIS EPA RESPONSE
For 35 IAC 724, Subpart G, closure and post-closure care cannot be excluded until such time the Correction Action requirements under this subpart are fully completed and it is determined that the requirements of Subpart G are no longer required for any hazardous constituents for this site.

For 35 IAC 724, Subpart H, financial requirements cannot be excluded because the assurances of financial responsibility are required in accordance with 35 IAC 724.201.

For Subpart H of 35 IAC Part 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit), since this final RCRA corrective action permit is a RCRA corrective action permit, 35 IAC Part 727 does not need to be considered in the context of the RCRA permit renewal. The Condition I.C.1 remains unchanged.

Comment 10: Section I General Facility Description, Condition, Condition I.C.3.b:
Please revise to reflect that a certified ELUC for the South Flare Pit (SFP) was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit.
Please correct the reference to the condition with Groundwater Requirements for the SFP.

ILLINOIS EPA RESPONSE
This comment is acknowledged. The proposed language has been incorporated into the final RCRA Correction Action permit.

The Second Paragraph of Condition I.3.b has been corrected from "Condition II.C.5" to "Condition II.C.4".

Comment 11: Section II Corrective Action, Condition II.A.1:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.A.1 remains unchanged.

Comment 12: Section II Corrective Action, Condition II.A.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.A.4 remains unchanged.

Comment 13: Section II Corrective Action, Condition II.A.6:
bp does not agree with the requirement to investigate NFA parcels for TACO Part 742. bp completed all regulatory requirements for closure that were in place when the NFA determinations were made and issued by Illinois EPA. bp requests removal of the requirement to reinvestigate parcels with NFA letters.

ILLINOIS EPA RESPONSE
According to 3004(u) of RCRA and 35 IAC 724.201, the obligations for the corrective actions associated with any releases of any hazardous waste or hazardous waste constituents from SWMUs at the facility still applies. The facility must institute corrective action as necessary to adequately protect human health and the environment for all releases of hazardous waste or constituents at the facility. As the facility is still under the obligation of the RCRA corrective action requirements and indoor inhalation is a potential concern at the facility, it is necessary for the facility to evaluate for indoor inhalation exposure route based on the current regulations and standards to protect human health and the environment.

Comment 14: Section II Corrective Action, Condition II.A.15:
bp does not agree that the Illinois EPA has the right to withdraw any NFA. Please remove this clause.

ILLINOIS EPA RESPONSE
The comment has been noted; however, if there is a risk to human health and environment present, the Illinois EPA has an authority to require additional investigation and remediation, as necessary, to meet the requirements of Section 3004 (u) and (v) of RCRA, 35 IAC 724.201, and 35 IAC Part 742 in accordance with Condition II.A.4 and II.A.6. The Illinois EPA has revised the condition II.A.15 as follows:

Based on the results of the investigative efforts, additional investigation and remediation, as necessary, may be required at any SWMUs or AOC to protect human health and the environment to meet the remedial objectives in accordance with 35 IAC Part 742.

Comment 15: Section II Corrective Action, Condition II.A.16:
bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit. In addition, any guidance regarding what is intended by this language would be helpful.

ILLINOIS EPA RESPONSE
The U.S. Environmental Protection Agency (USEPA) issued a memorandum on February 6, 2024, titled "Integrating Climate Change Adaptation Considerations

into the Resource Conservation and Recovery Act Corrective Action Process" and another memorandum on June 5, 2024, titled "Implementing Climate Resilience in Hazardous Waste Permitting under RCRA". These documents are attached to this Illinois EPA Response to Comments. As an authorized state of RCRA corrective action, Illinois EPA has an obligation to implement such recommended action by USEPA, and this language is being incorporated into the Corrective Action Section of all newly renewed RCRA permits. Therefore, for example, any corrective measures and remedial actions associated with increased volume or intensity of precipitation, groundwater level fluctuations due to changes in the river surface water level, or extreme low and high temperature, etc., should be considered into the design and evaluation, as necessary.

Comment 16: Section II Corrective Action, Condition II.B.4:
bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.

ILLINOIS EPA RESPONSE
Condition II.B.4 is included to be consistent with the requirements of 35 IAC 724.201(c) and 3004(v) of RCRA.

Comment 17: Section II Corrective Action, Condition II.B.6:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Conditions II.B.6 remains unchanged.

Comment 18: Section II Corrective Action, Condition II.B.8.e:
Please correct the reference as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made to the final RCRA corrective action permit.

Comment 19: Section II Corrective Action, Condition II.C.1, Area 7 Accomplishments as of Date:
Please correct the date range for the environmental data submitted in March 2024.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made from "2018-2019" to "2017-2018" in the final RCRA corrective action permit.

Comment 20: Section II Corrective Action, Condition II.C.1, Area 8 Accomplishments as of Date:
Please correct the date range for the environmental data submitted in March 2024.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been made from "2018-2019" to "2017-2018" in the final RCRA corrective action permit.

Comment 21: Section II Corrective Action, Condition II.C.1, Area 9 Accomplishments as of Date:
Please revise to include the August 23, 2023, Corrective Action Modification request submitted by bp and approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated into the final RCRA corrective action permit.

Comment 22: Section II Corrective Action, Condition II.C.1, Area 9 Current Status:
Please revise to include the reporting requirements related to the Corrective Action Modification request approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated into the final RCRA corrective action permit.

Comment 23: Section II Corrective Action, Condition II.C.1, Area 13 Accomplishments as of Date:
bp did not submit an Area 13 report on March 12, 2024. Please revise to reference the March 8, 2024, bp submittal of additional environmental data collected in 2017-2019.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 24: Section II Corrective Action, Condition II.C.1, Area 14 Current Status:
Please revise to align with the Current Status language for other Land Reuse Areas requiring a revised Land Reuse Investigation (LRI) Report pending further discussion with Illinois EPA.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 25: Section II Corrective Action, Condition II.C.1, Area 18 Current Status:
Please replace period with a comma for clarity.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective action permit.

Comment 26: Section II Corrective Action, Area 15 NFA and Media:
Please revise to reflect that the November 19, 2003, Illinois EPA letter included a NFA determination for perched groundwater based on the following:

- *Condition 8.a: "The groundwater with the Parcel must still be addressed in accordance with Section V of the RCRA Part B Permit and all subsequent permit modifications.*
- *Condition 8.b.: "...Therefore, no further action is required with response to the groundwater at the parcel except as required by Condition 8.a. above."*

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the change has been incorporated into the final RCRA corrective Action permit.

Comment 27: Section II Corrective Action, Condition II.C.5.b (2) and (3):
After the 2013 TACO Part 724 effective date, Illinois EPA issued a NFA letter dated August 22, 2016, for the indoor air inhalation exposure route for Area 2 Donation Parcel II – Police Station, requesting new PINs for Donation Parcel II & the bp Retained Parcel and a draft ELUC for Donation Parcel II requiring: a) basement with concrete wall & floors; b) concrete slab on grade; or c) combo of a & b; and draft revised ELUC for the bp Retained Parcel. bp submitted draft ELUCs to the Illinois EPA on March 29, 2017. Illinois EPA approved the draft ELUCs in letters dated April 21, 2017, and May 4, 2017. bp submitted the Certified ELUCs to Illinois EPA in a letter dated June 21, 2017, then resubmitted both Certified ELUCs in a letter dated May 1, 2024, following Illinois EPA notification that the June 21, 2017, submittal was lost.

No further action is required by bp on Donation Parcel II – Police Station due to having the Illinois EPA approved ELUC already in place which addresses indoor air inhalation. Additionally, this parcel is no longer owned by bp, it is also no longer part of the RCRA permit, so it is not appropriate to include in permit conditions.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition II.C.5.b (2) has been removed from the permit condition, as this subsection pertains to the Summary of Corrective Action Efforts Completed. Condition II.C.5.b (3) has also been revised and incorporated into the previous Condition II.C.5.b (4), now renumbered as Condition II.C.5.b (2), as follows:

The Illinois EPA issued a NFA letter on August 22, 2016 regarding the indoor air inhalation exposure route for the second donation parcel. The Illinois EPA approved a draft Environmental Land Use Control (ELUC) for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above in addition to restrictions required by Illinois EPA's August 22, 2016 letter discussed in Condition II.C.5.b (3) above.

Regarding the Illinois EPA notification comment dated May 1, 2024, concerning the June 21, 2017 submittal which included a certified ELUC, later it has been determined that the subject certified ELUC was reviewed and approved as a permit modification, as required under Log No. B-147R-M-16, dated August 9, 2017.

Comment 28: Section II Corrective Action, Condition II.C.5.b(4):
Please revise to clarify agency name and correct the Certified ELUC Document No.

ILLINOIS EPA RESPONSE
The first sentence of Condition II.C.5.b (4) has been revised from "Illinois" to "Illinois EPA" and "Document No. 201718528" to "2017R18528".

Comment 29: Section II Corrective Action, Condition II.C.5.b (5):
Please revise to correct the Certified ELUC Document No.

ILLINOIS EPA RESPONSE
The first sentence of Condition II.C.5.b (5) has been revised from "Document No. R201718528" to "2017R18529".

Comment 30: Section II Corrective Action, Condition II.C.5.c (3):
Please correct typos for clarity.

ILLINOIS EPA RESPONSE
The second sentence of Condition II.C.5.c (3) has been revised from "activates" to "activities" and "the BP" to "BP".

Comment 31: Section II Corrective Action, Condition II.C.6.i-k:
Please remove Area 2 Donation Parcel I – Stormwater Detention Basin and Donation Parcel II – Police Station from the list of parcels where bp is required to comply with ELUCs or voidance of NFAs could result. The Area 2 Donation Parcels are not owned by bp so are not appropriate to be included in the Permit. It is incumbent on the owner of the parcel to comply with the ELUC.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the Illinois EPA has revised the Condition II.C.6 as follows:

In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (the Permittee retained parcel only), 4 and 15:

Comment 32: Section II Corrective Action, Condition II. D.1.b:
bp disagrees that this requirement is applicable to solid waste management units (SWMUs) and Product Release Sites (PRSs) that have Illinois EPA approved NFAs. Please clarify that this requirement is only applicable for parcels which have not received NFA.

Please correct the reference to the condition that lists the SWMUs and PRSs.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 13. Condition II.D.1.b remains unchanged.

The comment is acknowledged, and the reference to the condition that lists the SWMUs and PRSs have been corrected in the final RCRA corrective action permit.

Comment 33: Section II Corrective Action, Condition II.E.2:
Please revise to include updated information provided in Exhibit F-1 of the permit renewal application.

As documented in the "Third Quarter 2024 Main Plant Corrective Action Progress Report" dated November 1, 2024, a mobile solar-powered biovent system was installed and commissioned in Third Quarter 2024 to address refinery LNAPL and impacts to groundwater at select monitoring wells.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the proposed language inclusion has been incorporated in Condition II.E.2 into the final RCRA corrective action permit.

Comment 34: Section II Corrective Action, Condition II.E.3:
Please correct the reference as noted.

ILLINOIS EPA RESPONSE
The first sentence of condition II.E.3 has been updated to correct the reference from "Condition II.E.1" to "Condition II.E.2".

Comment 35: Section II Corrective Action, Condition II.E.4:
Please clarify if updates to Attachment E are only required to be documented in the Corrective Action Progress Reports (required by Condition II.L.1), or if updates must continue to be incorporated into the Permit on an annual basis through a Class 1 Permit Modification.*

ILLINOIS EPA RESPONSE
Updates of Attachment E are only required to be documented in the Corrective Action Progress reports (required by Condition II.L.1).

Comment 36: Section II Corrective Action, Condition II.E.5.b (1):
Please revise for clarity.

ILLINOIS EPA RESPONSE
Condition II.E.5.b(1) has been revised from "ASTM E2856-13 or most current method" to "calculation method described in ASTM E2856-13 or most current method".

Comment 37: Section II Corrective Action, Condition II.F.1.b (2):
Please revise to reflect that a certified ELUC for the SFP was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit. Accordingly, bp requests that Condition II.F.2 be deleted.

ILLINOIS EPA RESPONSE
The comment is acknowledged. The proposed changes have been incorporated into the final RCRA corrective action permit, and Condition II.F.2 has been revised as follows:

The ELUC was established for the SFP, which placed the following restrictions, at a minimum, on the future activities of the subject property:

Comment 38: Section II Corrective Action, Condition II.H:
bp is following the Land Reuse process (Section II.G); therefore, Section H is only applicable if bp withdraws from the Land Reuse Process.

ILLINOIS EPA RESPONSE
Corrective measures requirements are still applicable for the facility regardless of the requirements established in Condition II.G. If any corrective measures are

necessary for any areas or SWMUs, corrective measures must be incorporated into the Land Reuse Process and implemented in accordance with Condition II.H.

Comment 39: Section II Corrective Action, Condition II.I.8:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.I.8 remains unchanged.

Comment 40: Section II Corrective Action, Condition II.J:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.J remains unchanged.

Comment 41: Section II Corrective Action, Condition II.M.2:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

Also, it is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
In reference to BP's comment regarding 35 IAC 742.200, please refer to response to Comment 1. The revised cost estimate for corrective action must be submitted when it is necessary or requested by Illinois EPA. The Condition remains unchanged, except for the last sentence of Condition II.M.2 which has been revised as follows:

The revised cost estimate for corrective action must be submitted to the Illinois EPA as necessary or requested by Illinois EPA.

Comment 42: Section II Corrective Action, Condition II.M.3:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous

waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. Condition II.M.3 remains unchanged.

Comment 43: Section II Corrective Action, Condition II.M.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. The condition II.M.4 remains unchanged.

Comment 44: Section II Corrective Action, Condition II.M.5:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 41.

Comment 45: Section III Groundwater Corrective Action Program, Condition III.A:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate. Additionally, bp requests clarification regarding whether the last sentence is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.

ILLINOIS EPA RESPONSE
RCRA corrective action activities in Section II of the final RCRA corrective action permit, as well as Section IV of the previous RCRA permit (Log No. B-147R), have been conducted in accordance with 35 IAC 724.201, not under 35 IAC 724.200 since the regulated units were approved for closure by removal. Section V (Groundwater Corrective Action Program) in the previous RCRA permit historically referenced 35 IAC 724.192 through 200 (Log No. B-147R) as the two hazardous waste management units (NC-SP 1and SFP) previously required post-closure care. Under the final RCRA corrective action permit, as BP indicated in its comments, the former hazardous waste units were closed in accordance with the requirements of 35 IAC 724 Subpart G. In accordance with

35 IAC 724.201(c), it is appropriate to address remaining groundwater contamination from the former regulated units under corrective action section requirements in accordance with 35 IAC 724.201 as no other closure or post-closure care requirements remain for the two units. The final sentence of the condition is added to highlight the conditions of 35 IAC 724.201(c) and is applicable for all RCRA permits subject to 35 IAC 724.201. This condition remains unchanged. Please also refer to the response to Comment 1.

Comment 46: III Groundwater Corrective Action Program, Condition III.A.4:
Please consider the proposed revision.

Remediating and/or removing refinery hydrocarbon sources to groundwater impacts, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the bp Main Plant.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.A.4 has been revised as requested.

Comment 47: III Groundwater Corrective Action Program, Condition III.A.5:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.A.5 has been revised as requested. As Condition III.E.12 has been renumbered due to revisions as part of requests by BP's Comment 57, Condition III.A.5 has also been updated to reference Condition III.E.11.

Comment 48: III Groundwater Corrective Action Program, Condition III.A.6:
Please consider the proposed revision.

Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

ILLINOIS EPA RESPONSE
Exhibit F-1, Section B (Definitions), of the approved Permit Application defines "remediating refinery product" as, "the use of physical, chemical, or biological means to recover or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts in order to reduce the mass present at the Site." Condition II.A.6 remains unchanged.

Comment 49: III Groundwater Corrective Action Program, Condition III.B.4:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Condition III.B.4 remains unchanged. Please also refer to the response to Comment 1 and Comment 45.

Comment 50: III Groundwater Corrective Action Program, Condition III.C.1:
Please revise well construction information (for select wells as noted) to match what was provided in permit renewal application replacement pages.

Also, please revise footnote 11 to reflect that former Riverfront Observation Well (RFOW) G030 no longer exists. RFOW G030 was abandoned due to an excavation for a natural gas pipeline repair as documented in the Main Plant GMZ Well G078 Well Condition Letter dated July 11, 2023 (Log No. B-147R-CA-121).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.C.1 has been revised as requested.

Comment 51: III Groundwater Corrective Action Program, Condition III.D.1:
Please revise as there is no requirement for analysis of any dissolved hazardous constituents with the exception of biogeochemical analytes to monitor natural attenuation conditions only.

ILLINOIS EPA RESPONSE
The comment is acknowledged and Condition III.D.1 has been revised as requested.

Comment 52: III Groundwater Corrective Action Program. Condition III.D.1:
Please revise hazardous waste constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA- 85 and 89).

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.D.1 has been revised as requested.

Comment 53: III Groundwater Corrective Action Program. Condition III.E.1:
Please correct the references as noted.

The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.C.1 for the hazardous constituents listed in Condition III.D.1 above.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.1 has been revised as requested.

Comment 54: III Groundwater Corrective Action Program. Condition III.E.2.a.i:
Please revise to include GMZ Boundary Well G085 as listed in Condition III.C.1.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.2.a.i has been revised as requested.

Comment 55: III Groundwater Corrective Action Program. Condition III.E.2.a.ii:
bp does not understand the rationale for this new requirement as it is not necessary to protect human health and the environment. Please clarify this new requirement to better define the vertical extent/boundary of the GMZ.

ILLINOIS EPA RESPONSE
In accordance with 35 IAC 620.250, a GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from the facility. The three-dimensional region contains a horizontal and vertical component. The statement in Condition III.E.2.a.ii was included to better define the vertical dimension of the GMZ. Condition III.E.2.a.ii remains unchanged.

Comment 56: III Groundwater Corrective Action Program. Condition III.E.3:
The goal of the remediation program at this site is hydrocarbon remediation, and the language in the current permit (i.e., "hydrocarbon pool") is more appropriate. bp requests the text be revised to replace "hazardous constituents" with "hydrocarbon pool."

ILLINOIS EPA RESPONSE
The use of "hazardous constituents" is more representative of the dissolved phase and/or free phase. Condition III.E.3 remains unchanged.

Comment 57: III Groundwater Corrective Action Program. Condition III.E.11:
The property owner has no contractual obligation to allow bp access to the property. bp requests this requirement be removed from the permit.

ILLINOIS EPA REPONSE
The comment is acknowledged, and Condition III.E.11 has been removed and remaining conditions in III.E renumbered.

Comment 58: III Groundwater Corrective Action Program. Condition III.E.12.b:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.b (formerly III.E.12.b) has been revised as requested.

Comment 59: III Groundwater Corrective Action Program. Condition III.E.12.c.ii:
Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.c.ii (formerly III.E.12.c.ii) has been revised as requested.

Comment 60: III Groundwater Corrective Action Program. Condition III.E.12.e.ii.1 and 2:
Please revise for clarity and to remove redundancy between these two conditions.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Conditions III.E.11.e.ii.1 and 2 (formerly III.E.12.e.ii.1 and 2) and have been revised as requested.

Comment 61: III Groundwater Corrective Action Program. Condition III.E.12.g.v:
Please revise to include the vicinity of Land Reuse Area 9.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.11.g.v (formerly III.E.12.g.v) has been revised as requested.

Comment 62: III Groundwater Corrective Action Program. Condition III.E.13:
Please correct the references as noted.

The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the

development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L.1. A discussion must also be provided in reports required by Condition III.1.6.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.E.12 (formerly III.E.13) has been revised as requested.

Comment 63: III Groundwater Corrective Action Program. Condition III.E.14:
bp is currently addressing the indoor inhalation exposure route through the Indoor Inhalation (or vapor intrusion [VI]) Exposure Route Evaluation and Work Plan as summarized in the chronology of correspondence, to date, between bp and Illinois EPA provided as ***Exhibit A*** *of bp's "Public Notice Comments for Draft Permit" (and documented in Attachment C of this draft Permit).*

Appendix G of the Revised Indoor Inhalation Exposure Route Evaluation and Work Plan dated August 28, 2019, included a site-specific evaluation of the indoor inhalation pathway for the Main Plant GMZ wells using the Johnson & Ettinger calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor) as recommended by Illinois EPA. The calculations were conducted for six applicable constituents under a residential building scenario using site-specific soil conditions including seasonal high water table depth. This site-specific evaluation documented that groundwater conditions at that time did not represent a risk to potential off-site indoor air receptors. As such, it is proposed to utilize this same site-specific approach during the semi-annual comparison of GMZ (and off-site) well groundwater sampling results to evaluate whether the indoor inhalation exposure pathway remains incomplete and potential off-site receptors remain protected. bp's proposed revisions outline the evaluation methodology and reporting criteria.

ILLINOIS EPA RESPONSE
The Illinois EPA can agree, in part, with the approach described in the BP's comments to Condition III.E.13 (formerly III.E.14) for evaluating the indoor inhalation pathway; however, the referenced in-house document has not been approved. Therefore, the approach cannot currently be used while the majority of proposed revisions are considered acceptable. The following comments are noted based on the provided comments:

1. An alternative procedure must be submitted as a Class 1* modification request to propose a procedure for evaluating the indoor inhalation pathway for dissolved groundwater concentrations measured at all groundwater monitoring wells located at the property boundary and off-site locations each time groundwater is sampled. The proposal may include a procedure using the Johnson & Ettinger Calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor).

2. The procedure must include evaluation of all wells, not limited to GMZ wells, at the property boundary and off-site locations to assess potential concerns at any existing buildings.

3. The Illinois EPA concurs with comparison to current results; however, the site-specific calculations have not been approved. Site-specific soil conditions are not currently collected at the off-site areas of concern, and Table H of Appendix B in 35 IAC Part 742 only allows comparison to groundwater or soil gas results; therefore, soil gas or groundwater must be proposed for calculations. An alternative screening level for each hazardous constituent may be calculated using the highest observed groundwater elevation in recorded events for the property boundary and available off-site monitoring wells.

4. The constituents evaluated must consist of a complete list of hazardous constituents listed in Condition III.D.1 which are also identified in Table H of Appendix B in 35 IAC Part 742.

5. A new evaluation is required for each sampling event to determine whether screening levels are exceeded.

6. If the pathway is determined to be complete, the proposal for correction action cannot be provided within the semi-annual groundwater monitoring report, as these are not responded to by the Illinois EPA. Instead, the request to propose corrective action must be submitted in accordance with Condition II.A.13 and II.D.4.

Condition III.E.13 (formerly III.E.14) has been modified to require a proposal be submitted within 90 days. As a result, Condition III.I.17 has been modified to take effect upon approval of the required proposal. A typographical error in Condition III.I.17 was also corrected to reflect reference to Condition III.E.13 instead of Condition II.E.13.

Comment 64: III Groundwater Corrective Action Program. Condition III.I.6:
Please correct the references as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.6 has been revised as requested.

Comment 65: III Groundwater Corrective Action Program. Condition III.I.7:
Please revise for clarity.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.7 has been revised as requested.

Comment 66: III Groundwater Corrective Action Program. Condition III.I.13:
Please clarify the number of copies required. As noted in the proposed revision, bp's preference is to mail one (1) original copy and send electronic copies for all Illinois EPA CCs.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.13 has been revised as requested.

Comment 67: III Groundwater Corrective Action Program. Condition III.I.16.c:
Please revise for clarity and to remove redundancy.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and Condition III.I.16.c has been revised as requested.

Comment 68: III Groundwater Corrective Action Program. Condition III.I.17:
Please correct the reference and revise to align with the proposed revisions to Condition III.E.14.

ILLINOIS EPA RESPONSE
Revisions to Condition III.E.14 now allow for evaluation of a potentially complete pathway. Condition III.E.17 remains unchanged.

Comment 69: III Groundwater Corrective Action Program. Condition III.I.18:
Please revise to clarify contaminant control monitoring, notification, and reporting requirements are detailed in Conditions III.E.12 and III.I.16.
It was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider the proposed revisions to Conditions 18.a-d.

ILLINOIS EPA RESPONSE
The intent of Condition III.I.18 is to provide notification and necessary actions if corrective action is not effective to protect human health and the environment with the currently approved groundwater corrective action remedies. Illinois EPA acknowledges the requirements of III.E.12 and reporting requirements of III.I.16; however, there are instances when additional corrective action may be necessary.

In addition, the GMZ boundary encompasses the majority of the property and extends off-site; therefore, certain scenarios are not captured by Condition III.E.12.

Acceptable revisions have been incorporated into Condition III.I.18.

Comment 70: III Groundwater Corrective Action Program. Condition III.J.1:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.: If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.

ILLINOIS EPA RESPONSE
This Condition III.J.1 remains unchanged. Please also refer to response to Comment 1 and Comment 45.

Comment 71: Section IV Compliance Schedule, Condition IV.C.1.b:
Please correct the reference as noted. This requirement does not enhance the protection of human health and the environment. bp requests this requirement be removed from the permit.

ILLINOIS EPA RESPONSE
The comment is acknowledged and Condition IV.C.1.b has been revised. Additionally, please refer to response to Comment 13. Condition IV.C.1.b remains in the Permit.

Comment 72: Section IV Compliance Schedule, Condition IV.C.2:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1. The condition IV.C.2 remains unchanged.

Comment 73: Section V General Requirements, Condition V.13.a:
bp is not required to have a "waste analysis plan" for this facility as the facility does not accept outside waste and 35 IAC 727 requirements are not applicable to this permit. As

this is a Standard Condition, please consider the proposed note to be added for clarification or address the non-applicability of the requirement elsewhere in the permit. Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE
The standard conditions are standard for all RCRA corrective action permits. However, if any of these conditions aren't applicable to BP, the corresponding requirements are not applicable. Circumstances may arise where regulations that were not applicable at the time of issuing permit, becomes applicable on a later time. Condition V.13.a remains unchanged.

Comment 74: Section V General Requirements, Condition V.21:
Please correct the references as noted.

ILLINOIS EPA RESPONSE
There has been error in referencing Condition V.16 which should be referenced as Condition V.18, instead of Condition V.16, according to 35 IAC 702.152(g). Error has been corrected in the final RCRA corrective action permit.

Comment 75: Section V General Facility Standards, Condition V.27-30:
Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart B (General Facility Standards). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 73.

Comment 76: Section V General Facility Standards, Condition V.31-36:
Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart C (Preparedness and Prevention). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE
Please refer to response to Comments 5 and 73.

Comment 77: Section V Post-Closure, Condition V.38-42:
Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart G (Closure and Post-Closure Care) and Subpart H (Financial Requirements). Please see comment and proposed revisions to Condition I.C.1.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 9.

Comment 78: Section VI Reporting And Notification Requirements, Condition VI.II.M.2, Action:
Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the changes have been made to the final RCRA corrective action permit.

Comment 79: VI. Reporting And Notification Requirements, Condition III.C.3, III.C.5, III.C.2:
Please correct the Condition references as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the condition references have been corrected.

Comment 80: VI. Reporting And Notification Requirements, Condition III.I.15:
Please revise to "semi-annually" to align with Condition III.I.7. Note, bp has proposed a revision to Condition III.1.7 as well for better clarification.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the condition references have been corrected.

Comment 81: VI. Reporting And Notification Requirements, Conditions III.I.18.a-c:
As noted above under Condition III.I.18, it was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider removing the associated Actions under Conditions I.18.and I.18.b from this table.

Please correct the Condition reference for Condition III.1.18.c as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged. Condition III.I.18 remains unchanged. Please refer to response to Comment 69.

Comment 82: Section VI Reporting And Notification Requirements, Condition VI.III.J.1, Due Date:
It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 1.

Comment 83: Section VI Reporting And Notification Requirements, Condition VI.V.34, VI.V.35.a and b, VI.V.36, and VI.V.37:
Please correct the references as noted although these requirements are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.

ILLINOIS EPA RESPONSE
Please refer to response to Comment 74. The references have been corrected into the final RCRA corrective action permit.

Comment 84: Identification of Approved Permit Application, Attachment A
Please revise bp document dates as noted.

ILLINOIS EPA RESPONSE
The comment is acknowledged, and the changes have been made to the final RCRA corrective action permit.

Attachments: 1. Integrating Climate Change Adaptation Considerations into the Resource Conservation and Recovery Act Corrective Action Process
2. Implementing Climate Resilience in Hazardous Waste Permitting under RCRA



OFFICE OF RESOURCE CONSERVATION AND RECOVERY

WASHINGTON, D.C. 20460

February 6, 2024

MEMORANDUM

SUBJECT: Integrating Climate Change Adaptation Considerations into the Resource Conservation and Recovery Act Corrective Action Process

FROM: Carolyn Hoskinson, Director Digitally signed by CAROLYN HOSKINSON Date: 2024.02 06 12:59:29 -05'00'

TO: Land, Chemicals, and Redevelopment Division Directors, Regions 1-10

PURPOSE

This memorandum[1] conveys the U.S. Environmental Protection Agency's (EPA or Agency) recommendations on how EPA regions and authorized states should work with RCRA facility owners or operators to integrate climate change adaptation considerations into the corrective action process under the Resource Conservation and Recovery Act (RCRA) of 1976 as amended by the Hazardous and Solid Waste Amendments (HSWA) of 1984.[2]

Corrective action is the process under which owners and operators of RCRA treatment, storage and disposal facilities investigate and clean up releases of hazardous waste and constituents into soil, ground water, surface water and air, as necessary to protect human health and the environment.

Climate change can increase the frequency and intensity of extreme weather events, such as heavy precipitation and storms; or can cause more gradual changes such as sea level rise. Seasonal changes in precipitation or temperatures, increasing risk of floods, increasing intensity and frequency of hurricanes and wildfires, and thawing of permafrost in northern regions are additional examples of climate-related changes which could impact RCRA cleanups. These changes can lead to the release of

[1]This document provides recommendations to regional staff and management, as well as state hazardous waste programs authorized under RCRA, regarding how to approach the RCRA corrective action process with respect to climate adaptation. This document does not substitute for applicable statutory or regulatory requirements, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation depending upon the circumstances. Any decisions regarding a particular situation will be made based on the statute and the regulations, and EPA and authorized state decision makers retain the discretion to adopt approaches on a site-specific basis that differ from these recommendations where appropriate.

[2]42 USC §6924 et seq.

hazardous waste or constituents from, or interfere with the operation of remedies at, RCRA corrective action cleanups. Such impacts can pose increased threats to human health and the environment, thereby supporting the need to integrate climate adaptation considerations into RCRA corrective action cleanups.

Although this memorandum addresses integrating climate adaptation into the corrective action process, the Agency also encourages considering climate mitigation, e.g., green remediation strategies, in the RCRA corrective action process, while, of course, assuring that each cleanup is protective.

This memorandum supplements the Agency's existing policy statements and guidance addressing RCRA corrective action cleanups,[3] including guidance on RCRA Corrective Action Decision Documents.[4] However, it does not amend or modify RCRA regulations in any way.

Definitions of key terms pertaining to climate adaptation used in this memorandum and a list of additional resources are included in the Attachment.

BACKGROUND

EPA released a Climate Adaptation Plan (CAP) in October 2021 which laid out five priority actions for the agency to implement in the coming years, including integrating consideration of climate impacts into EPA's programs, policies, rulemaking processes, and enforcement activities.[5]

In October 2022, EPA's Office of Land and Emergency Management (OLEM) released its Climate Adaptation Implementation Plan which included the commitment to develop a memorandum that calls for climate change impacts to be considered as part of the corrective action process for any necessary corrective action at RCRA treatment, storage, and disposal facilities.

Incorporating climate adaptation considerations into the corrective action process for RCRA cleanups will ensure that remedies remain effective and prevent the migration of hazardous waste or constituents. These considerations should be factored into the corrective action process consistent with existing EPA guidance that applies to RCRA corrective action cleanups.[6]

LEGAL AUTHORITY

Under RCRA section 3004(u), each RCRA permit must require corrective action for all releases of hazardous waste or constituents from any solid waste management unit at the permitted facility. EPA has codified this requirement at 40 CFR § 264.101(a) and (b), which specify that permits shall require corrective action as necessary to protect human health and the environment. RCRA section 3004(v) requires corrective action beyond the facility boundary where necessary to protect human health and the environment; EPA has codified this requirement at 40 CFR § 264.101(c). RCRA section 3008(h)

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[3]For additional information, see https://www.epa.gov/hw/documents-pertaining-remedy-implementation-corrective-action-sites

[4]Guidance on RCRA Corrective Action Decision Documents: Statement of Basis and Response to Comments (PDF): https://www.epa.gov/sites/default/files/2013-10/documents/rcradecisiodoc-mem.pdf

[5]For additional information, see https://www.epa.gov/climate-adaptation/climate-adaptation-plan

[6]Policies and Guidance Documents that Provide EPA and Authorized States with Assistance Regarding Corrective Action: https://www.epa.gov/rcra/policies-and-guidance-documents-resource-conservation-and-recovery-act-rcra-state-authorization

authorizes EPA to issue orders requiring corrective action as necessary to protect human health and the environment to addresses releases of hazardous waste from facilities that have interim status, facilities that should have had interim status, and facilities that have lost interim status through actions (or a failure to take action) of the owner or operator of the facility. Most states have been authorized for 40 CFR § 264.101, which codifies the permitting corrective action authority in RCRA sections 3004(u) and (v); EPA has not authorized states for RCRA section 3008(h) authorities, which EPA implements. In addition to these corrective action specific authorities, the RCRA "omnibus" permit authority requires EPA and authorized states to include in permits such terms and conditions as EPA or the state determines necessary to protect human health and the environment. RCRA section 3005(c)(3); 40 CFR § 270.32(b)(2).

Under these authorities, EPA, or authorized states, are empowered to impose corrective action requirements that will be protective of human health and the environment taking into account potential climate impacts on the effectiveness of cleanups over time.

CLIMATE ADAPTATION CONSIDERATIONS IN THE CORRECTIVE ACTION PROCESS

EPA regions and authorized states should work with RCRA facility owners and operators during the RCRA corrective action process to identify and address climate-related risks to ensure protection of human health and the environment. Particular consideration should be given to ensuring long-term reliability and effectiveness of selected remedies.

EPA regions and authorized states should consider climate-related risks as they implement the RCRA corrective action process. Considerations for recommended steps in the process are discussed below, although a screening and, if necessary, an assessment, could be implemented at any appropriate point in the corrective action process.

1. **RCRA Facility Assessment, RCRA Facility Investigation, and/or Corrective Measures Study**

   1.1 Climate Vulnerability Screening: EPA Regions and authorized states should work with facility owners and operators to screen RCRA corrective action facilities' vulnerability to any potential climate change impacts that may be relevant, such as:

   Temperature changes: Rising temperatures can influence the efficiency of certain cleanup technologies and treatment processes. It is important to consider how temperature variations might impact the overall vulnerability of RCRA corrective action cleanups to temperature changes.

   Precipitation patterns: Changes in long-term precipitation patterns, including increased rainfall, snow and hail, or prolonged droughts, can affect groundwater elevations and movement and the transport and fate of contaminants at RCRA corrective action cleanups. Where a vulnerability screening indicates the potential for impacts, analyzing potential changes in precipitation in a climate vulnerability assessment will be helpful in understanding how the fate and transport of contaminants may be impacted.

   Sea level rise: If RCRA corrective action cleanups are located in coastal areas, sea level rise caused by climate change can pose significant challenges. Where sea level rise may cause impacts, assessing the potential extent of sea level rise and its impacts on facility

infrastructure, groundwater levels, shoreline erosion, effects of storm surges, and potential contaminant migration can be crucial.

Long-term changes in weather patterns: Reviewing climate models and trends will help identify potential long-term changes in weather patterns, such as shifts in seasons, increased frequency of heatwaves, wildfires, permafrost thaw, or altered storm tracks. These alterations can have indirect impacts on the effectiveness of cleanup activities.

1.2 Climate Vulnerability Assessment: Once the climate vulnerability screening is complete, if there are climate change impacts that could plausibly impact a corrective action cleanup, EPA regions and authorized states may require the facility owners or operators to conduct a climate vulnerability assessment, as appropriate and necessary for the facility's specific circumstances.[7]

2. Remedy Selection

EPA proposed a regulation in 1990 to expand on the codification of RCRA 3004(u) and (v) in 40 CFR § 264.101. 55 FR 30798 (July 27, 1990). The proposal included nine remedy selection criteria. EPA did not finalize that regulation but uses the nine proposed criteria as guidance in remedy selection. 61 FR 19432, 19449 (May 1, 1996).

Following this guidance, selection of final remedies for RCRA corrective action cleanups typically includes a two-phased evaluation. During the first phase, potential remedies are screened to see if they meet four "remedy threshold criteria": (1) be protective of human health and the environment; (2) attain media cleanup standards; (3) control the source(s) of releases so as to reduce or eliminate, to the extent practicable, further releases of hazardous waste and hazardous constituents that might pose threats to human health and the environment; and (4) comply with applicable standards for waste management. Remedies which meet the threshold criteria are then evaluated using five "balancing criteria" to identify the remedy that provides the best relative combination of attributes: (1) Long-term reliability and effectiveness; (2) reduction of toxicity, mobility or volume of wastes; (3) short-term effectiveness; (4) implementability; and (5) cost.

During remedy selection, the adaptive capacity of the remedial alternatives to potential adverse impacts of climate change should be considered, as relevant based on the climate vulnerability assessment. Consideration should be given to building adaptive approaches into remedies, so that the remedies can be evaluated and adjusted over time, if necessary, based on updated climate-related information. Where climate-related risks are a concern, such risks might weigh in favor of selecting remedies that leave less waste in place.

3. Remedy Implementation

During remedy implementation for RCRA corrective action cleanups, EPA regions and authorized states should work with facility owners or operators to ensure that adaptation

[7]Vulnerability Assessment: https://www.epa.gov/superfund/superfund-climate-resilience-vulnerability-assessment#vulnerability

measures are implemented to ensure the long-term integrity of constructed remedies and their protectiveness of human health and the environment, consistent with any adaptive approaches included in the remedies and with authorities for the modification of remedies. Multiple adaptation measures may be appropriate based on evaluation on a case-by-case basis.

4. **Long-Term Stewardship**
   For remedies already in place, long-term stewardship reviews can provide opportunities to assess the adaptive capacity of the remedy considering new information regarding potential (or actual observed) climate change impacts. Any vulnerabilities identified that may not have been known during remedy selection should be considered and addressed as appropriate, consistent with any adaptive approaches included in the remedies and with authorities for the modification of remedies.

EXAMPLES OF CLIMATE ADAPTATION STRATEGIES THAT CAN BE IMPLEMENTED IN THE CORRECTIVE ACTION PROCESS

A facility-by-facility analysis is required to properly determine the specific climate-related risks that may need to be mitigated for each corrective action. Measures[8] that can be taken to address climate-related risks include:

- Constructing physical barriers to contain contaminants (e.g., sand cap, retaining wall) that are impervious to the identified climate threat (e.g., flooding, intense storms, fire).
- Placing engineering controls (e.g., pumps, electrical equipment) that are necessary for properly managing and containing hazardous wastes or constituents in locations not likely to be impacted by identified climate threats.
- Designing containment, monitoring and treatment systems, and subgrade infrastructure to withstand changing conditions from identified climate threats.
- Designing caps to be impervious to identified threats, e.g., by use of drought-resistant plants for a vegetated soil cap for long-term erosion control.
- Incorporating climate resilience into the design and construction of waste containment systems, infrastructure, and remediation technologies.
- Considering flexible and adaptive design approaches to accommodate changing climate conditions.
- Implementing measures to enhance resilience, such as reinforced barriers, improved stormwater management, or enhanced erosion control.
- Establishing or enhancing monitoring systems, including those for groundwater, air quality and weather, by integrating parameters to detect climate-related changes and potential impacts on cleanups.
- Developing early warning systems to anticipate and respond to climate-related events that may affect facility integrity or increase the risk of releases of hazardous wastes or constituents.
- Implementing adaptive management approaches that allow for adjustments to remediation strategies based on changing climate conditions.

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[8]Adapted from Vulnerability of Waste Infrastructure to Climate Induced Impacts in Coastal Communities: https://www.epa.gov/sites/default/files/2019-11/documents/vulnerability_of_waste_infrastructure_to_climate_induced_impacts_in_coastal_communities.pdf

- Regularly reassessing the effectiveness of remedies considering climate change impacts and adapting as necessary.
- Developing contingency plans to address potential climate-related disruptions to remediation efforts.

Additional examples of climate adaptation strategies may be found in the resources list in the Attachment.

CONCLUSION

Integrating climate change adaptation considerations into the RCRA corrective action process provides for the protection of human health and the environment by ensuring the integrity and effectiveness of the remedy and preventing or limiting exposure to hazardous wastes or constituents.

Throughout the RCRA corrective action process, EPA regions and authorized states should work with owners or operators to ensure that climate adaptation considerations that ensure protection of human health and the environment are implemented.

EPA regions and authorized states should continue to use the existing corrective action process consistent with RCRA and relevant EPA guidance and policies.

If you have questions about this memorandum or would like assistance with evaluating climate vulnerabilities and adaptation strategies during the RCRA corrective action process, please contact Seun Akinlotan (akinlotan.seun@epa.gov), Office of Resource Conservation and Recovery (ORCR).

cc: Ken Patterson, Office of Site Remediation Enforcement
Gregory Gervais, Federal Facilities Restoration and Reuse Office
Kathryn Caballero, Federal Facilities Enforcement Office
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Dania Rodriguez, Executive Director, Association of State and Territorial Solid Waste Management Officials
Mark Junker, Chair, Tribal Waste and Response Steering Committee
Gerald Wagner, Executive Committee Chair, National Tribal Caucus

ATTACHMENT

KEY TERMS PERTAINING TO CLIMATE ADAPTATION

For purposes of this memorandum, key terminology[9, 10] includes:

Climate change or climate adaptation means taking action to prepare for and adjust to both the current and projected impacts of climate change.

Adaptive capacity is the ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.

Climate change refers to changes in global or regional climate patterns attributed largely to human-caused increased levels of atmospheric greenhouse gases.

Resilience can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.

Vulnerability means the degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes; it is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

ADDITIONAL RESOURCES

1. The U.S. Climate Resilience Toolkit: A Platform Designed to Help People Find and Use Tools, Information, and Subject Matter Expertise to Build Climate Resilience. (https://toolkit.climate.gov/#steps).
2. EPA's Adaptation Actions for Protecting Waste Facilities. (https://www.epa.gov/arc-x/adaptation-actions-protecting-waste-facilities#tab-1).
3. EPA Superfund Climate Resilience Technical Fact Sheet: Groundwater Remediation Systems (https://semspub.epa.gov/work/11/175851.pdf).
4. EPA Superfund Climate Resilience Technical Fact Sheet: Contaminated Sediment Sites. (https://semspub.epa.gov/work/11/177110.pdf).
5. EPA Superfund Climate Resilience Technical Fact Sheet: Contaminated Waste Containment Systems. (https://www.epa.gov/sites/default/files/2019-12/documents/cr_containment_fact_sheet_2019_update.pdf).

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[9]Vocabulary Catalog; Topic: Climate Change; Publisher: EPA Office of Air and Radiation/Office of Atmospheric Programs/Climate Change Division. https://sor.epa.gov/sor_internet/registry/termreg/searchandretrieve/glossariesandkeywordlists/search.do?details=&vocabName=Glossary%20Climate%20Change%20Terms#formTop

[10]Climate Adaptation and EPA's Role: https://www.epa.gov/climate-adaptation/climate-adaptation-and-epas-role

6. Superfund Climate Resilience: EPA's Superfund program approach addressing climate vulnerabilities as a standard operating practice in cleanup projects. (https://www.epa.gov/superfund/superfund-climate-resilience).
7. Fed Center Climate Adaptation Program Area: Federal government resource that supports federal agency climate adaptation planning. (https://www.fedcenter.gov/programs/climate/).

OFFICE OF RESOURCE CONSERVATION AND RECOVERY

WASHINGTON, D.C. 20460

June 5, 2024

MEMORANDUM

SUBJECT: Implementing Climate Resilience in Hazardous Waste Permitting Under the Resource Conservation and Recovery Act (RCRA)

FROM: Carolyn Hoskinson, Director

Digitally signed by CAROLYN HOSKINSON
Date: 2024.06.05 20:15:53 -04'00'

TO: Land, Chemicals, and Redevelopment Division Directors, Regions 1-10

PURPOSE

The purpose of this memorandum is to provide guidance to EPA Regions, states, and territories on when and how to consider potential adverse climate change impacts in the hazardous waste permitting process under the RCRA. This includes recommendations for conducting climate change vulnerability screenings and assessments for treatment, storage, and disposal facilities (TSDFs) to determine whether there are climate vulnerabilities that hazardous waste permits should address.

Adverse impacts of climate change can include the frequency and intensity of extreme weather events, changing wind patterns, temperature fluctuations, increased precipitation, sea level rise, storm surges, inland and coastal flooding, bank and shoreline erosion, changes in groundwater levels and direction of flow, drought, increased risk of wildfires, and permafrost thaw. These potential impacts can threaten the resilience of engineering and other controls at TSDFs for which applicants seek permits from EPA Regions or states and territories authorized to implement the RCRA program. This memorandum identifies authorities, provides interpretations of relevant RCRA provisions, and recommends approaches to ensure that controls will provide long-term effectiveness through resilience to adverse climate change impacts into the future.[1]

Definitions of key terms pertaining to climate adaptation used in this memorandum are included in the attachment.

[1] This document does not substitute for the statute or regulations, nor is it a regulation itself. Thus, it cannot impose legally binding requirements on EPA, states, or the regulated community, and may not apply to a particular situation based upon the circumstances. Any decisions regarding a particular situation will be made based on the statute and the regulations, and EPA and authorized state/territory decision makers retain the discretion to adopt approaches on a site-specific basis that differ from these recommendations where appropriate.

BACKGROUND

EPA released a Climate Adaptation Plan (CAP) in October 2021 which laid out five priority actions for the agency to implement in the coming years, including integrating consideration of climate impacts into EPA's programs, policies, rulemaking processes, and enforcement activities.[2] In October 2022, EPA's Office of Land and Emergency Management (OLEM) released its Climate Adaptation Implementation Plan, which included the commitment to incorporate climate adaptation into OLEM's mission, programs, and management functions.

IMPLEMENTATION

The 40 CFR Part 264 standards for RCRA TSDFs are designed to ensure that hazardous waste treatment, storage and disposal are conducted in a manner that protects human health and the environment (See RCRA 3004(a)). These standards are implemented through RCRA permits at permitted TSDFs. RCRA permits must ensure that facility operations will comply with these standards (RCRA 3005(c)(1)) and must contain any additional terms or conditions that EPA or the authorized state determines are necessary to protect human health and the environment (RCRA 3005(c)(3)).

The climate change impacts described above may affect what a facility needs to do to comply with the RCRA standards applicable to TSDFs. EPA expects that EPA Regional offices and authorized states and territories will consider the potential for adverse climate change impacts to affect TSDF operations in the permitting process, and that RCRA permits will include the conditions that the permitting authority determines are necessary to ensure that facility operations will be compliant and protective in the face of such impacts. Climate change adaptation considerations should be incorporated as appropriate during initial permit issuance, permit renewal, and/or permit maintenance (e.g., permit modification). The potential for climate impacts should be considered and addressed throughout the expected active life of the facility, as well as during post-closure, as appropriate, not just for the term of the permit or permit modification under consideration.

Conducting climate vulnerability screenings and analyses at TSDFs can help determine whether changes to facility permits are necessary to ensure that TSDFs are resilient to climate events and remain so into the future. For example, prior to receiving a renewal permit application, or during the process of reviewing an application for an initial permit or modification, EPA Regions, states, and territories should perform an initial climate vulnerability screening as appropriate to determine which adverse climate change impacts might apply to the facility. The vulnerability screening is a high-level screening step to determine if a site or facility is located in a geographic area at risk to adverse climate change impacts. If the results of the screening indicate that climate change impacts might plausibly impact the protectiveness of facility operations, EPA, states, and territories should conduct, or should request or require an owner or operator to conduct, a more detailed climate vulnerability assessment to determine whether adaptive measures are necessary. If an initial climate vulnerability screening indicates that adaptative measures are necessary, and no further information or analysis is needed, then the more detailed climate vulnerability assessment is not necessary. However, if the initial climate vulnerability screening indicates a plausible basis for concern and there is uncertainty as to the level of

[2] For additional information, see https://www.epa.gov/climate-adaptation/climate-adaptation-plan.

climate risk or the adaptive measures that may be needed, then the regulator may require a climate vulnerability assessment.

KEY RCRA REGULATORY AUTHORITIES RELEVANT TO CLIMATE CHANGE CONSIDERATIONS IN PERMITTING

Several regulatory authorities support consideration of potential adverse climate change impacts on permitted activities and the development of permit conditions, as needed, to ensure that such activities will be protective of human health and the environment in the face of such impacts. Below is a list of regulatory provisions, although this is not an exhaustive list of the potentially relevant regulatory provisions.

Facility Design and Operation [§ 264.31]
Facilities must be designed, constructed, maintained, and operated to minimize the possibility of a release of hazardous waste or hazardous waste constituents that could threaten human health and the environment. EPA Regions and authorized states/territories should consider the potential adverse climate change impacts in ensuring that this standard is satisfied. For example, more frequent storm events as well as temperature fluctuations can influence how a facility's units (e.g., containers, tanks, landfills) should be designed and operated to protect human health and the environment. Facility design and operation may need to change in the face of future climate conditions.

Facility Location Standards [§ 264.18(b)]
The RCRA regulations generally require facilities located within a 100-year floodplain to be designed, constructed, operated and maintained to prevent washout, should there be a flood. The number of facilities within a 100-year floodplain will likely increase as a result of potential adverse climate change impacts causing floodplains to expand. TSDFs located in a 100-year floodplain will need to ensure their operations comply with this requirement, and permit writers should take care to ensure that permits adequately address this requirement. These requirements should be considered during permit renewal as well as initial permit issuance. In view of changing climate conditions, it will be important to employ an approach for identifying the 100-year floodplain that considers predicted future conditions, and recent flooding events and their impact on the facility, rather than simply long-term historical data.

Contingency Plans [§ 264.50 – 264.56]
The RCRA regulations require that TSDFs have contingency plans designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned sudden or non-sudden release of hazardous waste or hazardous waste constituents to air, soil, or surface water. Development and review of contingency plans should consider potential adverse climate change impacts.

Omnibus Authority under Section 3005(c)(3) [§ 270.32(b)(2)]
The omnibus permit authority provides that "Each permit issued under section 3005 of this act shall contain terms and conditions as the Administrator or State Director determines necessary to protect human health and the environment." EPA expects that climate change impacts can generally be addressed using more specific regulatory authorities such as those identified above. However, where permitting authorities determine that permit conditions beyond those required under these specific authorities are necessary to protect human health or the environment from potential adverse climate change impacts, the EPA Region or the state/territory has the responsibility to impose such terms and conditions by exercising their omnibus authority.

Review of State Permits [§ 271.19]
EPA has the authority to oversee state program implementation to ensure it is consistent with the state's own authorized requirements. This includes the authority for EPA to comment on a draft permit. EPA can enforce the terms of the comment, even if those terms are not incorporated into the permit, if the comment indicates that the terms are necessary to implement the approved program, as provided in § 271.19(b). EPA Regions should consider potential adverse climate change impacts in evaluating the use of its comment authority.

Agency Initiated Permit Modifications [§ 270.41(a)(2)]
This provision authorizes the permitting authority to modify a permit based on "information [that] was not available at the time of permit issuance ... and would have justified the application of different permit conditions at the time of issuance." Such a basis for permit modifications could include changes due to climate change-related factors (e.g., updated floodplain maps or precipitation data from federal or state sources) that may impact facility operations.

Part B Permit Application [§ 270.14-270.28]
The RCRA Part B permit application regulations specify information that must be submitted in permit applications. Particularly relevant are the provisions of § 270.14(11)(iii) and (iv), which relate to floodplains, and also § 270.14(19) relating to mapping and location. EPA Regions and authorized states/territories should work with facility owners and operators to ensure that Part B permit applications are prepared using up-to-date climatological data and data projections for the anticipated life of the facility. This ensures that unit-specific designs and permit conditions remain protective in the face of potential adverse climate change impacts. While not part of the specific Part B Application requirements, a general permit application requirement under § 270.10(k) provides broader authority to require additional information necessary to develop permit conditions that can be used to address climate adaptation concerns.

CLIMATE ADAPTATION TOOLS

RCRA climate vulnerability screening tools and assessment methodologies are currently under development. One screening tool has been released in RCRAInfo for sea level rise projections at RCRA facilities (https://rcrapublic.epa.gov/rcra-public-web/action/posts/5). EPA also anticipates releasing further policy and guidance regarding how permits can incorporate climate change adaptation considerations through its effort to update the RCRA Model Permit and through development of the

Updates to the RCRA Hazardous Waste Permitting Regulations and Other Technical Corrections rulemaking.

In the interim, for further information, please see the Superfund Climate Resilience website which provides an overview of climate-related initiatives within the Superfund program, with information about strategies that can be used to evaluate and strengthen climate resilience at Superfund sites. While this website offers guidance on Superfund sites, it can also help inform decisions at RCRA facilities. EPA intends to develop a climate vulnerability assessment methodology for the RCRA program, based on Superfund's methodology.

CONCLUSION

RCRA permits must be protective of human health and the environment. Climate change has the potential to impact TSDF compliance with RCRA regulatory provisions, and more broadly, the protectiveness of TSDF operations. Thus, throughout the RCRA permitting process, including issuance of initial permits, permit renewals, and permit modifications, EPA Regions and authorized states and territories should work with facilities to consider potential adverse climate change impacts in assuring that RCRA requirements are met and that RCRA permits are protective of human health and the environment in the face of those impacts.

If you have questions about this document or would like assistance with evaluating climate vulnerabilities and adaptation measures as they relate to RCRA permitting, please contact Jeff Gaines, Office of Resource Conservation and Recovery (ORCR), at (202) 566-0332 or gaines.jeff@epa.gov.

Attachment

KEY TERMS PERTAINING TO CLIMATE ADAPTATION

For purposes of this memo, key terminology[3] includes:

Adaptation: Taking action to prepare for and adjust to both the current and projected impacts of climate change.

Adaptive Capacity: The ability of a human or natural system to adjust to climate change (including climate variability and extremes) by moderating potential damages, taking advantage of opportunities, or coping with the consequences.

Climate Change: Climate change refers to changes in global or regional climate patterns attributed largely to human-caused increased levels of atmospheric greenhouse gases.

Extreme Weather Event: An extreme weather event is an event that is rare at a particular place and time of year. Definitions of rare vary, but an extreme weather event would normally be as rare as or rarer than the 10th or 90th percentile of a probability density function estimated from observations. By definition, the characteristics of what is called extreme weather may vary from place to place in an absolute sense.

Resilience: Climate resilience can be generally defined as the capacity of a system to maintain function in the face of stresses imposed by climate change and to adapt the system to be better prepared for future climate impacts.

Vulnerability: The degree to which a system is susceptible to, or unable to cope with, adverse effects of climate change, including climate variability and extremes; it is a function of the character, magnitude, and rate of climate variation to which a system is exposed; its sensitivity; and its adaptive capacity.

[3] https://www.epa.gov/system/files/documents/2022-03/fy-2022-2026-epa-strategic-plan.pdf

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
2520 WEST ILES AVENUE, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

RCRA CORRECTIVE ACTION PERMIT

1191150001 -- Madison County
BP Products North America, Inc./Main Plant
ILD 980700967
Log No. B-147R2
RCRA Administrative Record

Issue Date: APR 29 2025
Effective Date: JUN 03 2025
Expiration Date: JUNE 03, 2035

PERMITTEE

BP Products North America, Inc.
Attention: Ms. Michelle Knapp
301 Evans Avenue, P.O. Box 167
Wood River, Illinois 62095

A Resource Conservation and Recovery Act (RCRA) corrective action permit is hereby issued to BP Products North America Inc. (BP) as Owner and Operator and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code (35 IAC) Subtitle G.

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires BP to conduct the following hazardous waste activities in accordance with the approved permit application and the conditions in this permit:

Corrective Action: Twenty-one (21) Solid Waste Management Units (SWMUs) and eight (8) Product Release Sites (PRSs) in nineteen (19) Land Reuse Areas.
Groundwater Monitoring: Corrective action for the SWMUs and PRSs in Land Reuse Areas.

This permit consists of the conditions contained herein and those in Sections and Attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 IAC Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this RCRA permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment A of this permit, and any subsequent amendments. Any inaccuracies found in the information provided in the approved permit application may be grounds for the termination or modification of this permit (see 35 IAC 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:OF:1191150001-RCRA-B147R2-Approval.docx
OF -1111 AMB SDD

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412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022
4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

RCRA Corrective Action Permit
BP Products North America/Main Plant

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SECTION I: GENERAL FACILITY DESCRIPTION

A. OWNER AND OPERATOR

The facility is owned and operated by BP Products, North America Inc., hereinafter referred to as the "Permittee" (35 IAC 702.121, 702.123 and 703.181).

BP Products North America, Inc.
301 Evans Avenue
Wood River, Illinois 62095

Facility Contact:
Michelle Knapp
Liability Manager
Remediation Management Services Company
An Affiliate of BP Products North America Inc.
847-346-7112
michelle.knapp@BP.com

B. LOCATION

1. Location of the facility:

   The BP Products North America, Inc. (formerly Amoco) Main Plant facility is located at 301 Evans Avenue, Wood River, Madison County, Illinois.

2. Definition of facility covered by this Permit:

   a. The boundary of the facility subject to this permit has been modified to reflect the previous corrective action and permit decisions made under the previous permit (Log No. B-147R). The original permitted facility (approximately 570 acres) was previously parceled to remove three specific portions of land, by parceling horizontally and vertically, as described below:

      1) A 9.56-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 418 feet above mean sea level (ft above MSL); this plane is located approximately 23 feet below ground surface (ft-bgs). The Property Index Number (PIN) for this parcel is 19-2-08-27-14-301-003. The PIN for the parcel directly beneath the 9.56-acre donated parcel is 19-2-08-27-301-004, which is still owned by the Permittee and included in the permitted facility boundary.

      2) A 7.5-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 428 ft above MSL; this plane is located approximately 15 ft-bgs. The PIN for this parcel is 19-2-08-27-10-101-002. The PIN for the parcel

directly beneath the parcel is 19-2-08-27-10-101-003, which is still owned by the Permittee and included in the permitted facility boundary.

3) An approximate 118.25-acre parcel purchased by Kinder Morgan Phoenix Holdings LLC (KMPH) which only extends from ground surface vertically downward to a subsurface horizontal plane at an elevation of 408 ft above MSL, which is located approximately 25 ft-bgs. The Property Index Numbers (PINs) for the 118.25-acre KMPH parcel are:

19-1-08-27-18-301-001.001
19-1-08-34-00-000-001.004
19-1-08-34-00-000-001.005
19-1-08-34-00-000-001.006
19-1-08-34-00-000-001.007

Note that the parcel of land which lies directly beneath each of the KMPH parcels is owned by the Permittee and is a part of the permitted facility.

b. The facility which is the subject of this permit, located between the ground surface and an elevation of 428 ft above MSL, is approximately 434.69 acres in size. This is a reduction of approximately 135.31 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) through (3).

c. The facility which is the subject of this permit, located between 418 ft above MSL and 428 ft above MSL, is approximately 442.19 acres in size. This is a reduction of approximately 127.81 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) and (3).

d. The facility which is the subject of this permit, located between 408 ft above MSL and 418 ft above MSL, is approximately 451.75 acres in size. This is a reduction of approximately 118.25 acres from the original BP Main Plant to remove the parcels described in Condition I.B.2.a (3).

e. The facility which is the subject of this permit, located between 408 ft above MSL and below, is approximately 570 acres in size. This is identical to the original BP Main Plant boundary.

3. Facility Maps:

The general location of the facility is shown on Figure B-1, Attachment B of this permit. The location of the solid waste management units (SWMUs), product release sites (PRSs) and Land Reuse Areas are shown on Figure B-2, Attachment

B of this permit. The facility layout map is shown on Figure B-3, Attachment B of this permit.

C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

1. There are no regulated hazardous waste management units (HWMUs) operating or requiring closure/post-closure care under this permit at this facility. Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit. This includes the requirements for personnel training (35 IAC 724, Subpart B), preparedness and prevention (35 IAC 724, Subpart C) and contingency plan and emergency procedures (35 IAC 724, Subpart D). However, please note that through the application of other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site.

2. The Permittee currently proposes no corrective action activities that would subject the facility to a RCRA Remedial Action Plan Permit (RAPP). If plans change in the future such that one or more corrective action activities would subject the facility to a RCRA RAPP, the Permittee must submit a modification request to incorporate requirements for a RAPP into this permit in addition to the plans submitted as a part of a normal corrective action document, as well as certification in accordance with Section 39(i) of the Illinois Environmental Protection Act.

3. Requirements for HWMUs: NC-SP1 and SFP

   a. At the North Cell of Spray Pond 1 (NC-SP1) the closure-by-removal requirements of 35 IAC 703.159 have been met. This determination was made in the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) and was based upon the review of the October 17, 2007 "Supplemental Soil Investigation Report for the North Cell of Spray Pond 1" and the Illinois EPA's May 29, 2007 (Log No. B-147-M-7) letter to BP. This letter also required a Class 3 modification of the permit requesting that the NC-SP1 be removed as a regulated unit subject to the requirements of the permit. With the approval of this permit, this requirement has been considered to be met and accordingly, no further action is necessary for the NC-SP1.

   b. At the South Flare Pit (SFP), Condition 2 of the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) stated that the review of soil data contained in the October 17, 2007 "Supplemental Soil Investigation Report" determined that the closure-by-removal demonstration had been met for soil and no further action was needed for soil:

      (1) With the implementation of a Health and Safety Plan for Construction Workers in the area of the SFP shown within the hyphenated line by Attachment 1 of the January 7, 2008 letter;

(2) With the eventual implementation of an Environmental Land use Control (ELUC) as required by Attachment C of the Illinois EPA's May 29, 2007 letter and the conditions set forth in the January 7, 2008 letter;

(3) Provided that groundwater issues for the SFP are addressed as outlined by Items 1 through 4 in Attachment C of the Illinois EPA's May 29, 2007 letter (Log No. B- 147-M-7 and B-147-M-1).

A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. Condition II.C.4 below (Groundwater Requirements for the SFP) addresses the requirements associated with Item 3 above.

4. Groundwater Requirements for the SFP

a. The Illinois EPA approved the March 18, 2010 submittal for the SFP demonstration to exclude the groundwater ingestion exposure route for perched groundwater (locally encountered groundwater in surficial fill and fine-grained native materials (Cahokia Clay facies) at the former SFP area.

(1) As a result of the perched groundwater route being excluded, the Groundwater Detection Monitoring Program was removed with the issuance of the renewed RCRA Permit (Log No. B-147R).

(2) The facility must satisfy the requirement of Condition II.F.2 of this permit.

(3) The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

SECTION II: CORRECTIVE ACTION

A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 IAC 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents, listed in 35 IAC 721, Appendix H, from any Solid Waste Management Unit (SWMU) at the BP Main Plant in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.

2. The original permit issued by the Illinois EPA for this facility on September 30, 1993 required that the facility conduct corrective action at twenty-one (21) SWMUs and nine (9) product release sites (PRSs) (locations where product was known to have been released or where product could have potentially been released). On June 21, 2002, the Illinois EPA approved a plan to expand the scope of this corrective action program to include all recognized environmental conditions (RECs) at the facility. To accomplish this, the facility was broken up into nineteen (19) investigation areas (Land Reuse Areas) so that corrective action at the facility could be addressed on an Area-by-Area basis.

3. One of the Land Reuse Areas (Area 18) contains two units that were identified and regulated as hazardous waste management units (HWMUs) in the permit issued to this facility on September 30, 1993. The facility has since accomplished closure by removal for these two units (referred to as the North Cell Spray Pond I (NC-SP1) and the South Flare Pit (SFP)). This section summarizes the status of these units relative to RCRA closure, RCRA post-closure and RCRA corrective action (it must be noted that HWMUs are a subset of SWMUs).

4. The facility has completed a substantial amount of corrective action efforts to date at this facility. This permit summarizes these efforts and describes the corrective action efforts which must still be completed at this facility to ensure the requirements of Section 3004(u) and (v) of RCRA and 35 IAC 724.201 are met.

5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility or any SWMUs found during the course of facility operations in the future.

6. As 35 IAC Part 742 was amended to include indoor inhalation exposure route, all SWMUs which obtained no further action for corrective action as listed in Condition II.B.1 must be evaluated for the indoor inhalation pathway and meet all updated remediation standards to meet the requirements of 35 IAC Part 742.

7. The Permittee must develop and implement a Corrective Measures Program (CMP), as necessary, to protect human health and the environment from any SWMUs and Areas of Concern (AOCs) at the facility.

8. The Permittee must carry out interim measures in accordance with the terms, conditions, and requirements of this permit to address existing contamination at the facility until such time as a final corrective measure can be developed and implemented.

9. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs and AOCs; and/or (2) future releases for existing SWMUs at the facility.

10. Investigation and remediation efforts carried out as part of the corrective action program implemented in accordance with this permit must meet the requirements of: (1) this permit, and the regulations cited herein; (2) the Illinois EPA and the USEPA guidance documents regarding such efforts; and (3) the Illinois EPA letters regarding such activities.

11. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 IAC 703 Subpart G.

12. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act (Act).

13. All documents submitted to the Illinois EPA regarding corrective action efforts must be accompanied by a completed RCRA Corrective Action Certification Form (LPC 632). This form can be found on the Illinois EPA website.

14. The Illinois EPA may modify this Section when it determines good cause exists for modification of a compliance schedule, such as an act of nature, strike, flood or materials shortage or other Force Majeure or events over which the Permittee has no control and for which there is no reasonably available remedy.

15. Based on the results of the investigative efforts, additional investigation and remediation, as necessary, may be required at any SWMUs or AOC to protect human health and the environment to meet the remedial objectives in accordance with 35 IAC Part 742.

16. The Permittee shall incorporate, as necessary, climate change adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding integrating climate change adaptation considerations into the RCRA corrective action process.

B. CORRECTIVE ACTION REQUIREMENTS

A plan to conduct a Phase I RCRA Facility Investigation (RFI) of the twenty-one (21) SWMUs and nine (9) product release sites (PRSs) of concern as identified in the 1993 permit and listed below was approved by Illinois EPA on September 7, 1994; a report documenting the results of this investigation was approved by Illinois EPA on June 5, 2001. In 2016, as the approximate 118.25-acre KMPH parcel at and above 408 feet above mean sea level (ft above MSL), which contained of one of the PRSs (PRS 7), was removed from the facility subject to this permit, the number of PRSs requiring corrective action under this permit is now eight (8), while groundwater throughout the original permitted boundaries of the facility is still subject to corrective action. The requirements to addresses corrective action at these areas are included in Section II of this permit.

SWMU #	SMMU Description
8	Three Leaded Tank Bottom Disposal Area
9	Northeast Sand Pits
12	Southeast Disposal Area
13	API Separator Sludge Landform
14	North Cell/Spray Pond 1
15	Spray Ponds Other Than North Cell/Spray Pond 1
16	Old API Separator
17	Additive Waste Pit
18	DAP Spent Filter Cake Storage Area
21	Former APAC Waste Transfer Area
22	New APAC Waste Transfer Area
23	MAP Spent Filter Cake Storage Area
24	APAC Slop Oil Tank 70
25	APAC Slop Oil Tank 176
26	APAC Slop Oil Tanks 189, 190, 845, and 846
27	APAC Slop Oil Tank 277 Area
30	Korea Tank Form Disposal Area
31	Waste Phenol Accumulation Area
33	South Flare Pit
34	Amoco's Sewer System
36	Liquid Waste Collection Bin

PRS #	PRS Description
1	Former Tank 228 Dike Area
2	Former Tank 256 Dike Area
3	Waste Oil Leak Area
4	Hydrocarbons on Water Table
5	North Tank Farm
6	East Tank Farm
8	Korea Tank Farm
9	Gasoline Piping Manifold

1. A Phase II RFI workplan for the SWMUs and PRSs mentioned above was approved by Illinois EPA on February 5, 2002 that was subsequently modified on June 21, 2002. The February 5, 2002 approval letter expanded the scope of corrective action at this facility to all recognized environmental conditions (not just the SWMUs and PRSs identified in the original 1993 permit) and divided the facility into nineteen (19) Land Reuse Areas for remediation and potential redevelopment. A map of the BP Main Plant Land Reuse Areas is presented in Attachment A-1 to this section; these areas are also identified as follows:

Land Reuse Area No.	Name
Area 1	Northwest Corner
Area 2	Northeast Corner
Area 3	North Central Area
Area 4	Former Rail Yard
Area 5	South Central Area
Area 6	Former APAC Area
Area 7	Former Alkyl Plant
Area 8	North Tank Farm
Area 9	Korea Tank Farm
Area 10	East Tank Farm
Area 11	Spray Pond Area (Ponds 1 & 2 and Intake Channel Areas)
Area 12	South Tank Farm
Area 13	Wildlife Enhancement Area
Area 14	Southeast Corner
Area 15	Administration Building
Area 16	Marketing Operations Area
Area 17	Liquid Propane Gas (LPG) Caverns
Area 18	North Cell Spray Pond 1 and South Flare Pit
Area 19	Spray Pond 3

2. Condition II.C.1 below includes the facility's corrective action efforts that have been completed, updated to June 2024. Condition II.D below includes the required corrective action that still must be completed at the facility.

3. All investigation efforts conducted at each Land Reuse Area must be sufficient as to thoroughly characterize contamination associated with all the identified recognized environmental conditions present in the area. The Land Reuse Area investigations will focus on soil and perched groundwater.

4. Conduct additional investigation and remediation, as necessary, to address any on-site and/or off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility.

5. All plans and reports associated with all aspects of corrective action at this facility should be submitted to the Illinois EPA for review and approval before implemented. A summary of the plans/reports submitted to date regarding corrective action at this facility, organized by the Illinois EPA log number (and

thus the chronologic order in which the plans/reports were submitted) is provided in Attachment C; this attachment also identifies the Illinois EPA's final action on each submittal.

6. The requirements of 35 IAC Parts 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 IAC 724. 201.

7. Components of the corrective action program must include:

   a. Continued groundwater monitoring and corrective action program in accordance with the conditions in Section III of this permit.

   b. Continued operation of the bioremediation systems and remediation of hydrocarbon in accordance with Condition II.E and as approved in Illinois EPA letters.

   c. Continued submittal of Corrective Action Progress Reports in accordance with Condition II.L.1 of this permit.

   d. Continued implementation of ELUC – Condition II.C of this permit.

8. The Permittee plans to complete corrective action for the soil and perched groundwater at the facility through the land reuse investigation remediation process. The goal in following this process is to obtain a NFA determination for a given Land Reuse Area by addressing recognized environmental conditions in that area. If the Permittee determines that redevelopment is not likely to occur in a given area, the Permittee will follow the corrective action process only for the SWMUs and PRSs in that area. If the potential for redevelopment of the Land Reuse Area becomes viable in the future, the Permittee would pursue an NFA determination for the entire area (including RECs) at that time. The general process for investigation and remediation of each Land Reuse Area is as follows:

   a. Current conditions will be established for the parcel/area.

   b. An Investigation Workplan incorporating the current conditions will be developed and submitted to the Illinois EPA for review and approval to investigate data gaps required to properly characterize the area (this submittal is referred to as the Current Conditions Report/Investigation Workplan).

   c. The investigation, focused on obtaining soil and any perched groundwater data, will be completed. It must be noted that the groundwater within the uppermost aquifer beneath the facility is being addressed by the requirements of Section III of this permit.

   d. The results of the investigation will be analyzed; as well as all other data remediation objectives will be developed in accordance with 35 IAC Part

742; a comparison will be made between the data to the developed remediation objectives; and a determination will be made regarding the need for any remedial activities (including the establishment of engineered barriers and institutional controls).

e. A report documenting the results of the efforts described in Conditions II.B.8.c and d above will be submitted to the Illinois EPA for review and approval (this report is referred to as the Investigation Report). This report will also identify any required remedial activities (including establishment of any required engineered barriers and/or institutional controls) needed to achieve the proposed remediation objectives.

f. Based upon review of the Investigation Report, the Illinois EPA will either:

(1) require that additional investigative efforts be conducted;

(2) issue a draft NFA letter for soil and perched groundwater (if applicable). This draft NFA will identify any required remedial activities (including establishment of an engineered barrier or institutional control) that must be completed before a final NFA letter can be issued. As necessary, the Permittee will conduct the required remedial activities and submit a report to the Illinois EPA for review and approval documenting the results of these activities. Additional work must be conducted by the Permittee as necessary in accordance with plans and reports approved by the Illinois EPA, until the Illinois EPA determines that a final NFA letter can be issued.

(3) issue a final NFA letter for soil and perched groundwater (if applicable); or

(4) require some combination of the above efforts.

g. Any engineered barriers and/or institutional controls required in the development of remediation objectives must be established before a final NFA letter can be issued. Plans for establishing the required engineered barrier, if necessary, and associated institutional control(s) required must be submitted to the Illinois EPA for review and approval as well as reports documenting completion of these efforts. Any other proposed remedial efforts to achieve the established remediation objectives must also be completed before a final NFA letter can be issued.

h. Development of the area may proceed so as long as such activities are conducted, meeting all the requirements and conditions of the NFA letter and any applicable conditions of this permit.

C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED

1. The status of investigations and corrective action for each Land Reuse Area as of September 2024, is presented on the table below.

Notes: CCR/IW = Current Conditions Report/Investigation Work Plan
Inv Report = Investigation Report
ELUC = Environmental Land Use Control
APAC = Amoco Petroleum Additives Company
NFA = No further Action
IEPA = Illinois EPA

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 1-Northwest Corner	PRS 5 – North Tank Farm	NFA for soils approved December 5, 2001. Recorded ELUC approved March 25, 2005.	Comply with conditions of NFA and ELUC.
Area 2-Northeast Corner	PRS 1 – Former Tank 228 Dike Area PRS 5 – North Tank Farm PRS 6 – East Tank Farm SWMU 9 – Northeast Sand Pit	NFA for soils approved August 13, 2002. Recorded ELUC approved March 29, 2005. Revised recorded ELUC approved February 27, 2012. A revised recorded ELUC approved August 9, 2017.	Comply with conditions of NFA and ELUC. The Permittee retains ownership and responsibility for RCRA corrective action activities associated groundwater in the vicinity of two parcels removed from the facility as described in Conditions II.C.5 (a) and (b) below.
Area 3-North Central Area	SWMU 24 – APAC Slop Oil Tank 70 SWMU 26 – APAC Slop Oil Tanks 189, 190, 845, 846	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised Inv. Report submitted May 8, 2012. IEPA requested that the Permittee withdraw the 2012 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 4-Former Rail Yard	SWMU 13 – Separator Sludge Landfarm SWMU 21 – Former APAC Waste Transfer Area	NFA for soils approved August 22, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC. * See Notes below.
Area 5-South Central Area	SWMU 27 – APAC Slop Oil Tank 177 Area PRS 3 – Waste Oil Leak Area	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA February 12, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 6-Former APAC Area	SWMU 17 - Additives Waste Pit SWMU 18 - Detergent Additives Plant (DAP) Spent Filter Cake Storage Area SWMU 22 – New APAC Waste Transfer Area SWMU 23 – Multipurpose Additives Plant (MAP) Spent Filter Cake Storage Area SWMU 31 – Waste Phenol Accumulation Area SWMU 36 – Liquid Waste Collection Bin	CCR/IW approved September 5, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA March 16, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 7-Former Alkyl Plant	PRS 5 – North Tank Farm	CCR/IW approved August 7, 2003. Inv. Report submitted June	The Permittee to submit revised Inv.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
		2, 2008 to IEPA. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	Report pending further discussion with IEPA.
Area 8-North Tank Farm	PRS 2 – Former Tank 246 Dike Area PRS 5 – North Tank Farm SWMU 8 – Bottom Disposal Areas SWMU 25 – APAC Slop Oil Tank 189	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 9-Korea Tank Farm	SWMU 30 – Korea Tank Farm Disposal Area PRS 8 – Korea Tank Farm	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Corrective Action Modification for microbial enhancement injection approved November 20, 2023.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. The Permittee to submit results of microbial enhancement injection in the Corrective Action Progress Reports required by Conditions II.L.1 and II.L.2.
Area 10-East Tank Farm	PRS 6 – East Tank Farm	CCR approved June 4, 2003. Inv. Report submitted March 21, 2008; revised Inv. Report received by IEPA on May 5, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Revised Inv. Report submitted December 20, 2019, superseding 2011 Inv. Report.	Revised Inv. Report pending IEPA review. * See Notes below.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 11-Spray Pond Area (Ponds 1 and 2 and Intake Channel Areas)	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1	RFI Phase I report for SWMUs in this area approved June 5, 2001. CCR/IW approved by IEPA January 24, 2012.	The Permittee implementing approved CCR/IW. * See Notes below.
Area 12-South Tank Farm	PRS 7 – South Tank Farm SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in this area approved June 5, 2001. IEPA notified of the Ownership Transfer of the Permittee to Kinder Morgan Phoenix Holdings LLC (KMPH) on November 2, 2015.	KMPH is responsible for RCRA corrective action activities at and above elevation 408 ft above MSL in Area 12. The Permittee retains ownership and responsibility for RCRA corrective action activities below elevation 408 ft above MSL.
Area 13-Wildlife Enhancement Area	SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26,2011. Additional environmental data collected in 2017-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 14-Southeast Corner	None	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved July 12, 2012. Environmental data collected in 2017-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 15-Administration Building	None	NFA for soils approved November 19, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC.
Area 16-Marketing Operations Area	SWMU 16 – Old American Petroleum Institute (API) Separator SWMU 34 – Amoco's Sewer System	CCR/IW approved May 5, 2009. Inv. Report submitted December 23, 2014 and received by IEPA on December 24, 2014. IEPA requested a revised Inv. Report in a letter dated June 14, 2016. Additional environmental data	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
		collected in 2018-2019 submitted March 8, 2024.	
Area 17-LPG Caverns	None	CCR/IW approved May 5, 2009. Inv. Report submitted October 22, 2012. IEPA requested that the Permittee withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 18-North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP)	SWMU 14 – NC-SP1 SWMU 33 – SFP	On January 7, 2008, Illinois EPA approved closure by removal demonstration for the NC-SP1. IEPA has determined that the facility has satisfied the groundwater requirements of IEPA's May 29, 2007 and September 9, 2008 letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. A closure by removal demonstration for the soils at the SFP was approved by IEPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the unit. Recorded ELUC approved July 18, 2016.	NFA at NC-SP1. Regarding the SFP, the Permittee must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. The Permittee must also comply with conditions of the ELUC.
Area 19 Spray Pond 3	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1	IEPA approved Inv. Report on December 6, 2007; IEPA revised this letter on April 13, 2009. This letter determined that no further action required in area provided certain requirements are met and certain restrictions are placed on future activities in the area.	The Permittee must carry out requirements set forth in IEPA's April 13, 2009 letter. * See Notes below.

*Notes: In accordance with the KMPH RCRA Permit issued March 4, 2024, small portions of the following Land Reuse Areas were included in the transfer of ownership to KMPH: 4, 5, 10, 11, 13, 17 and 19. The Permittee retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 ft above MSL.

2. As provided by 35 IAC 742.1000(a), an institutional control satisfactory to the Illinois EPA must be established for property or media that have been remediated to any acceptable standard identified in 35 IAC Part 742 other than those for a residential use. As of September 2024, the Permittee has completed the required environmental investigation and remedial activities associated with the corrective action for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 identified in Condition II.C.3. As discussed in Condition II.C.3, No Further Action (NFA) determinations for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 have been made by Illinois EPA.

3. As of September 2024, the Permittee has obtained NFA for the specific media at the following parcels and SWMUs:

Land Reuse Area/ SWMUs Present in Area	NFA and Media
Area 1	NFA letter for soil and groundwater ingestion route for perched-groundwater only was issued on December 5, 2001 (Log No. B-147-CA-11). ELUC was established for Area 1 (see Conditions II.C.4 and 6 below).
Area 2	NFA letter for soil only was issued on August 13, 2002 (Log No. B-147-CA-14). ELUC was established for Area 2 (see Conditions II.C.4 and 6 below). No perched groundwater was encountered during the investigation.
Area 4	NFA letter for soil only was issued on August 22, 2003 (Log No. B-147-CA-30). Exclusion of groundwater ingestion exposure route for perched-groundwater in this parcel was approved on August 22, 2003 (B-147-CA-30). ELUC was established for Area 4 (Conditions II.C.4 and 6 below).
Area 15	NFA letter for soil and groundwater ingestion route for perched groundwater only was issued on November 19, 2003 (Log No. B-147-CA-31,36 & 37). ELUC was established for Area 15 (see Conditions II.C.4 and 6 below).

4. As of September 2024, the following Environmental Land Use Control (ELUC) has been established following the NFA determinations by Illinois EPA and recorded with the Madison County Recorder's Office as shown in the table below.

ELUC Recorded as Part of RFI for BP Main Plant

Area Name	Size (Acres)	Parcel ID for Site	Date of NFA Letter	County Recorder's No. /Date Recorded	PIN/TAX ID
Area 1	6.3	Northwest Parcel	December 5, 2001	2003R05241/ January 23, 2003	19-1-08-28-12-201-001.001
Area 2	43	Police Station	August 13,	2003R08605/	19-2-08-27-14-301-

		Donation Parcel & BP retained Parcel	2002	February 5, 2003	003;19-2-08-27-301-004; 19-2-08-27-10-101-002; 19-2-08-27-10-101-003.
Area 4	29.44	Former Rail Yard	August 22, 2003	2005R38583/ July 13, 2005	19-1-08-28-00-000-010; 19-1-08-33-00-000-013;19-1-08-34-00-000-001; 19-1-08-34-00-000-001.001
Area 15	11.73	Administration Building Parcel	November 19, 2003	2004R59615/ October 1, 2004	19-1-08-28-00-000-010.001

5. Three parcels have been removed from the original definition of the facility that are subject to corrective action under this permit as described below:

   a. BP donated a 9.56-acre parcel in Area 2 to the City of Wood River. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 23 ft-bgs at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-14-301-003. BP retained ownership of that portion of the 9.56- acre parcel which extends below a horizontal plane at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-301-004.

      (1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on February 5, 2003, one for the parcel being donated to the City of Wood River and one for that portion of Area 2 being retained by BP.

      (2) The Illinois EPA approved a draft ELUC for the 9.56-acre donation parcel on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. 2011R45888. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R0865 filed with the Madison County Recorder on February 5, 2003.

      (3) The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. 2011R45887. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R08605 filed with the Madison County Recorder on February 5, 2003) and superseded the original ELUC for Area 2.

(4) The Illinois EPA issued a modified permit for this facility on December 21, 2012 which allowed the 9.56-acre donation parcel (Parcel Index No. 19-2-08-27-14-301-003) to be removed from the defined facility covered by this permit. The basis for this modification was that: (1) a NFA was issued for soils in Area 2 by Illinois EPA on August 3, 2002 (which would include the 9.56-acre donation parcel), subject to certain restrictions being in place on future activities in Area 2; and (2) an ELUC specific to this parcel was in place which restricted future activities in the donation parcel as required by the NFA Letter for Area 2.

b. BP donated a 7.5-acre parcel within Area 2 to the City of Wood River for the construction of a new police station. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 15 ft-bgs at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-10-101-002. BP is retaining ownership of that portion of the 7.5-acre parcel which extends below a horizontal plane at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-10-101-003.

(1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on December 7, 2011, one for the parcel being donated to the City and one for that portion of Area 2 being retained by BP.

(2) The Illinois EPA approved a draft ELUC for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above.

(3) The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on May 4, 2017 (Log No. B-147R-CA-77) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18529. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above and also superseded this latter ELUC.

(4) This modified permit (Log No. B-147R-M-16 and any future modifications) allows the subject 7.5-acre donation parcel (Parcel Index No. 19-2-08-27-104-101-002) to be removed from the defined facility covered by this RCRA permit. The basis for this modification is that: (1) NFA Letters were issued for soils in this parcel by Illinois EPA on August 13, 2002 and August 22, 2016, subject to certain restrictions being in place on future activities in the parcel; and (2) an ELUC specific to this parcel is in place

which restricted future activities in the donation parcel as required by these NFA letters.

c. An approximate 118.25-acre three-dimensional parcel at elevation of 408 ft above MSL is not part of the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area below elevation of 408 ft above MSL remains part of the facility and is subject to BP Main Plant's RCRA permit.

(1) KMPH is responsible for RCRA Corrective action activities at and above elevation of 408 ft above MSL at the former BP Wood River Terminal (South Tank Farm), Land Reuse Area 12, and those portions of the following areas that were included in the purchase: 4, 5, 10, 11, 13, 17 and 19.

(2) The Permittee retains ownership and responsibility for RCRA Corrective Action activities below elevation of 408 ft-MSL.

(3) The Permittee and KMPH recognize that the post-closure conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closure conditions, operations, and activities at the property retained by BP, or its successors could impact property owned and/or operated by KMPH or its successors.

(4) In the event that post-closure activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by the Permittee, KMPH will be responsible for the environmental impacts and corrective action activities that result.

(5) In the event that post-closure activities at the property retained by the Permittee impact the overlying and/or adjacent property owned by KMPH, the Permittee will be responsible (if determined to be the result of the Permittee's activities) for the environmental impacts and corrective action activities that result.

6. In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (the Permittee retained parcel only), 4 and 15:

a. No groundwater beneath the areas, including perched groundwater, may be used as a potable supply of water.

b. Contaminated groundwater and/or soil that is removed, excavated, or disturbed from the areas must be handled in accordance with all applicable laws and regulations.

c. The areas may not be used for residential purposes and may only be used solely and exclusively as "industrial/commercial property" as that term is defined in 35 IAC Part 742.

d. Excavation and subsurface construction work in the Land Reuse Areas must be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soil and impacted perched groundwater in the area. All construction workers shall be equipped with appropriate personal protective equipment as required and specified in the site health and safety plan.

e. The soil within each area is to remain in place, except where necessary to remove it for construction purposes.

f. A detailed process must be followed in the management on any soil excavated during construction/demolition/excavation efforts in the areas. This process allows the excavated soil to be placed elsewhere at the BP facility provided certain requirements are met.

g. Requires maintenance of engineered barriers over certain portions of each area as follows:

Land Reuse Areas	Number of Subareas Requiring an Engineered Barrier
Area 1	2
Area 2	2
Area 4	3
Area 15	4

h. Prior to commencement of any future excavation and/or construction in or near the sub-areas covered by an engineered barrier, a safety plan for that sub-area is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations, and other USEPA guidance as available. At a minimum, the plan should address possible worker exposure to contaminated soil which may be present in the sub-area. Any contaminated soil removed, or excavated from, or disturbed in the sub-areas where any engineered barrier is present must be handled in accordance with all applicable laws and regulations.

i. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA's NFA determination in accordance with the program under which the determination was made. The failure to

comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Act.

j. The limitations or requirements of an ELUC apply in perpetuity or until:

(1) The Illinois EPA issues a new NFA determination approving modification or removal of the limitation/requirement; and

(2) A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

k. At no time shall this site be used in a manner inconsistent with the land use limitations established in an approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved; and (2) a new NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 IAC Part 742.

(1) Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC Part 742.

(2) Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

1. The Permittee must meet the applicable indoor inhalation remediation objectives both on-site and the impacted off-site properties in accordance with 35 IAC Part 742.

a. The Permittee must continue to address the primary objectives set forth in these documents entitled, "Revised Indoor Inhalation Exposure Route Evaluation and Work Plan" dated August 28, 2019 (Log No. B-147R-CA-96) and received by Illinois EPA on August 29, 2019; "Action Plan For Potential Man-Made Pathway Evaluation" dated November 25, 2019 (Log No. B-147R-CA-98) and received by Illinois EPA on November 26, 2019; "Soil Gas Pathway Evaluation Report" dated June 7, 2021 (Log No. B-147R-CA-111) and received by Illinois EPA on June 8, 2021; "Additional Info to the Revised Indoor Inhalation Exposure Route Eval And Work Plan Dated August 29, 2019 To Provide An Update on Changed Site Conditions" dated April 12,2024 (Log No. B-147R-CA-126) and received by Illinois EPA on April 16, 2024. Note, these documents are currently under review by the Illinois EPA.

b. Additional evaluation for the indoor inhalation exposure route requirements must be met for all SWMUs and PRSs listed in Condition II.B.

2. The Permittee is required to continue addressing the key objectives in these documents entitled, "Main Plant Area 10 Comprehensive Land Reuse Investigation Report" dated December 20, 2019 (Log No. B-147R-CA-99) and received by Illinois EPA on December 30, 2019; "Main Plant Land Reuse Investigation Data Submittal of General Background, Sampling Methods, Analytical Procedures, and Analytical Results for Areas" dated March 8, 2024 (Log No. B-147R-CA-125) and received by March 12, 2024. Note, these documents are currently under review by the Illinois EPA.

3. Additional corrective action activities must be carried out and additional information must be submitted to Illinois EPA, as necessary, to ensure all SWMUs and PRSs are properly remediated.

4. The requirements in Condition II.E and Section III of this permit must be met to address remediation of groundwater and hydrocarbon and refinery products.

E. REMEDIATION OF HYDROCARBON AND REFINERY PRODUCTS

Implementation of the bioremediation systems for impacted groundwater, treatment and reduction of free phase and residual product, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

1. Prior to the issuance of the permit issued May 29, 2018 (Log No. B-147R-M-17 and M-18), the Permittee had operated a Hydrocarbon Recovery System (HRS) to remove refinery product from above the water table. The HRS at the Former Wood River Main Plant was commissioned as an interim remedial measure (IRM) in 1993 to hydraulically recover subsurface mobile light non-aqueous phase liquids (LNAPL) from above the water table. The original system included twenty-one (21) HRS extraction wells. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS extraction wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness.

2. During 2016 and 2017, in an effort to provide an interim measure and to conduct an evaluation of bioremediation technologies, the Permittee proposed to replace the above-mentioned original HRS with alternative remedial system(s). The Permittee installed and started to operate the following three different hydrocarbon bioremediation systems in the northern and central part of the BP Main Plant on a pilot scale:

a. Biovent System (in the mid-section of Area 3); the Biovent System is designed to inject air into the vadose zone to provide oxygen and enhance in-situ aerobic bioremediation of hydrocarbons and refinery product at and above the water table as detailed in Attachment E;

b. Biosparge System (mainly in the eastern portion of Land Reuse Area 5 extending to portions of Land Reuse Areas 6 and 10); the Biosparge System is designed to inject air below the water table to provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in groundwater and the smear zone, as well as allow for biodegradation of volatilized hydrocarbons and residual product as it contributes to dissolved phase impacts in the vadose zone as detailed in Attachment E;

c. Air Sparge/Soil Vapor Extraction (AS/SVE) (in the northeastern corner of Area 8); Air Sparging is designed to inject air below the water table to volatilize hydrocarbons from groundwater and the smear zone and provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in the saturated zone. Soil Vapor Extraction is designed to recover volatilized hydrocarbons as necessary for ex-situ treatment, and to promote the flow of atmospheric air into the vadose zone to enhance aerobic bioremediation above the water table. This system is detailed in Attachment E;

The locations of the three pilot remediation systems within the facility are shown in Figure E-1 of Attachment E. Since installation of the pilot-scale remediation systems, they have undergone upgrades and optimizations in response to performance monitoring. BP completed significant modifications to the pilot-scale bioremediation systems and technologies in 2019-2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the Main Plant. In addition, passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those areas to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation. A mobile solar-powered biovent system was also put into service to address refinery product in 2024. Excluding the mobile solar-powered biovent system, the configuration and operation of the pilot-scale bioremediation systems is detailed in Attachment E, including a timeline of operations, enhancements, and modifications for each system.

3. The facility shut down the above-mentioned HRS in Condition II.E.1 above under the Temporary Authorization issued by Illinois EPA (effective date of December 5, 2017) provided the facility collected data as required, and submitted: (1) a Pilot-Scale Bioremediation System Performance Report for the pilot-scale tests identified in Condition II.E.2 above; and (2) a workplan for developing a site-wide hydrocarbon recovery/remediation system to address the hydrocarbon contamination in the groundwater and the smear zone above the facility's remedial objectives as defined in the workplan and applicable regulations, as approved by Illinois EPA. The workplan was required to provide a conceptual

plan to implement the hydrocarbon recovery/remediation systems for the entire facility in the groundwater and smear zone as well as an outline of the next steps in full-scale implementation of the hydrocarbon remedial systems. A report entitled, "Remedial Action Selection Report and Main Plant Remedy Roadmap" was received January 31, 2022, to meet this requirement. The document is currently under review by the Illinois EPA.

4. The Permittee shall operate, expand and use the pilot-scale Bioremediation Systems and technologies in order to remediate hydrocarbons and refinery product from the smear zone and vadose zone as it contributes to dissolved phase impacts. The number and location of Bioremediation Systems and Bioremediation wells, as detailed in Attachment E, can be modified to maintain or enhance remediation of hydrocarbons and refinery product. As the Permittee has continued to successfully operate these systems, activities associated with these systems shall be summarized in the Corrective Action Progress Reports required by Condition II.L.1.

5. As an interim remedial measure to address recoverable refinery product prior to the implementation of the Main Plant Remediation Plan, the Permittee shall perform interim removal action(s);

   a. Interim Removal Actions Shall occur when the 30-Day Average Mississippi River Stage as Calculated based on the Alton Dam Tailwater River stage is below 410 ft above MSL.

   b. Recoverable refinery product requiring interim removal shall be considered the product from those wells where most recent recoverability testing results indicate a product transmissivity of 2.0 ft^2/day or greater:

      (1) The refinery product recoverability shall be determined through product baildown testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method (calculation method described in ASTM E2856-13 or most current method);

      (2) Re-evaluation of wells exhibiting most recent transmissivity testing results above 2.0 ft^2/day and thicknesses equal to or greater than 0.5 feet will be conducted a minimum of once per year during seasonal low water table conditions;

      (3) Refinery product exhibiting transmissivity values below 2.0 ft^2/day will be addressed as part of the final remedy;

   c. Interim removal actions must include one of the following (for wells above 2.0 ft^2/day):

(1) Mobile LNAPL recovery system;

(2) Manual bailing and pumping; or

(3) Expansion of a pilot-scale bioremediation technology (i.e., AS/SVE, bioventing, or biosparging) into the area.

d. Interim remedial performance data will be used to re-evaluate LNAPL transmissivity over time.

F. SUMMARY OF RCRA CLOSURE, RCRA POST-CLOSURE AND RCRA CORRECTIVE ACTION COMPLETED AT THE NORTH CELL SPRAY POND 1 AND THE SOUTH FLARE PIT

1. The North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP) were regulated HWMUs in the permit issued to this facility on September 30, 1993. Since that time, BP has been providing post-closure care of these two HWMUs in accordance with the requirements of that permit. BP began pursuing a closure-by-removal demonstration for the NC-SP1 in 2002 and the SFP in 2005.

   a. With regard to the NC-SP1, on January 7, 2008, Illinois EPA approved a closure-by-removal demonstration. Based upon this approval, no further action is necessary at NC-SP1 in regards to RCRA closure, RCRA post-closure or RCRA corrective action.

   b. With regard to the SFP:

      (1) The Illinois EPA has determined that the facility has satisfied the groundwater requirements of Illinois EPA's May 29, 2007 (Log Nos. B-147-M-7 and M-13) and September 9, 2008 (Log No. PS08-030) letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

      (2) A closure-by-removal demonstration for the soils at the SFP, was approved by the Illinois EPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the HWMU. *A* certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP.

2. The ELUC was established for the SFP, which placed the following restrictions, at a minimum, on the future activities of the subject property:

a. All groundwater, including the perched groundwater, under the property shall not be used as a potable supply of water, and any contaminated groundwater and/or soil that is removed, excavated, or disturbed from the property shall be handled in accordance with all applicable laws and regulations;

b. The property shall not be used for residential use. The property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IAC Part 742;

c. Any excavation and subsurface construction work on the property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to field screening tests for volatile organic compounds (VOCs). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil;

(2) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will must be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site-specific industrial/commercial remediation objectives (ROs) developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in II.F.2.e.1 above.

(4) Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory

results, may be reused as clean fill in other areas of the former BP Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off-site for disposal in accordance with 35 IAC Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

G. LAND REUSE PROCESS FOR AREAS 1 THROUGH 19

The purpose of the Land Reuse process is to allow for a potential redevelopment for each Land Reuse Area when proposed by the Permittee and approved by the Illinois EPA at the facility.

1. A NFA determination may be made for a Land Reuse Area and approved by the Illinois EPA in order to remove the Land Reuse Area from the definition of the facility subject to this permit for redevelopment by following the process described below:

   a. Assess and document the current conditions of the Land Reuse Area in the Current Conditions Report (CCR);

   b. Develop a Land Reuse Work Plan to investigate and address any data gaps necessary for a proper characterization of the Land Reuse Area;

   c. Conduct an investigation to collect soil and perched groundwater data for the Land Reuse Area;

   d. Analyze the collected data and perform a comprehensive risk assessment, as necessary;

   e. Identify the necessary remedial actions and institutional controls and incorporate them into the Land Reuse Investigation Report;

   f. Obtain a conditional NFA determination from the Illinois EPA for soil, perched groundwater and groundwater upon the Illinois EPA review and approval of the Land Reuse Investigation Report;

   g. Submit a draft ELUC for the Illinois EPA's review and approval;

   h. Upon the Illinois EPA's approval of a draft ELUC, record the ELUC on the property deed for the Land Reuse Area and submit a certified copy of the recorded ELUC to the Illinois EPA's review and approval;

i. Upon the Illinois EPA's approval of a certified ELUC, proceed with the development of the Land Reuse Area, which fully complies with the conditions of the Illinois EPA's approval letters regarding such activities; and

j. As necessary and applicable, submit final reports and required documentation of construction and any other required information to the Illinois EPA that satisfies conditions of the Illinois EPA approval letters, which may include an addendum to the ELUC and/or NFA letter.

2. The eventual removal of a Land Reuse Area from the terms and conditions of the facility's permit (so that its ownership can be transferred to another entity) will require that:

a. The Permittee must eventually receive a NFA determination for all Land Reuse Areas from the Illinois EPA for the soils, groundwater, and, as appropriate, perched groundwater and/or surface water within the Area by following the Land Reuse process and at the completion of the corrective action process;

b. The Permittee either receives a NFA determination for the groundwater in the vicinity of the Land Reuse Area from the Illinois EPA or demonstrates through the Land Reuse process that the contamination remaining at the site will not pose threat to human health and the environment under the appropriate intended use for the area during the Land Reuse Process for the purpose of redevelopment as described in Condition II.G.1 above.

c. The boundaries of any parcels established in accordance with the process approved by this permit must be defined by a professional land surveyor licensed to practice in the State of Illinois and meet the requirements of all statutes and regulations applicable to such efforts. The boundaries of any new parcel must first be approved by the Illinois EPA before a new PIN is obtained for the parcel. It must be noted that Illinois EPA has already approved the boundaries of nineteen (19) horizontal parcels within the facility.

d. Each parcel established in accordance with the Land Reuse process approved by this permit must obtain an individual and unique Real Estate Tax Index/PIN from Madison County.

e. At a minimum, as part of obtaining a NFA determination, an ELUC must be established which allows full access of the property for the Permittee in the future for any refinery product and/or groundwater monitoring or remediation efforts to complete any remaining corrective actions required under this permit within the timeline approved by the Illinois EPA.

3. To modify the definition of the facility covered by the permit, the Permittee will be required to submit a request to modify the permit in accordance with 35 IAC

703, Subpart G. Such a request must be a Class 3 modification request, unless demonstrated otherwise, in accordance with the procedures set forth in 35 IAC 703.283.

4. The Illinois EPA must be able to enforce any efforts necessary to complete corrective action and achieve approved remediation objectives at the subject facility. This may be achieved through institutional controls, ordinances and the facility's permit.

5. As property (or parcels) with new PINs are established, it may be necessary to re-file ELUCs which have already been filed with the Madison County Recorder.

   a. This effort is necessary if the new parcel was created from a parcel for which an ELUC was already established.

   b. In addition to re-filing the required ELUC on the new parcel, it will be necessary to file documentation on the original parcel indicating that the original ELUC no longer applies to that parcel (it may also be necessary to file a revised ELUC on the original parcel) identifying any restrictions that still apply to that parcel of land.

H. CORRECTIVE MEASURES REQUIREMENTS

1. If it is determined that corrective measures must be taken at a SWMU, then the Permittee must implement a Corrective Measures Program (CMP) for such SWMUs in general accordance with the procedures set forth in Attachment D. The corrective measures implemented by the Permittee must be sufficient to ensure the appropriate requirements of 35 IAC Parts 302, 620, 724, and 742 are met.

2. The types of corrective measures which may be implemented include, but are not limited to:

   a. Removal of the contaminants or the contaminated media so that the remaining media meet remediation objectives developed in accordance with 35 IAC Part 742;

   b. Closing the SWMU as a landfill by establishing a proper final cover over the SWMU and then providing proper long-term monitoring/maintenance/management of: (1) leachate; (2) subsurface gas; (3) final cover system; and (4) groundwater;

   c. Establishing engineered barriers to restrict exposure to the contaminants remaining at the SWMU (necessary to certain remediation objectives developed in accordance with 35 IAC Part 742); and

d. Establishing institutional controls to restrict activities at the facility, as necessary, to support remediation objectives established in accordance with 35 IAC Part 742.

3. The CMP described in Attachment D consists of five (5) phases:

a. Phase I--conceptual design of the selected corrective measure.

b. Phase II--development of the final design plans for the corrective measure, including installation and operation/maintenance plans.

c. Phase III--actual construction/installation/implementation of the corrective measure.

d. Phase IV--operation/maintenance/monitoring, as necessary, of the corrective measure to ensure it is being properly implemented and is properly protecting human health and the environment.

e. Phase V--demonstration/verification that the corrective measure has been completed and that the established remediation objectives have been achieved.

f. Phases may be combined or skipped, depending on the actual corrective measure selected. The overall CMP implemented at a given SWMU must: (1) be logical in nature: and (2) allow for the Illinois EPA oversight and approval throughout the entire process. As such, it will be necessary for the Permittee to submit workplans and reports regarding all aspects of corrective measures for the Illinois EPA review and approval prior to carrying out any corrective measure activity.

4. A Phase I CMP workplan, or its equivalent, must be submitted to the Illinois EPA within ninety (90) days of the date that the Illinois EPA notifies the Permittee of the need for a CMP.

5. Subsequent CMP related workplans and reports must be submitted to the Illinois EPA for review and approval in accordance with a schedule approved by the Illinois EPA.

6. Once all corrective measures have been completed, a report must be developed documenting all efforts and results associated with the completed measure, including, as appropriate, information demonstrating the approved remediation objectives for the project have been achieved.

I. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s)

1. The Permittee shall notify the Illinois EPA in writing of any newly identified SWMU and/or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30)

days after discovery. The notification shall provide the following information, as available:

a. The location of the newly identified SWMU and/or AOC in relation to other SWMUs on a scaled map or drawing;

b. The type and past and present function of the unit;

c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);

d. The period during which the unit was operated;

e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU/AOC, to the extent available; and

f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU/AOC, the Illinois EPA may request in writing, that the Permittee prepare a SWMU Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this permit. This SWMU Assessment Plan must also propose investigations, including field investigations, if necessary, to determine the release potential to specific environmental media for the newly identified SWMU/AOC. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly identified SWMU/AOC to the environment.

3. Within ninety (90) days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall submit a SWMU Assessment Plan to the Illinois EPA for review and approval.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, conditionally approve, or disapprove the Plan in writing. If the Plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) days of receiving such written notification or according to the terms and schedule established within the Plan and any conditions placed on it. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised plan.

5. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in

the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.

6. Additional investigation plans and reports must be submitted to and approved by the Illinois EPA, as necessary, to ensure the nature and extent of contamination at the SWMU/AOC is adequately characterized. Once the contamination is characterized, the Permittee shall develop remedial objectives for the SMWU/AOC in accordance with 35 IAC Part 742; such objectives are subject to the Illinois EPA review and approval.

7. The Permittee must implement a CMP, as necessary, to properly address any contamination encountered during the assessment. Guidance regarding the implementation of this program will be provided at the time the Illinois EPA notifies the Permittee of the need for such a program.

8. All efforts carried out at newly identified SWMU/AOCs must meet the requirements of 35 IAC 724.201.

J. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs identified in the RCRA Facility Assessment (RFA) which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition II.I.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in condition II.H. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

K. INTERIM MEASURES/STABILIZATION

The Permittee shall carry out interim measures/stabilization activities to prevent or mitigate the migration of a release of hazardous substances into the environment, and to provide adequate protection to human health and the environment.

1. At any time during the corrective action process, the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of a RFI or a CMS prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal CMS.

2. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:

   a. Objectives of the interim measures; how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

   b. Design, construction, and maintenance requirements;

   c. Schedules for design and construction; and

   d. Schedules for progress reports.

3. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the other corrective action efforts being carried out at the facility or of any other portion of the permit.

4. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

5. Consistent with the annual reporting requirements of this permit, the Permittee shall submit a report assessing the effectiveness of any interim measures being carried out in accordance with this permit. Based on a review of this report, the Illinois EPA reserves the right to require additional interim measures be carried out if it is determined that the interim measure is unable to protect human health and the environment. This annual report should at a minimum contain the following information regarding each system which comprises the interim measure:

   a. A discussion of each system's operation during the year. This discussion should address: (1) actual daily, weekly and monthly flow rates through each system; (2) any periods when the systems were not operating; and (3) deviations from the design operating procedures for the system (such as problems with drawing an adequate vacuum, downtime due to equipment failure, etc.);

   b. Results of all monitoring efforts carried out during the year;

   c. A discussion of the effectiveness of the system supported as appropriate with data and calculations; and

d. Recommended changes, if any, which should be made to the system to improve its effectiveness.

6. The Illinois EPA reserves the right to require the Permittee to remove or treat soil if the Illinois EPA determines that contaminants are present in the soils at levels such that the remediation system is unable to protect human health and the environment. Remediation objectives for corrective measures will be established by the Illinois EPA at a later date.

7. The interim measure approved for a SWMU may not be sufficient to meet the final requirements for corrective action for remediation for the unit. The adequacy of the interim measure will be addressed upon the Illinois EPA review and approval of the RFI reports and the CMP, as required by this permit. As such, the Permittee may be required to expand this interim measure as necessary to address existing or additional contamination detected through RFI investigations.

8. The Illinois EPA reserves the right to require revision and modification of the interim measures implemented by the facility should it be determined by the Illinois EPA through information obtained through facility monitoring that the interim measures approved by this portion of the permit are ineffective in protecting human health and the environment.

L. REPORTING REQUIREMENTS

1. A Corrective Action Progress Report must be submitted summarizing the corrective action efforts completed during each quarter of the calendar year. This report must also contain a general description of the corrective action efforts to be completed during the next quarter of the calendar year.

   a. The reports should be submitted in accordance with the following schedule:

Reporting Period	**Report to be Submitted by the following**
January-March	May 1
April-June	August 1
July-September	November 1
October-December	March 1*

*Included in Annual Report required in Condition II.L.2 below.

   b. Each Corrective Action Progress Report must contain:

      (1) a summary of activities completed at each parcel during the quarter, including information regarding the amount of free product/groundwater/leachate removed on a weekly basis from various units during the quarter;

(2) a discussion of any problems encountered while conducting corrective action at each parcel during the quarter;

(3) A summary of the activities anticipated to be carried out during the next quarter.

2. A report must be submitted to Illinois EPA by March 1 of each year which summarizes corrective action program activities completed at the facility during the previous calendar year (i.e., the previous January 1 to December 31). This report must contain a compilation/summary of the information in the quarterly reports for the year, what was completed during the year, and what must still be done in the next year and in the following years.

3. Final reports must be submitted to Illinois EPA for review and approval when corrective action is complete for a given parcel. Such reports must be certified by an independent licensed professional engineer and a person of authority from the Permittee. This certification must meet the requirements of 35 IAC 702.126. These reports must contain be detailed in nature and contain sufficient information which (1) describes in detail all investigation/remediation efforts carried out in the parcel; and (2) the efforts were carried out in accordance with the approved plan and this permit.

M. COST ESTIMATES/FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The current cost-estimate for completing corrective action and groundwater remediation at the BP Main Plant by the facility is $87,922,423 in 2020 dollars. The Permittee shall prepare an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate as required in Condition IV.C.2. The cost-estimate for completing corrective action required in this permit must include 10% contingency.

2. The Permittee shall prepare a cost estimate for the completion of any corrective action required under this permit, in order to provide financial assurance for completion of corrective action, in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required under 35 IAC 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201 and this permit. These estimates must be based upon third party costs. The revised cost estimate for corrective action must be submitted to the Illinois EPA as necessary or requested by Illinois EPA.

3. The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in

35 IAC 724.243, in at least the amount of the cost estimate required under Condition II.M.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the submittal of the initial or revised cost estimates required under Condition II.M.1. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 IAC 724.246 at its discretion.

4. It must be noted that cost estimates and financial assurance must be provided for the operation of the groundwater remediation system required by Section III of this permit as such a system is necessary to meet the requirements of 35 IAC 724.201.

5. All cost estimates prepared under the requirements of Conditions II.M.1 through II.M.4 must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281.

6. Financial assurance for corrective action must be updated, as necessary, to reflect the current status of the RCRA corrective action program at this facility. In addition, this financial assurance must be adjusted annually for inflation.

SECTION III: GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Hazardous constituents associated with historical activities at the BP Main Plant have been detected in the groundwater across the site which exceed the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

The groundwater corrective action program required by this permit includes:

1. Control of the horizontal and vertical flow of the vertical column of groundwater in the uppermost aquifer such that groundwater flow is towards the interior of the BP Main Plant. This control of groundwater flow will be accomplished by withdrawing sufficient quantities of groundwater from the uppermost aquifer. Such flow control is necessary as a corrective measure to prevent further contaminant migration of on-site releases of product or waste, beyond the boundaries of the BP Main Plant and is the basis for the establishment of a Groundwater Management Zone (GMZ), except as provided in Condition III.A.5 below.

2. Verification that the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

3. Monitoring the quality and movement of the groundwater in the uppermost aquifer beneath the BP Main Plant to determine the effectiveness of the groundwater corrective action program, as well as, verify compliance with the GMZ.

4. Remediating and/or removing refinery hydrocarbon sources to groundwater impacts, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the BP Main Plant.

5. In the event that the Permittee is unable to demonstrate an inward gradient in the southeast corner of the facility, or in the vicinity of Land Reuse Area 9, compliance will be satisfied by demonstration that the groundwater quality at designated Sentry Observation Monitoring Wells in the southeast corner and/or Demonstration Wells in the vicinity of Land Reuse Area 9 meet applicable groundwater quality standards. The Permittee shall comply with the requirements of III.E.11 in the event that groundwater quality in these portions of the facility do not meet groundwater quality standards. Contingent actions could include

increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.

6. Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

B. IMPLEMENTATION

1. The Permittee shall implement the Groundwater Corrective Action Program established in this permit upon the effective date of this permit. On that date, the corrective action and groundwater monitoring requirements set forth in this permit shall supersede those previously established.

2. The Permittee shall carry out the corrective actions specified in this permit on the groundwater beneath the BP Main Plant. The "uppermost aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer at this facility is a sand and gravel aquifer located approximately 30 feet below the ground surface (ft-bgs) and extending to a depth of about 101 to 113 ft-bgs to the top of the bedrock surface. This aquifer is commonly referred to as the "American Bottoms."

3. For the purposes of this permit and in accordance with 35 IAC Part 620 regulations, the sand and gravel aquifer has been designated Class I: Potable Resource Groundwater. The analytical results obtained from these groundwater monitoring wells shall be compared to the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1 or to established background values or other applicable standards as appropriate.

4. The Permittee must continue corrective action measures to the extent necessary to ensure that the groundwater protection standard is not exceeded to meet the requirements of 35 IAC 724.201.

C. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples from the uppermost aquifer. The location of these wells is specified in Figure C-2 of the approved permit application. Northing and Easting coordinates for wells are provided in Attachment F.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
GMZ Boundary Wells					
G005[8]	B-5D	44.00	386.10	406.10-386.10	UMA H
G006	B-6	44.00	384.01	404.01-384.01	UMA H
G008*	B-8D	50.00	378.21	408.21-378.21	UMA H
G021	C-11	49.50	382.27	417.27-382.27	UMA C
G023	C-13	49.50	381.74	416.74-381.74	UMA C
G04R	B-4R	59.50	382.54	402.54-382.54	UMA H
G045	G-5	40.87	402.67	412.67-402.67	UMA H
G055	G-15	52.19	393.02	413.02-393.02	UMA H
G059	G-19	45.00	384.33	404.33-384.33	UMA C
G062	G-22	45.00	388.01	408.01-388.01	UMA H
R063	G-23R	46.24	385.58	405.82-385.82	UMA H
G067#	G-27	49.00	386.28	406.28-386.28	UMA H
G068@	G-28	50.00	392.24	414.24-392.24	UMA H
G073	G-33	44.00	387.15	407.15-387.15	UMA H
G079	G-39	40.00	383.12	404.12-384.12	UMA C
G084	G32R	45.00	389.13	409.13-389.33	UMA H
G085	G-26R	54.15	388.59	408.94-388.94	UMA H
G111	SWMU12-MW02	38.17	393.89	404.06-394.06	UMA H
G112	SWMU12-GH1	43.22	388.87	408.87-388.87	UMA C
G32R	H32R	44.50	384.64	405.34-385.34	UMA C
G35A	G35A	32.20	397.95	408.15-398.15	UMA H
G35B	G35B	40.20	390.26	400.46-390.46	UMA H
G37	H-37	46.00	386.47	401.47-386.47	UMA C
G5B	G-5B	75.85	367.73	377.73-367.73	UMA H
G500[7]	G500	29.39	401.06	411.06-401.06	UMA C
G69R	G-29R	59.96	385.87	405.87-385.87	UMA H
G74L	G-34	60.00	386.69	406.69-386.69	UMA H
G75L	G-35	60.00	386.51	406.51-386.51	UMA H
G76L	G-36	60.00	385.81	405.81-385.81	UMA H
G91	M-1D	39.70	388.13	398.13-388.13	UMA H
G92	M-2D	40.40	386.08	401.08-386.08	UMA H
G93L	M-3D	40.80	386.18	401.18-386.18	UMA H
H31B	H-31B	75.02	357.32	367.32-357.32	UMA H
RG36	H36R	60.43	384.94	404.27-389.57	UMA H
R302&	R302	33.20	399.84	410.04-400.04	Cahokia Clay
G303	RP-3D	39.85	393.24	398.74-393.74	UMA C
G503[8]	G08A	32.00	396.20	406.20-396.20	UMA H
G504[8]	R067	32.12	404.38	409.68-404.68	UMA H
G505[8]	R068	37.70	403.90	414.20-404.20	UMA H

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
Observation Monitoring Wells					
G002	G-01R	37.32	391.34	411.16-391.56	UMA C
G009	B-9	49.00	382.66	407.66-382.66	UMA H
G020	C-10	49.50	382.50	417.50-382.50	UMA C
R042[3A]	R042	37.20	393.48	403.48-394.02	UMA H
G048	G-8	48.00	381.68	401.68-381.68	UMA H
G057[4]	G-17	35.02	391.90	411.90-391.90	UMA C
G058[4]	G18	36.00	391.27	411.27-391.27	UMA C
R083[3A]	R083	38.79	393.44	403.98-394.52	UMA H
G10L	H-20	58.43	371.82	396.82-376.82	UMA H
G14L	H-24	57.00	372.85	397.85-377.85	UMA H
G16L	H-26A	55.00	378.24	408.24-378.24	UMA H
G22R	C-12R	54.70	378.10	398.10-378.10	UMA C
G30R	H-30R	43.04	387.98	408.63-388.63	UMA H
G31D	C-21C	70.00	357.98	362.98-357.98	UMA H
G39+	H-39	42.10	385.74	400.74-385.74	UMA H
G84L	H-4	59.00	374.19	399.19-379.19	UMA H
G87L	H-7	51.50	377.68	402.68-382.68	UMA C
G92L	H-12	69.00	373.82	410.82-378.82	UMA H
G98L	H-18	52.50	378.22	403.22-383.22	UMA C
G301	RP-1	49.00	378.38	388.38-378.38	UMA H
G305	RP-5	49.00	381.06	391.06-381.06	UMA C
G307	RP-7D	49.00	383.13	393.13-383.13	UMA H
G501[3A]	G501	40.89	392.55	403.09-393.63	UMA H
G502[3A][8]	G502	35.55	393.75	404.29-394.83	UMA H
Sampling Only Network[5]					
G031	C-21A	35.00	393.18	403.18-393.18	Cahokia Clay
G065	G-25	55.00	389.58	409.58-389.58	UMA H
G082	G-42	40.00	388.81	409.81-388.81	UMA C
R11L	H-21R	57.47	371.85	391.85-371.85	UMA C
G19	H-29	47.24	386.42	401.42-386.42	UMA H
R31L[8]	R31L	55.00	373.10	378.10-373.10	UMA H
G33	H-33	44.00	387.37	407.37-387.37	UMA C
G71L	G-31	58.70	387.25	407.25-387.25	UMA H
G97L	H-17	58.00	377.09	402.09-382.09	UMA H
G306	RP-6	49.00	381.34	391.34-381.34	UMA H
Gauging Only Network					
G016	C-6	49.50	381.00	416.00-381.00	UMA C

G046	G-6	50.00	391.37	411.37-391.37	UMA H
G050	G-10	44.00	386.65	406.65-386.65	UMA C
IEPA Well No.	**Facility Well No.**	**Well Depth (ft.)**	**Well Depth Elevation (ft. MSL)**	**Well Screen Interval (ft. MSL)**	**Well Designation[1]**
G31R[8]	H-31R	42.22	389.88	410.08-390.08	UMA H
G83L	H-3	52.50	375.09	400.09-380.09	UMA H
G86L	H-6	64.30	376.92	401.92-381.92	UMA H
G89L	H-9	53.50	375.96	400.96-380.96	UMA H
G99L[8]	H-19	53.50	376.60	402.10-382.10	UMA H
G128[2]	G128	33.65	395.86	406.04-396.26	UMA H
G506	A8MW04	50.00	383.34	418.34-383.34	UMA H
G507	A8MW05	48.00	383.74	413.74-383.74	UMA H
G508	A8MW06	48.00	381.97	416.97-381.97	UMA H
LNAPL Monitoring network [6]					
G011	C-1	49.50	380.30	415.30-380.30	UMA C
G027	C-17	40.00	390.32	400.32-390.32	UMA C
G049	G-9	47.00	382.75	402.75-382.75	UMA H
G13L	H-23	51.50	380.14	408.64-388.64	UMA H
G34	H-34	38.47	393.11	403.11-393.11	UMA C
G96L	H-16	58.50	373.28	393.28-378.28	UMA H
G417	B-17	51.00	380.48	400.48-380.48	UMA H
G603	RC-3	54.00	377.3	397.30-377.30	UMA H
G604	RC-4	51.46	379.92	399.92-379.92	UMA H
G605	RC-5	51.19	378.91	398.91-378.91	UMA H
G613	RC-13	63.12	368.38	403.38-373.38	UMA H
G614	RC-14	61.81	369.99	404.99-374.99	UMA H
G615	RC-15	59.66	370.48	405.48-375.48	UMA H
G617	RC-17	58.00	370.91	403.91-386.91	UMA H
G618	RC-18	57.50	371.78	411.78-376.78	UMA H
G619	RC-19	58.00	369.3	407.30-372.30	UMA H
G620	RC-20	85.36	344.51	406.28-349.64	UMA H
G509[9]	B-14	54.83	376.37	396.37-376.37	UMA H
G510+[8]	C-9	+	+	+	unknown
G511	G-11	43.08	388.38	408.21-388.21	UMA H
G512[9]	G-12	45.37	386.12	406.25-386.25	UMA H
G513	G-40	40.00	388.26	409.26-389.26	UMA C
G514[9]	G-47	38.67	389.33	407.66-389.66	UMA C
G515-[9]	Q-14	+	+	+	unknown
G516	A3MW01	45.00	384.8	414.80-384.80	UMA H
G517	A3MW02	50.00	380.5	415.50-380.50	UMA H
G518	A6MW01	50.00	380.01	415.01-380.01	UMA H
G519	A6MW02	50.00	382.17	417.17-382.17	UMA C
G520	A6MW03	55.00	376.26	416.26-376.26	UMA H

G521	A8MW02	50.00	379.67	414.67-379.67	UMA H
G522	A9BH05	37.00	391.29	405.29-391.29	UMA C
G523	LS-1	33.87	394.71	414.71-394.71	UMA C
G524[9]	SVE-2	36.62	395.97	416.50-396.50	UMA C
Demonstration Wells					
R032[3B]	R032	39.27	388.99	399.47-389.71	UMA C
R034[3B]	C-24R	35.24	393.64	403.88-393.88	UMA C
R035[3B]	C-25AR	35.57	392.04	402.50-392.72	UMA C
G304[3B]	RP-4D	45.75	385.51	396.34-386.34	UMA C

Notes: * = Groundwater sampling only required at G008 when G503 is dry.
+ = Well construction information is incomplete.
# = Groundwater sampling only required at G067 when G504 is dry.
@ = Groundwater sampling only required at G068 when G505 is dry.
& = R302 was installed as a water table well and G302 was abandoned (G302 had screened interval 393.63-383.63). It appears a benzene pipeline release from the neighboring site (ID No. 1191150025) may be the source of contamination previously measured at G302. IEPA will require the neighboring site to delineate onto BP property. The contamination detected at the screened interval for former G302/RP-2D must continue to be monitored due to contaminant levels previously detected. As the Illinois EPA is working with Shell Oil Products US to delineate benzene contamination associated with a benzene pipeline release at BOL site ID No. 1191150025, BP will not be required to install a well at the screened interval of approximately 393.63-383.63 at this time.
1 = Top of casing and ground surface elevation measurements are from the 2020 Monitoring Well Survey unless otherwise noted.
2 = Groundwater gauging only at G128 due to known benzene release from Shell Oil pipeline in 1986 and the requirement for the permittee associated with site 1191150002 sampling G128.
3A = Sentry Well used to demonstrate contaminant control in the southeast portion of the GMZ.
3B = Sentry Well used to demonstrate contaminant control in the vicinity of Land Reuse Area 9.
4 = Also a designated Sentinel Well under the Riverfront RCRA Permit.
5 = Groundwater sampling only, well will still be gauged when sampled in accordance with Condition III.F.1; however, water level data will not be utilized for developing potentiometric surface maps or evaluation of hydraulic gradients as required under Condition III.E.6.
6 = LNAPL monitoring only, groundwater sampling not required (32 wells).
7 = G500 installed on November 20, 2017 as the well listed in the May 29, 2018 RCRA Permit as IEPA Well No. G113 "to be installed." The designation G500 was used because there is a different well designated as G113 under the Riverfront RCRA Permit.
8 = Top of casing and ground surface elevation measurements measured on the following dates: June 17, 2021 (G31R, GOSA, C-9); March 7, 2022 (G005, G99L, G502); and September 19, 2023 (R31L, R067, R068).

9 = Top of casing and ground surface elevation measurements are from 2015 Monitoring Well Survey.
10 = Well designations are identified based on zones within the uppermost aquifer being monitored: wells behaving as perched wells (Cahokia Perched); within the silty sandy layer of the Cahokia Sand facies (UMA C); within the coarse sand and gravel of the Henry formation (UMA H).
11 = Per Condition IV.C.1.a, G078, G030, G97L, and G87L require a new or replacement well or well pairs be installed within ninety (90) days to monitor the previously screened interval. Of those wells, G078 and G030 no longer exist because the wells were damaged or plugged.

Additional Notes:
"Ft-bgs" = refers to the number of feet below the ground surface.
"Ft-MSL" = refers to the number of feet referenced to mean sea level.
"Stick-up" = refers to the height of the reference survey datum. This point is determined with + 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

2. The Permittee shall maintain the Gradient Control Wells (Cone of Depression (COD) Wells) identified in the table below to allow for the withdrawal of contaminated groundwater, as well as, the measurement of water levels to verify the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Elevation (ft. MSL)	Well Screen Length (ft.)
Gradient Control Wells				
HW1B	HW01-B	75.00	356.12	300
HW2A	HW02-A	75.00	355.71	300
HW2B	HW02-B	75.00	356.37	300

Note: The Gradient Control Wells are horizontal wells.

3. Construction of each monitoring well/piezometer must be in accordance with the "Monitoring Well Diagram" and "Well Completion Report" forms located on the Illinois EPA website, unless otherwise approved in writing by the Illinois EPA. All new monitoring wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs contained in the "Field Boring Log" form on the Illinois EPA website, unless otherwise approved by the Illinois EPA.

4. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.C.1 and III.C.2 are damaged, or the structural integrity has been compromised causing the well not to serve its function or to act as a contaminant pathway. A proposal for the replacement of the subject well shall accompany the notification. The well shall not be plugged

until the new well is on-line and monitoring data has been obtained and verified unless the well is extremely damaged or would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.

5. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A well which is more than ten (10) feet from the existing well or does not monitor the same geologic zone must be approved by the Illinois EPA and designated as a new well.

6. The Permittee shall submit boring logs, construction diagrams and datasheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All pertinent information should be submitted to the appropriate State agencies.

   Illinois Environmental Protection Agency
   Bureau of Land -- #33
   Permit Section
   1021 North Grand Avenue East
   Post Office Box 19276
   Springfield, Illinois 62794-9276

7. All wells/piezometers shall be clearly identified and shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

8. All groundwater monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed, and maintained in accordance with 77 IAC Part 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition III.C.4.

D. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and their concentration limits comprise the groundwater protection standard for the groundwater monitoring wells found in Conditions III.C.1.

Field Parameters	Storet	Units
pH	00400	Standard Units
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Bottom of Well #	72020	Ft MSL
Elevation of Measuring Point (Top of casing)##	72110	Ft MSL

Shall be determined during the first semi-annual sampling event each year.
Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition III.I.9.a.

Hazardous Constituents	**Storet No.**	**Concentration Limits (mg/L)**
Metals		
Antimony	01097	0.006
Arsenic	01002	0.01**
Barium	01007	2.0
Chromium	01034	0.1
Lead	01051	0.0075
Nickel	01067	0.1
Selenium	01147	0.05
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
Benzene	34030	0.005
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
4-Methylphenol (p-cresol)	77146	0.035
Benzo(a)anthracene	34526	0.00013
Benzo(a)pyrene	34247	0.0002
Benzo(b)fluoranthene	34230	0.00018
Benzo(k)fluoranthene	34242	0.00017
Bis(2-ethylhexyl)phthalate	39100	0.006

Chrysene	34320	0.0015
Dibenzo(a,h)anthracene	34556	0.0003
Naphthalene	34696	0.14
Phenol	34466	0.035
Biogeochemical[1]		
Analytes		
Dissolved iron	N/A	--
Dissolved sulfate	N/A	--
Dissolved manganese	N/A	--

-- Not available
N/A = Not Applicable
1 = To monitor natural attenuation conditions
** = Site-specific concentration limit may be used if approved by the Illinois EPA.

2. Alternate concentration limits may be established where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment.

   a. Where a hazardous constituent has a standard in 35 IAC Part 620, the facility must apply for an adjusted standard as outlined in Section 28.1 of the Environmental Protection Act (Act) or reapply once corrective measures have been implemented pursuant to 35 IAC 620.450.

   b. For those hazardous constituents without a 35 IAC 620 standard, the alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

E. GROUNDWATER CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the Groundwater Corrective Action Program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.C.1 for the hazardous constituents listed in Condition III.D.1 above.

2. In accordance with 35 IAC 620.250, a GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from the facility. The GMZ must be monitored and maintained as follows:

   a. The GMZ horizontal and vertical extent is monitored with program monitoring wells measuring concentrations of hazardous constituents in Condition III.D.1 in groundwater.

i. The following groundwater monitoring wells shall define the outermost horizontal extent of the approved GMZ: G005, G006, G008, G021, G023, G04R, G045, G055, G059, G062, R063, G067, G068, G073, G079, G084, G085, G111, G112, G32R, G37, G5B, G35A, G35B, G500, G69R, G74L, G75L, G76L, G91, G92, G93L, H31B, RG36, R302, G303, G503, G504, G505.

ii. The vertical boundaries of the GMZ shall range from the approximate top of the uppermost aquifer (30 feet bgs) to the top of the bedrock surface at the BP Main Plant facility. As required by Condition IV.C.1.b, wells must be proposed to better define the vertical extent.

b. The results of monitoring the GMZ shall be submitted to the Illinois EPA semi-annually in accordance with the schedule found in Condition III.I.2.

c. The GMZ expires when all groundwater monitoring wells within the GMZ have attained the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1.

d. The appropriate Class I concentration limits shall be considered attained when groundwater monitoring results meet the appropriate concentration limit for two (2) consecutive years. A Mann-Kendall trend analysis based on eight (8) quarters of data shall be submitted for Illinois EPA review and approval unless otherwise approved.

e. An evaluation of the GMZ shall be submitted in a report for Illinois EPA review and approval, a minimum of every five (5) years, in accordance with the guidance document, "Re-evaluation of Groundwater Management Zones at RCRA Facilities" found at the Illinois EPA website. Statistical analysis required by III.H must also be included.

3. The Groundwater Corrective Action Program shall control the horizontal and vertical flow in the vertical column of water present in the uppermost aquifer beneath the facility and monitor the position and rate of migration of the hazardous constituents released to groundwater as follows:

a. The pumping from the Gradient Control Wells (also referred to as Cone of Depression (COD) wells) shall maintain the cone of depression to ensure groundwater flow is adequately controlled in the uppermost aquifer, except as provided in Condition III.A.

b. The pumping rate from each Gradient Control Well (COD well) shall be recorded each business day. This data shall be used to calculate the monthly average withdrawal rate for the Gradient Control System.

4. The Permittee shall monitor the groundwater horizontal and vertical gradients in the uppermost aquifer beneath the facility.

5. The Permittee shall record the following measurements and submit to the Illinois EPA semi-annually as required by Condition III.I.2.

   a. A record of the amount of groundwater withdrawn each day by the Gradient Control Wells (COD wells).

   b. Quarterly monitoring of the piezometric head at wells identified in Condition III.C.1 and III.C.2 above to demonstrate that groundwater flow is properly controlled throughout the contaminated area requiring corrective action.

   c. The measured thickness of hydrocarbon product encountered at each well identified in Condition III.C.1 and III.C.2.

6. The Permittee shall determine the groundwater flow rate (i.e., seepage velocity in ft/day) and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1.

7. The groundwater quality in the uppermost aquifer shall be monitored on a quarterly or semi-annual basis at each of the wells identified in Condition III.C.1, and submitted to the Illinois EPA semi-annually, as identified in Condition III.I.2.

8. If the groundwater gradient is not maintained, as required by Condition III.E.3, or contamination is migrating beyond the GMZ Boundary Wells, the Permittee shall submit an application for a permit modification, as required by Condition III.J.

9. Prior to making any changes on-site which might affect the overall program associated with controlling the groundwater flow as required by Condition III.E.3 of the permit (i.e., maintain and verify an inward gradient), the Permittee must obtain written permission from the Illinois EPA. Detailed information regarding the changes shall be submitted to the Illinois EPA at least 120 days prior to the date that the change is to be made. Disapproval or approval with modifications of any written requests for changes shall be subject to the appeal provisions of Section 40 of the Act.

10. The Permittee shall maintain all equipment associated with withdrawal and treatment of water withdrawn from the uppermost aquifer to adequately control groundwater flow. This includes maintenance of any pollution control equipment (i.e., air pollution and water pollution control equipment) necessary for these activities.

11. In the event that the Permittee is unable to demonstrate an inward groundwater gradient based upon groundwater elevation data in the Southeast portion of the

GMZ, and/or in the vicinity of Land Reuse Area 9 for the GMZ (western portion of the GMZ), during a monitoring event, the Permittee will take the following actions:

a. The Permittee will review the groundwater quality data for the most recent sampling event for the Sentry Observation Monitoring Wells (G042R, G083R, G501, and G502) for the southeast corner of the GMZ, and/or Demonstration Wells (R032, R034, R035, and G304) for the vicinity of Land Reuse Area 9.

b. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

c. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells or Demonstration Wells, does not meet permit-defined requirements for VOCs, the Permittee shall:

    i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

    ii. Perform a "Resampling Event" for the Sentry Observation Monitoring Wells and/or Demonstration Wells within thirty (30) days of the date the determination is made.

d. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c meets permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

e. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c does not meet the permit-defined requirements for VOCs, the Permittee shall:

    i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

    ii. Initiate "Contingency Monitoring" consisting of monthly groundwater gauging and monitoring for a period of three (3) months for the Southeast portion of the GMZ, and/or in the vicinity of Land Reuse Area 9, as follows:

1. For the Southeast portion of the GMZ, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine (9) monitoring wells in order to develop a groundwater flow gradient for the southeast portion of the GMZ: wells G301, G305, R042, R083, G501, G502, G005, G92, and G112.

2. For the vicinity of Land Reuse Area 9, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following four (4) monitoring wells in order to develop a groundwater flow gradient for the vicinity of Land Reuse Area 9 of the GMZ: R032, R034, R035, and G304.

3. The Contingency Monitoring shall include monthly groundwater sampling for a period of three (3) months for the Sentry Observation Monitoring Wells R042, R083, G501, and G502 for the southeast area, and/or the Demonstration Wells R032, R034, R035and G304 for Land Reuse Area 9.

f. If the three (3) monthly groundwater gauging potentiometric maps from Contingency Monitoring demonstrate an inward gradient, and the groundwater quality data from the three (3) monthly sampling events for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

g. If the monthly groundwater gauging potentiometric maps for Contingency Monitoring do not demonstrate an inward gradient, and the groundwater quality data from the sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii does not meet the permit-defined requirements for VOCs, the Permittee shall submit a written report to the Illinois EPA:

i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

ii. Submit a written report to the Illinois EPA within thirty (30) days of the date the determination is made describing the actions to be taken.

iii. Install additional well(s) at locations approved by the Illinois EPA.

iv. Implement an Illinois EPA-approved groundwater monitoring program for the new wells on a monthly basis for three (3) months.

v. Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner or in the vicinity of Land Reuse Area 9, including but not limited to, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.

h. Design and implement Contingent Corrective Measures approved by the Illinois EPA.

12. The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L.1. A discussion must also be provided in reports required by Condition III.I.6.

a. Within 90 days submit a Class 1* modification request to propose a procedure for evaluating the indoor inhalation pathway for dissolved groundwater concentrations measured at all groundwater monitoring wells located at the property boundary and off-site locations each time groundwater is sampled. The proposal may include a procedure using the Johnson & Ettinger Calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor).

F. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well at least quarterly and each time groundwater is sampled in accordance with Condition III.I.3.

2. The Permittee shall report the surveyed elevation of stick-up and ground surface referenced to MSL once every five (5) years or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.I.9.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually in accordance with Condition III.I.10. The mandatory measurement shall be taken during the second quarter sampling event each year.

G. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall follow the techniques and procedures described in Exhibit C-1 of the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.C.1:

1. Samples shall be collected by the techniques described for low-flow sample collection in Section 2.2 of Exhibit C-1.

2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Section 2.2 of Exhibit C-1.

3. Samples shall be analyzed according to the procedures specified in Section 7 of Appendix B. Groundwater analysis must be in accordance with the most current version of the applicable methods found in USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition (SW-846) and finalized updates.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section 2.2 of Exhibit C-1.

H. STATISTICAL METHODS

The Permittee shall evaluate the quality of groundwater samples collected during semi-annual sampling events identified in Condition III.E to determine trends and demonstrate effectiveness of corrective action as follows:

1. The GMZ Boundary Wells and Observation Monitoring Wells, as identified in Condition III.C.1, shall be used for statistical evaluations of groundwater quality data as follows:

   a. The groundwater quality data shall be statistically evaluated annually for the constituents identified in Condition III.D.1, in accordance with Exhibit C-3 of the approved permit application.

   b. The results of the statistical evaluations shall be discussed and included within the required 5-year GMZ Evaluation reports required by Condition III.I.11.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions III.D, III.E, and III.F into the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.D. and III.E shall be collected and reported as identified in the table below. The results of the analyses conducted on the

groundwater quality samples shall be submitted in accordance with this schedule. All additional data collected for the groundwater monitoring program as specified in Conditions III.D, III.E and III.F shall also be submitted to the Illinois EPA in accordance with this schedule.

Sampling Event of Calendar Year	Samples to be Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January - February	August 1
Second Quarter	April - May	August 1
Third Quarter	July - August	February 1
Fourth Quarter	October - November	February 1

3. Groundwater surface elevation data measured pursuant to Condition III.F.1, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2.

4. Groundwater withdrawal rates collected and calculated pursuant to Condition III.E.5.a shall be submitted semi-annually in accordance with the schedule identified in Condition III.I.2.

5. Gradient control measurements collected pursuant to Condition III.E.5.b shall be collected at least quarterly and submitted to the Illinois EPA semi-annually as identified in Condition III.I.2.

6. Free product thickness data measured pursuant to Condition III.E.5.c, and reduction of hydrocarbons and refinery product data collected in accordance with Condition II.E of the Corrective Action Section, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2. Reporting information must also be included in Corrective Action Progress Reports required by Condition II.L.1.

7. The groundwater flow rate and direction, determined pursuant to Condition III.E.6, shall be submitted as a part of the first and second semi-annual reports as identified in Condition III.I.2.

8. Groundwater quality samples collected to meet the requirements of Condition III.E.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in Condition III.I.2. The extent of dissolved contamination must be depicted on figures as needed to define the extent of contamination.

9. The Permittee shall report the surveyed elevation, as required by Condition III.F.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

a. For wells identified in Condition III.C.1 above, every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.

b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every five (5) years (during the second quarter sampling event) or whenever the elevation changes.

10. Elevation of the bottom of each monitoring well identified in Condition III.C.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the second quarter sampling event (Storet 72020).

11. Statistical evaluations, as required by Condition III.H, shall be submitted to the Illinois EPA as a part of the required 5-year GMZ Evaluation reports required by Condition III.E.2.e.

12. Information required by Conditions III.I.2, III.I.3, III.I.9 and III.I.10 must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in the form, "Formatting Requirements for the 01 (and 02) Record of the Electronically Submitted Groundwater and Leachate Data" (LPC 160) located on the Illinois EPA website and in accordance with the schedule found in Condition III.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found at the Illinois EPA website.

13. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. Only one (1) copy of the LPC 592 must accompany the submittal. However, the Permittee must submit one (1) original paper submittal of each notice or report submitted to the Illinois EPA, and a minimum of two (2) electronic copies for all additional Illinois EPA copies (i.e. Permit Section and regional Field Operation Section). Additional paper copies must be provided upon Illinois EPA request. The form is not to be used for permit modification requests.

14. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data, drawings, and text (as necessary) to accurately describe the information contained in the submittal.

15. The Permittee shall submit a written report to the Illinois EPA, in accordance with the schedule found in Condition III.I.2, which discusses the effectiveness of the Groundwater Corrective Action Program. At a minimum, the report must:

a. Address the information requirements in Conditions III.C, III.D, III.E and III.F.

b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition III.D.

c. Provide a discussion of any change in the quality of groundwater beneath the facility which has resulted from the corrective action.

16. If the Permittee evaluation, when required by Condition III.E.11, determines verification of contaminant control is necessary due to a lack of inward gradient, the Permittee will complete the following reporting and notification requirements in III.E.11:

a. Notify the Illinois EPA in writing within seven (7) days of the date the determination resampling is required.

b. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring is required.

c. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring does not meet the requirements for inward gradient and the permit-defined requirements for VOCs, the Permittee shall take steps to implement additional corrective measures as outlined in Condition III.E.12.g, and:

i. Submit a written report to the Illinois EPA within thirty (30) days describing the actions to be taken.

ii. Take necessary actions to meet applicable groundwater standards at GMZ Boundary wells.

17. Upon approval of the proposal required by Condition III.E.12, if the indoor inhalation exposure route evaluation required by Condition III.E.12 demonstrates that the indoor inhalation pathway is complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval.

18. If the Permittee determines that groundwater flow is not being adequately controlled, except as required by Conditions III.E.11 and III.I.16 regarding contaminant control in the Southeast portion of the GMZ and/or in the vicinity of Land Reuse Area 9 (western portion of the GMZ), or the contaminant control evaluations indicate contaminants are migrating beyond the GMZ boundaries, the Permittee shall:

a. Notify the Illinois EPA in writing within seven (7) days of the date that this determination is made.

b. Take actions as necessary to regain the control of groundwater flow as required by Condition III.E.3.

c. Submit a written report to the Illinois EPA within thirty (30) days describing the actions taken to regain control of groundwater flow. In addition, the report must contain information which demonstrates that groundwater flow is being adequately controlled.

d. Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the permit may be modified by the Illinois EPA in accordance with 35 IAC 702.183 and 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification in this section of the regulations include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of permit issuance, and new regulations.

SECTION IV: SPECIAL CONDITIONS

A. REQUIRED FORMS

1. The Permittee shall provide a completed Illinois EPA permit application form LPC-PA23 with all additional information, permit modifications, and permit applications that are submitted to the Illinois EPA Bureau of Land.

2. The Permittee shall submit a current 39(i) certification and supporting documentation with all applications for a permit.

Note: If the Permittee desires to add additional staff as delegated signatories for future modifications, certifications, etc., the Permittee must meet the requirements of 35 IAC 702.126 and the delegated signatory individuals should also send in an individual 39(i) certification form.

B. REPOSITORY

1. The Permittee shall maintain a repository at the Wood River Public Library, located at 326 E. Ferguson Avenue, Wood River, Illinois. The following information shall be sent to the repository:
   a. A copy of the approved renewed RCRA corrective action permit.
   b. All permit applications and permit modification requests.
   c. All Illinois EPA responses to modification requests made to the RCRA corrective action permit (Log No. B-147R2).

C. COMPLIANCE SCHEDULE

1. The following revisions must be met with regards to groundwater:

   a. Within ninety (90) days of the effective date of this permit, install a new or replacement well or well pairs for G078, G030, G97L, and G87L to monitor the previously screened interval. It is noted only G078 no longer exists because the well was damaged.

   b. Within ninety (90) days of the effective date of this permit, propose monitoring wells with screens positioned to adequately define the vertical boundary of the GMZ in Condition III.E.2.a.

   c. A Water Well Survey (WWS) must be provided within ninety (90) days of the effective date of this permit to include a WWS as described in 35 IAC 1600.210 and the guidance document entitled, "Well Survey Procedures at Bureau of Land Permitted Facilities" provided as Attachment G to the permit.

2. The Permittee must prepare and submit an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required in accordance with 35 IAC 724.201. This cost estimate must include a minimum of 10% contingency for all items necessary to complete corrective action.

SECTION V: STANDARD CONDITIONS

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act (Act) or Subtitle G, except for prohibitions against development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Illinois Administrative Code (IAC) 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and 702.186. The filing of a request by the Permittee for a permit modification or reissuance, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)

3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 IAC 705.202)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 IAC 702.160)

5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC Code 702.141 and 703.242)

6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 IAC 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 IAC 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 IAC 702.125.

8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)

9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 IAC 702.144)

10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 IAC 702.145)

11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)

12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices; or operations regulated or required under this permit; and

    d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 IAC 702.149)

13. MONITORING AND RECORDS. (35 IAC 702.150)

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from 35 IAC

721, Appendix A. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall include:

i. The date(s), exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical technique(s) or method(s) used; and

vi. The result(s) of such analyses. (35 IAC 702.150)

14. REPORTING PLANNED CHANGES. The Permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 IAC 703.280. (35 IAC 702.152(a)).

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage, or disposal of hazardous waste; and for a facility being modified the Permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

a. The Permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

2. If, within fifteen (15) days of the date of submission of the letter in paragraph (a), the Permittee has not received notice from the Illinois EPA of its intent to inspect, prior inspection is waived, and the Permittee may commence treatment, storage, or disposal of hazardous waste. (35 IAC 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 IAC 702.152(b))

17. TRANSFER OF PERMITS. This permit may not be transferred by the Permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 IAC 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than ninety (90) days prior to the scheduled change. (35 IAC 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 IAC 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162. (35 IAC 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger human health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:

i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.
ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days. (35 IAC .152(f) and 703.245(b)).

21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not required to be reported under Standard Conditions 18, 19 and 20, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g)).

22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 IAC 702.152(h))

23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency
Bureau of Land
Permit Section - #33
2520 West Iles Avenue
Post Office Box 19276
Springfield, Illinois 62794-9276

24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 IAC 702.126. (35 IAC .151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC Part 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions, and modifications to these documents:

    a. Post-closure plan as required by 35 IAC 724.218(a) and this permit.

    b. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.

    c. Operating record as required by 35 IAC 724.173 and this permit.

    d. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 IAC Part 722.

28. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c).

29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d).

30. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 IAC 722.117(a)(8).

PREPAREDNESS AND PREVENTION

31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or

non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131)

32. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132.

33. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in the contingency plan and this permit as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133)

34. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134.

35. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements.

36. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

RECORD KEEPING

37. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

POST-CLOSURE

38. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan.

39. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans, or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d).

40. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be:

a. Adjusted for inflation either sixty (60) days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within thirty (30) days after close of the firm's fiscal year.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.

c. Kept on record at the facility and updated. (35 IAC 724.244).

d. Maintained at the value approved by the Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification.

41. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by Standard Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245.
Financial assurance documents submitted to the Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
2520 West Iles Avenue
P.O. Box 19276
Springfield, IL 62794-9276

42. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

SECTION VI: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the permit are summarized below. This summary table is provided to "highlight" the various reporting and notification requirements of this permit but is not meant to supersede the requirements of the various sections of this permit.

Condition	Action	Due Date
Section II: Corrective Action		
H.4	Submit Phase I CMP Workplan.	Within 90 days of notification from Illinois EPA
I.1	Notification of Newly Identified SWMU/AOCs.	Within 30 days of discovery
I.3	Submittal of Assessment Plan for Newly Identified SWMU.	Within 90 days of request for plan from Illinois EPA
I.5	Submittal of SWMU Assessment Report for Newly Identified SWMU.	In accordance with schedule in assessment plan
J	Notification of Release from Existing SWMU.	Within 30 days of discovery
II.M.2	Annual Cost Estimate for Corrective Action (excluding cost estimates adjusted for annual inflation only)	As necessary or requested by Illinois EPA
II.L.1	Quarterly Corrective Action Progress Report: January – March April – June July-September October – December	 May 1 August 1 November 1 March 1
II.L.2	Annual Report of Corrective Action Program Activities with Quarterly Report for October-December	March 1 of each year
II.L.3	Final Report for each parcel/area	As corrective action is completed
Section III: Groundwater Corrective Action Program		
C.4	Notification that well has been damaged or its structural integrity compromised.	Within 30 days of identification
C.6	Boring logs, construction diagrams and datasheets from installation and development of new/replaced well.	Within 30 days after well installed

C.1 General schedule for collection and reporting of groundwater data:

Sampling Event of Calendar year	Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January-February	August 1
Second Quarter	April-May	August 1
Third Quarter	July-August	February 1
Fourth Quarter	October-November	February 1

I.3	Groundwater surface elevation data.	Quarterly as set forth in Condition III.I.2
I.4	Groundwater withdrawal rates.	Quarterly as set forth in Condition III.I.2
I.5	Gradient control measurements.	Semi-annually as set forth in Condition III.I.2
I.6	Free product thickness.	Semi-annually as set forth in Condition III.I.2 and quarterly per Condition II.M.1.
I.7	Groundwater flow rate and direction.	Annually as set forth in Condition III.I.2
I.8	Groundwater quality results.	Semi-annually as set forth in Condition III.I.2
I.9	The surveyed elevation of the top of well casing.	Every 5 years
I.10	Elevation of the bottom of each monitoring well.	Second quarter as set forth in Condition III.I.2
I.11	Report every 5 years the summary of annual statistical calculations	Every 5 years within GMZ evaluations
I.12	Electronic reporting of groundwater data	Semi-annually as set forth in Condition III.I.2
I.15	Report to Illinois EPA on effectiveness of corrective action program.	Semi-annually
I.16.a	Contaminants in Sentry Observation Wells or Demonstration Wells require resampling	Within 7 days of the determination
I.16.b	Contingency Monitoring is required	Within 7 days of the determination
I.16.c.i	Gradient is not maintained and VOCs are not met	Within 7 days of the date the determination is made
I.16.c.ii	Notify the Illinois EPA in writing describing the actions to be taken	Within 30 days
I.18.a	Notify the Illinois EPA in writing that groundwater flow is not being adequately controlled	Within 7 days of the date the determination is made

I.18.b	Submit a report to Illinois EPA describing the actions taken to regain control of groundwater flow.	Within 30 days
I.18.c	Submit a request for permit modification to Illinois EPA describing any changes to the corrective action program to regain control of groundwater flow.	Within 60 days
J.1	Modification of groundwater corrective action program.	Within 90 days of determination existing program does not meet the requirements of 35 IAC 724.201
Section IV: Special Conditions		
A.1	Submit LPC-PA23 form.	With all additional information, permit modifications, and permit applications
A.2	Submit 39i certification form.	With all permit applications
Section V: Standard Conditions		
6	Submit complete application for new permit	At least 180 days prior to permit expiration
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time
14	Notify Illinois EPA of planned physical alterations or additions.	As soon as possible
16	Notify Illinois EPA of changes which may result in permit noncompliance.	Advanced written notice to the Illinois EPA
17	Application for permit modification indicating permit is to be transferred.	90 days prior to change in ownership
20	Report to Illinois EPA any non-compliance which may endanger health or environment.	
	- via telephone	Within 24 hours after discovery
	- in writing	Within 5 days after discovery
21	Report all other instances of noncompliance.	At the time monitoring reports are submitted

34	Application for permit modification amending post-closure plan.	60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred
40.a	Adjust post-closure cost estimates for inflation.	Within 60 days before anniversary date, or within 30 days after close of the firm's fiscal year.
40.b	Revision post-closure cost estimates.	As needed, within 90 days of discovery of revision
41	Change in financial assurance mechanism for post-closure.	As needed
42	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding

ATTACHMENTS

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

1. RCRA Post-Closure Renewal Application (Log No. B-147R2) dated October 8, 2020.
2. Additional Information for B-147R2- Replacement Pages submitted 1) Condition C.8.1.5 – Page 13 and 2) Exhibit C-1, Table 1- Page 4, dated May 10, 2022.
3. Time extension request for submittal of a response to the IEPA RCRA Permit Renewal Application NOD letter, dated July 3, 2024.
4. "Response to Illinois EPA Comments dated July 18, 2024" dated August 1, 2024.
5. Additional Information for B-147R2. Replacement pages, for Section C, dated August 29, 2024.

ATTACHMENT B

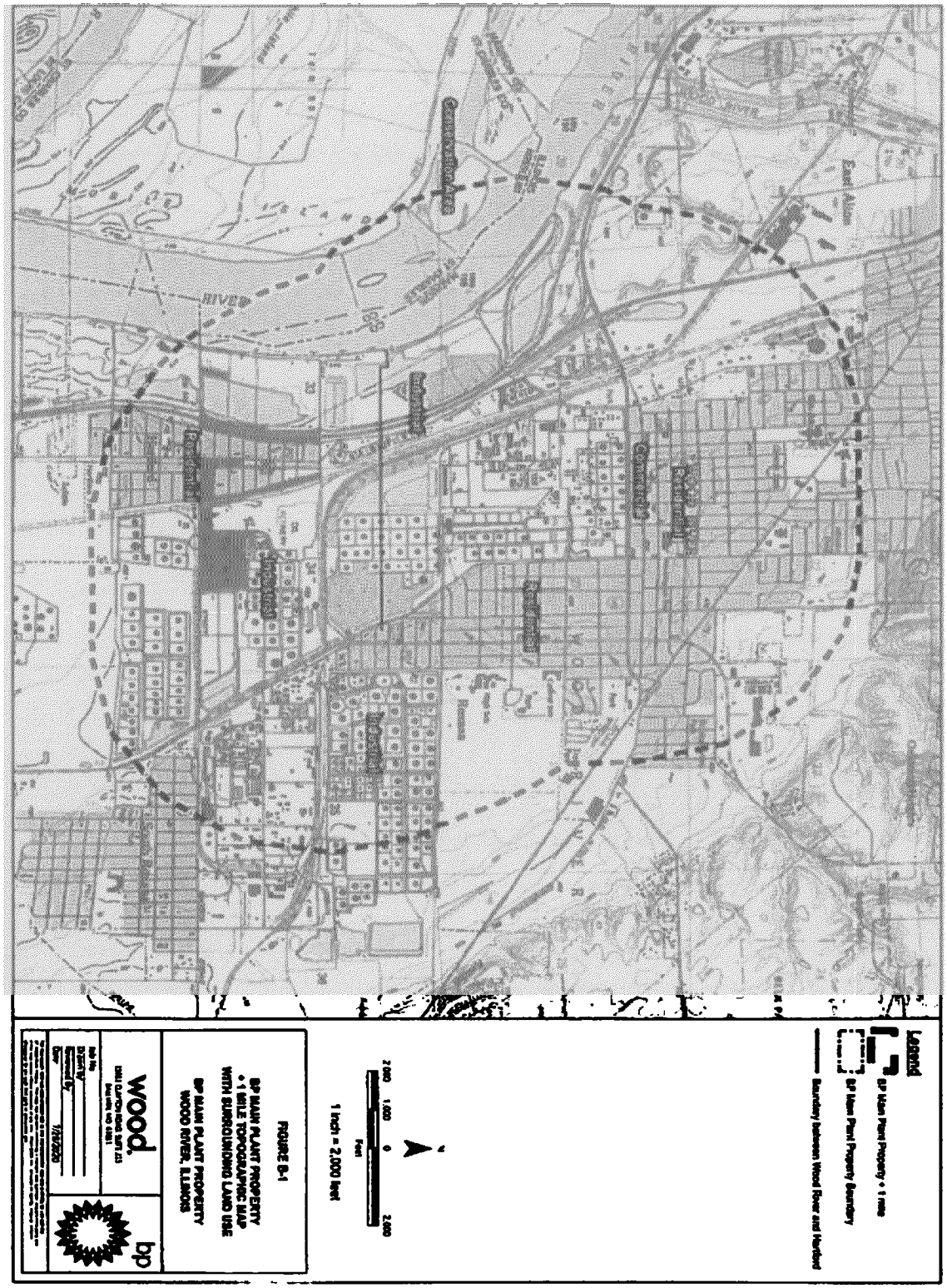
LOCATION MAP & DRAWING OF PERMITTED UNITS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

1191150001-BP Main Plant
Log No. B-147R2
Page B-1 of B-3



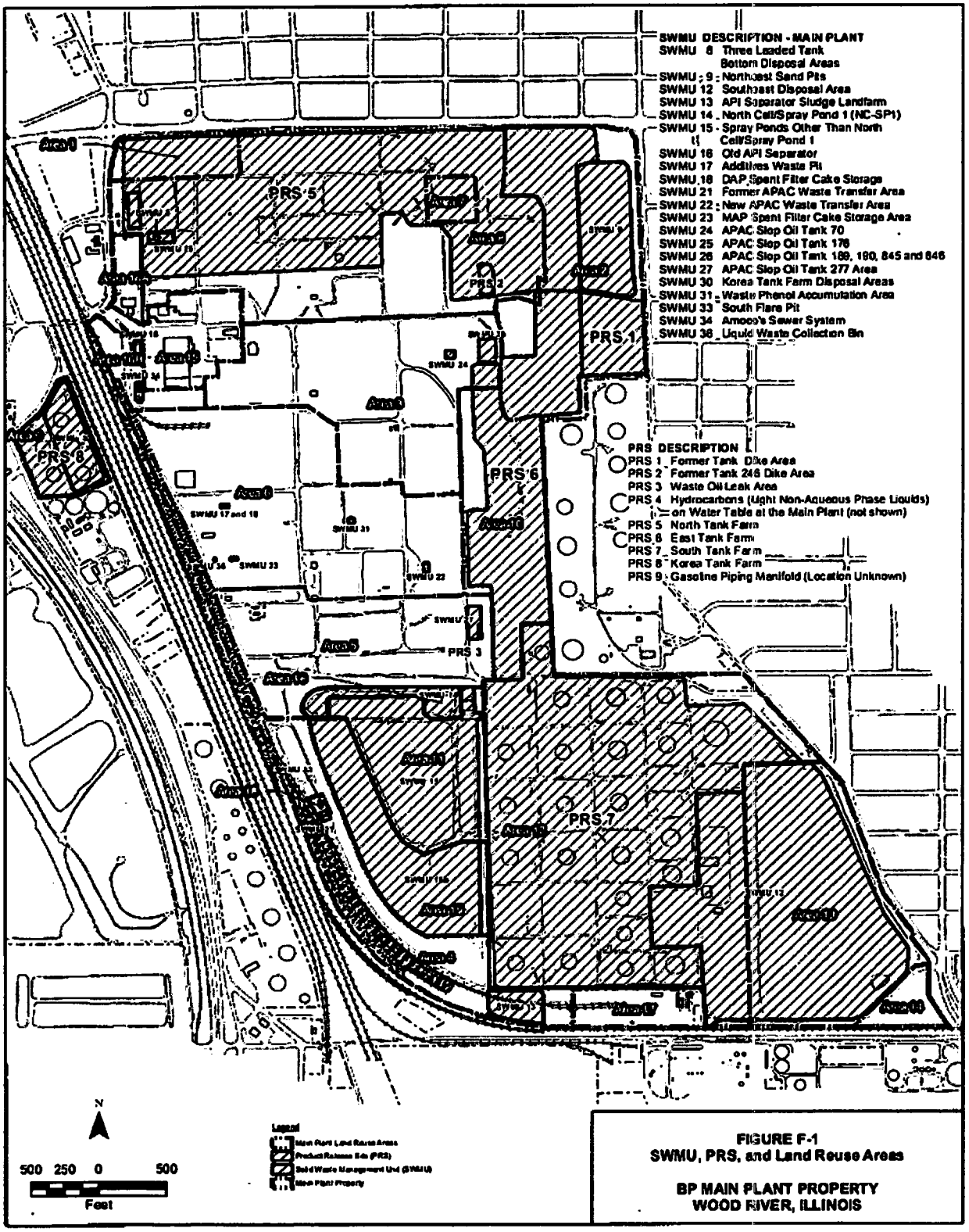
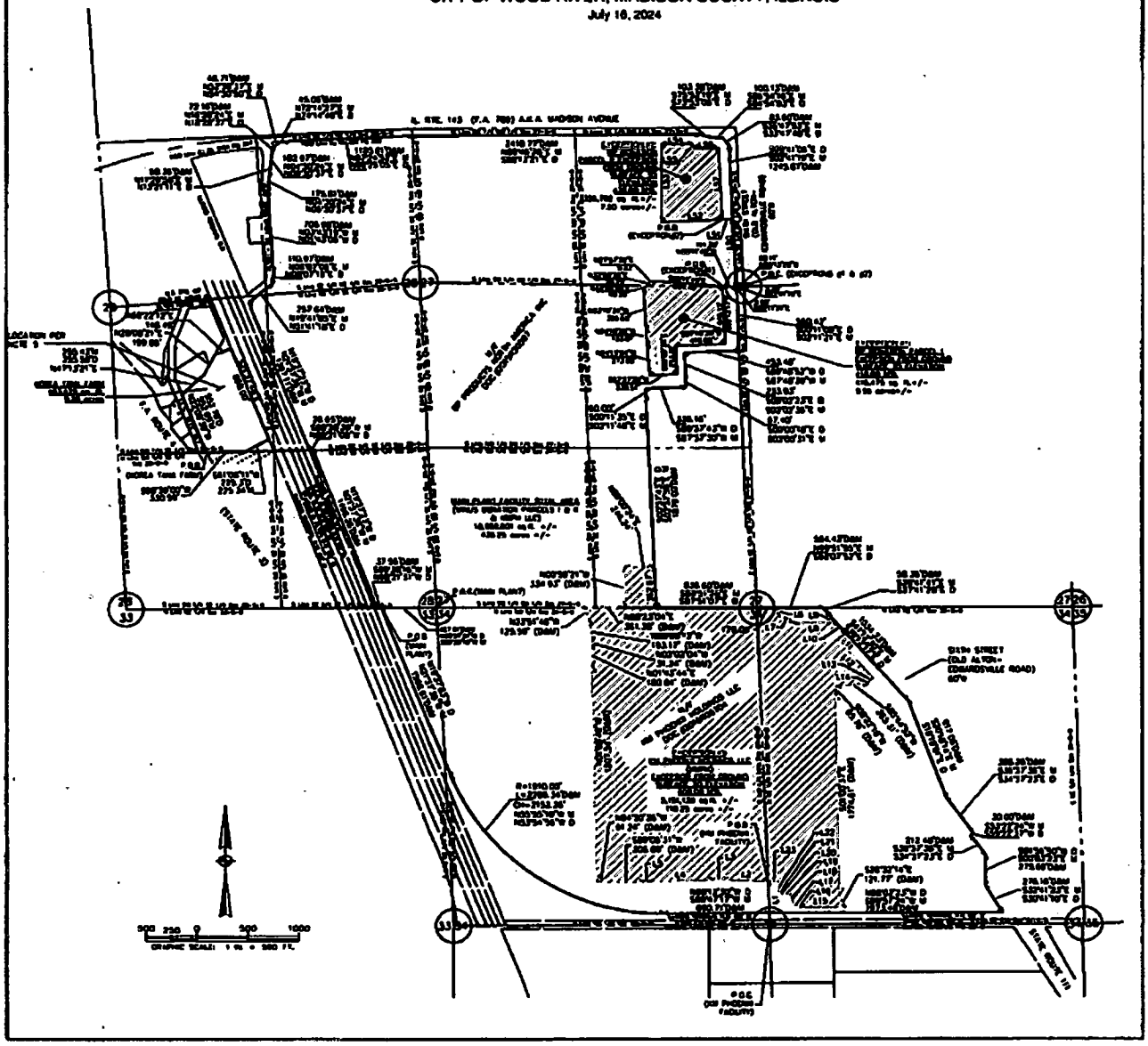


FIGURE F-1
SWMU, PRS, and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

EXHIBIT: B.P. AMOCO MAIN PLANT AREA TANK FARM WITH
DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION
BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS
July 16, 2024



ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

The table below summarizes the plans/reports/documents submitted to Illinois EPA regarding the corrective action efforts at the BP/Main Plant facility in Wood River, Illinois.

Note:

CCR = Current Conditions Report
GMZ = Groundwater Management Zone
NC-SP1 = North Cell of Spray Pond 1
RFI = RCRA Facility Investigation
SFP = South Flare Pit
SSI = Statistically Significant Increase

Log No.	Submittal	Status
B-147	RCRA Permit issued to facility, Section IV contains corrective action requirements.	Approved September 30, 1993
B-147	Proposed GMZ	Approved April 6, 1994
B-147-CA-1	RFI Phase I workplan	Approved September 7, 1994
B-147-CA-2	RFI Phase I report	Approved June 5, 2001
B-147-CA-3	Supplemental RFI Phase I report	Approved June 5, 2001
B-147-CA-4	Conceptual RFI Phase II/III workplan	Superseded by CA-7
B-147-CA-5	Investigation Workplan for Areas 1 and 2	Approved August 15, 2000
B-147-CA-6	Engineered Barrier Specification Report	Superseded by CA-9
B-147-CA-7	RFI Phase II/III workplan	Approved February 5, 2002
B-147-CA-8	Human Exposures Controlled (CA725) Demonstration	Superseded by CA-12
B-147-CA-9	Engineered Barrier Specification Report	Approved August 3, 2001
B-147-CA-10	"Comfort Letter" request for soils in Area 1	Approved July 9, 2001

Log No.	Submittal	Status
B-147-CA-11	No Further Action Determination for Area 1	Approved December 5, 2001
B-147-CA-12	Human Exposures Controlled (CA725) Demonstration	Approved October 9, 2001
B-147-CA-13	Request to incorporate two releases in Area 12 into corrective action program	Superseded by CA-16
B-147-CA-14	NFA for Area 2	Approved August 13, 2002
B-147-CA-15	Groundwater action Releases Under Control (CA750) Demonstration	Approved March 18, 2002
B-147-CA-16	Request to Incorporate two releases in Area 12 into corrective action program	Approved September 13, 2002
B-147-CA-17	CCR/Characterization Workplan for Area 4	Approved January 10, 2002
B-147-CA-18	GMZ Re-Evaluation	Approved March 13, 2002
B-147-CA-19	CCR/Characterization Workplan for Area 19	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-20	CCR/Characterization Workplan for Area 15	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-21	City of Wood River Ordinance and MOU to restrict groundwater use	Approved March 28, 2002
B-147-CA-22	CCR/Characterization workplan for Area 9	Approved September 5, 2002
B-147-CA-23	Modifications to Approved Phase II/III RFI workplan (CA-7)	Approved June 21, 2002
B-147-CA-24	CCR/Characterization Workplan for Area 6	Approved September 5, 2002

Log No.	Submittal	Status
B-147-CA-25	CCR/Characterization workplan for Area 5	Approved September 27, 2002
B-147-CA-26	Revised CCR/Characterization workplan for Area 15	Approved September 27, 2002
B-147-CA-27	CCR/Characterization Workplan for Area 3	Approved September 27, 2002
B-147-CA-28	Comments on IEPA's January 10, 2002 letter regarding Area 4 (CA-17)	Approved September 5, 2002
B-147-CA-29	Draft ELUC for Area 1	Approved January 10, 2003
B-147-CA-30	Investigation Report for Area 4	Approved August 22, 2003
B-147-CA-31	Investigation Report for Area 15	Approved November 19, 2003
B-147-CA-32	Revised Corrective Action Schedule	Approved February 7, 2003
B-147-CA-33	CCR/Characterization Workplan for Area 7/8	Approved August 7, 2003
B-147-CA-34	Revised Corrective Action Schedule	Superseded by B-147-CA-45
B-147-CA-35	Report on soil removal activities in Area 2	Approved August 11, 2003
B-147-CA-36	Area 15 Report-Addendum 1	Approved November 19, 2003
B-147-CA-37	Area 15 Report-Addendum 2	Approved November 19, 2003
B-147-CA-38	Extension request for submitting Area 12 CCR/Workplan	Approved December 30, 2004
B-147-CA-40	Draft ELUC for Area 2	Approved January 29, 2003
B-147-CA-41	CCR/Characterization Workplan for Area 10	Approved June 4, 2003

Log No.	Submittal	Status
B-147-CA-42	Soil Removal Activities Report at Area 15	Approved June 16, 2004
B-147-CA-43	Draft ELUC for Area 15	Approved August 23, 2004
B-147-CA-44	Soil Removal Activities Report at Area 4	Approved September 15, 2004
B-147-CA-45	Revised Corrective Action Schedule	Approved December 30, 2004
B-147-CA-46	Recorded ELUC for Area 15	Approved September 29, 2005
B-147-CA-47	Draft ELUC for Area 4	Approved June 1, 2005
B-147-CA-48	Recorded ELUC for Area 1	Approved March 25, 2005
B-147-CA-49	Recorded ELUC for Area 2	Approved March 29, 2005
B-147-CA-50	Updated RFI Phase II/III Project Plan Schedule	Approved September 21, 2005
B-147-CA-51	2004-05 CCR Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved December 29, 2005
B-147-CA-52	Recorded ELUC for Area 4	Approved September 29, 2005
B-147-CA-53	Submittal regarding facility's GMZ	Approved January 24, 2006
B-147-CA-54	Summary of Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved August 11, 2008
B-147-CA-55	Reevaluation of GMZ	Approved January 21, 2009
B-147-CA-56	Updated RFI Phase II/III Project Plan Schedule	Superseded by B-147R
B-147-CA-57	Investigation Report for Area 3	Soil comments e-mailed by IEPA February 25, 2008
B-147-CA-58	Investigation Report for Area 5	Disapproved June 22, 2007

Log No.	Submittal	Status
B-147-CA-59	Investigation Report for Area 6	Superseded by B-147R-CA-29
B-147-CA-60	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-61	Underground Piping Investigation Work Plan	Approved April 4, 2007 (eventually superseded by CA-90)
B-147-CA-62	Re-evaluation of GMZ	Approved January 21, 2009
B-147-CA-63	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-64	Underground Piping Work Plan for 7 and 8 Areas	Superseded by CA- 90
B-147-CA-65	Investigation Report for Area 19	Approved December 6, 2007
B-147-CA-66	Draft White Paper – Property Transfer Process	Approved March 31, 2009
B-147-CA-67	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-68	Information regarding two releases in Area 8	Approved August 13, 2007
B-147-CA-69	Addendum to Area 5 Report	On January 30, 2009, IEPA required additional investigation be conducted in Area 5.
B-147-CA-70	Supplemental Report for Soil Sampling of NC-SP1 and SFP	Approved January 7, 2008 (NFA determination made for NC-SP1; additional work required for SFP).
B-147-CA-71	Arca 5 Land Reuse Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.

Log No.	Submittal	Status
B-147-CA-72	Corrective Action Excavation in Area 5	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-73	Area 5 Analytical Reports for Perched Groundwater	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-74	2007 Annual Current Conditions Report – Phytoremediation at Tank 293	Approved August 11, 2008
B-147-CA-75	Area 5 Land Reuse Inventory Report and closure Plan, Revision 1	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA- 76	Area 10 Land Reuse Investigation and Closure Plan	Superseded by B-147R-CA-4
B-147-CA-77	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-78	Comments on IEPA's December 6, 2007 letter regarding the Area 19 Land Reuse Investigation Report and Closure Plan (CA-65)	Approved April 13, 2009
B-147-CA-79	Area 9 Land Reuse Report	Superseded by B-147R-CA-15
B-147-CA-80	Site-Wide Class II GW Determination	Disapproved December 17, 2012
B-147-CA-81	Area 7/8 Land Reuse Investigation Report and Closure Plan	Superseded by B-147R-CA-27
B-147-CA-82	2007 Annual Current Conditions Report, Phytoremediation/Landfarming at Tank 293	Approved August 11, 2008
B-147-CA-83	Additional information regarding two releases in Area 8 (see CA-68)	Received June 4, 2008

Log No.	Submittal	Status
B-147-CA-84	Area 16 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-85	Demonstration that detection monitoring SS1s at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-86	Area 17 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-87	Underground Pipeline Work Plan	Superseded by B-147-CA-90
B-147-CA-88	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved January 6, 2009
B-147-CA-89	Additional information regarding Area 5 Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-90	Underground Product Pipeline Investigation Workplan – Revision 1	Approved April 13, 2009
B-147-CA-91	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of renewal permit.
B-147-CA-92	Response to Comments, Area 6 Land Reuse Investigation Report	Superseded by B-147R-CA-21
B-147-CA-93	CCR for Phytoremediation/Landfarming	Approved November 20, 2009
B-147-CA-94	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-95	Requested changes to IEPA's April 13, 2009 approval of the Underground Product Pipeline Investigation Workplan	Approved July 6, 2009
B-147-CA-96	Letter Regarding Vertical Parceling	Approved March 3, 2010

Log No.	Submittal	Status
B-147-CA-97	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-98	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-99	Proposal to evaluate: (1) the hydrocarbon recovery system at facility; and (2) arsenic impacts in Well RG36	Approved February 24, 2010
B-147-CA-100	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-101	Shallow investigation of South Flare Pit.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-102	Current Condition Report for phytoremediation landforming at Tank 293.	Approved July 12, 2011
B-147-CA-103	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-104	Response to request for improvement to hydrocarbon recovery system.	Approved August 31, 2011
B-147-CA-105	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-106	Response to February 24, 2010 letter requiring improvements to hydrocarbon recovery system.	Approved August 31, 2011.
B-147-CA-107	Site-wide Geology Report and cone penetrometer logs.	Approved December 17, 2012

Log No.	Submittal	Status
B-147-CA-108	Demonstration Regarding SSIs for NCSP1/SFP (2Q10)	Approved August 31, 2011
B-147-CA-109	SSI Demonstration for SFP (3Q10)	Approved August 31, 2011
B-147R	Renewed RCRA Permit	Approved March 4, 2011
B-147R-CA-1	2010 Report for Phytoremediation/Landfarming at Tank 293	Approved July 12, 2011
B-147R-CA-2	Submittal Regarding GMZ Boundary Wells	Approved August 31, 2011
B-147R-CA-3	Area 11 CCR/Characterization Workplan	Approved January 24, 2012
B-147R-CA-4	Area 10 Comprehensive Report	Received May 5, 2011
B-147R-CA-5	Information Regarding the Arsenic Levels at Monitoring Wells RG36	Approved October 29, 2013
B-147R-CA-6	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011 (see also B-147R-CA-12)
B-147R-CA-7	Draft ELUC for Area 2, excluding Donation Parcel	Superseded by B-147R-CA-11
R B-147-CA-8	Additional Information Regarding the Arsenic Levels at Monitoring Well RG36	Disapproved October 29, 2013
B-147R-CA-9	Draft ELUC for South Flare Pit	Superseded by B-147R-CA-18
B-147R-CA-10	Area 13 CCR/Characterization Work Plan	Approved October 26, 2012
B-147R-CA-11	Draft ELUC for Area 2, Excluding Donation Parcel	Approved November 3, 2011
B-147R-CA-12	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011

Log No.	Submittal	Status
B-147R-CA-13	Area 14 CCR/Characterization Workplan	Approved July 12, 2012
B-147R-CA-14	Response to August 31, 2011 IEPA letter (see R-CA-2)—improvements to HRS and GMZ	Approved October 29, 2013
B-147R-CA-15	Area 9 Comprehensive Report	Received December 15, 2011
B-147R-CA-16	Recorded ELUC for Donation Parcel in Area 2	Approved March 13, 2012
B-147R-CA-17	Recorded ELUC for Area 2, excluding Donation Parcel	Approved February 27, 2012
B-147R-CA-18	Revised Draft ELUC for South Flare Pit	Approved August 11, 2014
B-147R-CA-19	Area 5 Comprehensive Report	Received February 2, 2012
B-147R-CA-20	2011 Report for Phytoremediation-Landfarming Project at Tank 293	Approved December 21, 2012
B-147R-CA-21	Area 6 Report	Received March 16, 2012
B-147R-CA-22	GMZ Re-Evaluation	Approved October 29, 2013
B-147R-CA-23	Site-Wide Class 2 Groundwater Demonstration	Approved December 17, 2012
B-147R-CA-24	Area 3 Current Conditions Report/Characterization Plan	Received May 10, 2012
B-147R-CA-25	Area 17 comprehensive land reuse investigation report and remediation plan	Received October 25, 2012
B-147R-CA-26	Extension request for submittal of response to 12/17/12 letter re: sitewide Class 2 Groundwater demonstration and cone penetration test.	Approved December 3, 2014
B-147R-CA-27	Area 7/8 comprehensive land reuse investigation report and remediation plan	Received December 17, 2012

Log No.	Submittal	Status
B-147R-CA-28	Response to comments for the sitewide class 2 groundwater demonstration	Approved December 3, 2014
B-147R-CA-29	2012 annual current condition report: phytoremediation/landfarming remedial measures at Tank 293.	Approved November 13, 2013
B-147R-CA-30	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Approved February 9, 2016
B-147R-CA-31	Area 2 donation parcel ii current conditions rpt/vapor intrusion wp	Superseded by B-147R-CA-35
B-147R-CA-33	Response to 10/29/13 letter (condition 2.3(iv))	Approved February 9, 2016
B-147R-CA-34	Tank 293 annual current conditions report	Approved December 3, 2014
B-147R-CA-35	Area 2 donation parcel ii current conditions rpt and vapor intrusion wp.	Approved October 24, 2014
B-147R-CA-36	Response/schedule to 10/29/13 letter and 12/19/13 meeting	Approved June 10, 2014
B-147R-CA-37	Updated financial assurance cost estimates	Approved August 2, 2017
B-147R-CA-38	Extension request to respond to IEPA's 12/29/13 letter	Approved June 10, 2014
B-147R-CA-39	Response to IEPA 2/14/13 email comments on the Area 9 Investigation Report (B-147R-CA-15)	Received May 5, 2014
B-147R-CA-40	Information Re: Existing HRS	Approved April 4, 2016
B-147R-CA-41	Updated Regarding HRS Evaluation	Approved April 4, 2016
B-147R-CA-42	Updated Regarding the Cone of Depression (COD) Evaluation	Approved January 19, 2016

Log No.	Submittal	Status
B-147R-CA-43	Information Regarding filing ELUC	Approved October 27, 2015
B-147R-CA-44	Extension Request (GW)	Approved July 18, 2017
B-147R-CA-45	Area 16 Investigation Report and Remediation Plan	Approved June 14, 2016
B-147R-CA-46	Response to Comments Regarding Site-Wide Class II GW Demonstration	Received December 24, 2014
B-147R-CA-47	60 day extension Request (GW)	Approved July 18, 2017
B-147R-CA-48	Annual 2014 Current Conditions Report for Tanlk293	Approved January 16, 2015
B-147R-CA-49	GMZ Well Evaluation Report	Approved July 18, 2017
B-147R-CA-50	Potential TACO Based CA for Tank 293	Received June 17, 2015
B-147R-CA-51	Area 2 Donation Parcel II CCR & Vapor Intrusion Work Plan	Superseded by B-147R-CA-57 and R-CA-59
B-147R-CA-52	COD Well Performance Evaluation Report	Approved January 19, 2016
B-147R-CA-53	ELUC Submittal	Received July 15, 2015
B-147R-CA-54	GMZ Re-evaluation Report	Approved July 18, 2017
B-147R-CA-55	Evaluation of Significant Increase	Received April 23, 2015
B-147R-CA-56	COD Well Evaluation and Status Report	Approved January 19,. 2016
B-147R-CA-57	Area 2 Donation Parcel II – Boundary Approval request	Approved August 22, 2016
B-147R-CA-58	ELUC	Approved July 18, 2016
B-147R-CA-59	Area 2 Donation Parcel II – Vapor Intrusion Report	Approved August 22, 2016
B-147R-CA-60	HRS Evaluation Update	Approved April 4, 2016
B-147R-CA-61	HRS Evaluation Update	Approved April 4, 2016

Log No.	Submittal	Status
B-147R-CA-63	2015 Annual CCR for Tank 293	Received March 1, 2016
B-147R--CA-64	Draft ELUC for Donation Parcel Area 2 (7.5-ac)	Approved February 28, 2017
B-147R--CA-65	Draft ELUC for Donation Parcel Area 2	Approved February 28, 2017
B-147R--CA-77	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres -Top layer)	Approved May 4, 2017
B-147R--CA-78	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres – Beneath the top layer)	Approved April 21, 2017
B-147R--CA-79	4th Quarter 2016 Demonstration Report (SSIE)	Received April 24, 2017
B-147R--CA-80	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Received June 22, 2017
B-147R--CA-81	Proposed ELUC	Received July 10, 2017
B-147R-CA-82	Response to IEPA 7/18/27 letter regarding GMZ wells	Received October 16, 2017
B-147R-CA-83	Extension request for submittal of cost estimate	Received October 30, 2017
B-147R-CA-84	GMZ monitoring wells	Received October 16, 2017
B-147R-CA-85	Plan for GMZ optimization for compliance commitment agreement	Received January2, 2018
B-147R-CA-86	Interim progress report - bioremediation pilot systems operations	Received April 2, 2018
B-147R-CA-87	Fourth Quarter 2017 GW demonstration report	Received April 12, 2018

Log No.	Submittal	Status
B-147R-CA-88	Response to IEPA's 7/18/17 GMZ wells letter	Received May 1, 2018
B-147R-CA-89	GW Monitoring Optimization Report	Approved January 19, 2023
B-147R-CA-90	Time Extension Request	Approved June 24, 2019
B-147R-CA-91	Remedial Action Selection Report and Main Plant Remedy Roadmap	Approved February 11, 2020
B-147R-CA-92	Performance Report-Pilot-Scale Bioremediation Systems	Approved February 11, 2020
B-147R-CA-93	Indoor Inhalation Exposure Route Evaluation & Work Plan	Denied May 30, 2019
B-147R-CA-94	State-wide Arsenic/Inorganic Demonstration Report	Approved June 24, 2019
B-147R-CA-95	4th Quarter 2018 Demonstration Report (Statistically Significant Increase Evaluation)	Approved February 27, 2020
B-147R-CA-96	Revised Indoor Inhalation Exposure Route Evaluation and Work plan	Received August 29, 2019
B-147R-CA-97	Site-wide inorganics and metals evaluation work plan schedule update letter	Received November 5, 2019
B-147R-CA-98	Action Plan for potential manmade pathway evaluation	Received November 26, 2019
B-147R-CA-99	Main Plant Area 10 Comprehensive land reuse Investigation Report	Received December 20, 2019
B-147R-CA-100		
B-147R-CA-101	2019 Annual Tank 293 Current Conditions Report	Received February 28, 2020
B-147R-CA-102	Documentation of monitoring well installation and abandonment	Received March 27, 2020
B-147R-CA-103	Proposed modification to 2Q 2020 GW Gauging & Monitoring in response to COVID-19 pandemic	
B-147R-CA-104	4th Quarter 2019 Demonstration Report	Received May 21, 2020

Log No.	Submittal	Status
B-147R-CA-104	4th Quarter 2019 Demonstration Report (Statistically Significant Increase Evaluation)	Received April 30, 2020
B-147R-CA-105	RCRA Land reuse investigation assessments	Received June 22, 2020
B-147R-CA-106	Notification of COD Pumping and Equipment Status	Received July 29, 2020
B-147R-CA-107	COD pumping and equipment status update	Received September 16, 2020
B-147R-CA-108	Request to update Main Plant Observation Monitoring Well Abandonment of G047	Received September 23, 2020
B-147R-CA-109	Site-wide inorganics and metals evaluation work plan	Received November 302020
B-147R-CA-110	Groundwater Management Zone Re-evaluation	Received December 21, 2020
B-147R-CA-111	Soil Gas Pathway Evaluation Report	Received June 8, 2021
B-147R-CA-112	Results in accordance with Site-Wide Inorganics and Metals Evaluation Report submitted on 12/20/18	Received January 26, 2022
B-147R-CA-113	Remedial Action Selection Report & Main Plant Remedy Roadmap. This is a follow up on IEPA correspondence dated 2-11-20	Received January 31, 2022
B-147R-CA-114	Monitoring Well Condition	Approved January 19, 2023
B-147R-CA-115	Proposed upgrades to the Cone of Depression (COD) Well System	Approved January 19, 2023
B-147R-CA-116	4th Quarter 2021 Demonstration Report	Received May 3, 2022
B-147R-CA-117	Northern GMZ Monitoring Wells G067/G068	Approved January 19, 2023
B-147R-CA-118	Well replacement extension request	Approved April 21, 2023
B-147R-CA-119	4th Quarter 2022 Demonstration Report	
B-147R-CA-120	Documentation of monitoring well installation and abandonment	Received July 21, 2023

Log No.	Submittal	Status
B-147R-CA-121	Main Plant GMZ Well G078 Well Condition Notification letter in accordance with Condition V.D.4 of the RCRA permit	Received July 13, 2023
B-147R-CA-122	Corrective Action Mod request for the Korea tank Farm (Area 9) at the Main Plant	Approved November 20, 2023
B-147R-CA-123	Gradient Control Well G668 and G669 Condition Notification	Received September 13, 2023
B-147R-CA-124	Main Plant Observation Well G97L Well Conditions Notification letter in accordance with ConditionV.D.4 of the RCRA	Received January 30, 2024
B-147R-CA-125	Main plant land reuse investigation data submittal of general background, sampling methods, analytical procedures, and analytical results for areas	Received March 12, 2024
B-147R-CA-126	Additional info to the revised indoor inhalation exposure route eval and work plan dated 8/29/19 to provide an update on changed site conditions	Received April 16, 2024
B-147R-CA-127	Response to recommendation to vent well cap in the 8/3/23 Inspection Report	Received April 24, 2024
B-147R-CA-128	Main Plant Observation well G87L well condition Notification letter in accordance with Condition V.D.4 of RCRA permit	Received July 31, 2024

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

1.0 INTRODUCTION/PURPOSE

RCRA corrective action projects typically consist of two phases: (1) A RCRA Facility Investigation (RFI) where an investigation is conducted at the solid waste management units (SWMU's) of concern at a facility; and (2) implementation of corrective measures needed to properly address any contaminant encountered during the RFI. This document has been developed to outline the procedures to be carried out to implement a corrective measure program.

2.0 BRIEF OVERVIEW OF A RCRA CORRECTIVE MEASURES PROGRAM

Typically, at the end of an RFI, the concentration of contaminants present in the soil/sediments/groundwater/surface waters at a SWMU or other area of concern (AOC) is compared to remediation objectives developed in accordance with 35 IAC Part 742. If the contaminant levels are above these objectives, then some type of corrective measure must be completed to achieve these objectives. In addition, certain corrective measures may need to be carried out to support the established remediation objectives (i.e., the establishment of engineered barriers and/or institutional controls). However, at a unit where waste or high levels of contamination remains, a decision may be made to close the unit as a landfill and then provide post-closure rather than removing the material and/or achieving remediation objectives developed in accordance with 35 IAC Part 742.

To allow for a logical and orderly progression in developing and implementing necessary corrective measures, the Corrective Measures Program (CMP) being carried out in accordance with this RCRA permit should be carried out in five phases which build on each other. It is not necessary for a corrective measures program at a given SWMU or other AOC to follow these five (5) phases step-by-step; rather, phases can be combined and/or skipped, depending on the actual remedial measure selected. The overall CMP implemented must set forth a logical path for its implementation and allow for Illinois EPA oversight and approval throughout the entire process.

A brief discussion of the five (5) phases of a CMP is as follows:

1. Phase I is the conceptual design of the selected corrective measure(s).

2. Phase II is the development of final design plans for the corrective measure, including installation and operation/maintenance plans.

3. Phase III is the actual construction/installation of the selected corrective measure.

4. Phase IV is the operation, maintenance, and monitoring of the selected corrective measure to ensure it is properly protecting human health and the environment.
5. Phase V is the final demonstration/verification that the implemented corrective measure achieved the approved remedial objectives.

Sections 3.0 through 7.0 which follow provide a more detailed discussion of each of these five phases. Section 8.0 has been developed to describe the CMP which may be used in lieu of the afore-mentioned five phase procedure when soil removal is the selected remedy. It must be noted that work plans, reports, etc. must be developed to document how the Permittee carries out the required corrective measures program at each SWMU or other AOC. All such documents must be reviewed and approved by the Illinois EPA prior to their implementation.

3.0 PHASE I OF THE CMP

Phase I of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and other AOCs and provides a conceptual design for these measures. The main criteria for the Illinois EPA review are whether the proposed corrective measures are able to achieve the final cleanup objectives previously established by the Permittee and the Illinois EPA and/or provide the necessary institutional controls to prevent the migration of contaminants from the SWMU of concern. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

1. Introduction/Purpose. This section should contain: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.

2. Existing Site Conditions. This section should contain a summary of the investigative activities conducted for each of the units of concern. Investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.

3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this section. The potential for additional future migration of contamination for each of the units of concern must then be evaluated, especially those units which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.); and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).

4. Corrective Measures Objectives. This section should discuss the general objectives of the proposed corrective measure to be constructed/installed, and the ability of the proposed corrective measure to achieve the established remediation objectives (unless the selected corrective measure is closure as a landfill which will require proper establishment of a final cover and proper post-closure care of the closed unit).

5. Identification of Options Available. This section should contain a brief discussion of the various options available to achieve the corrective measures objectives for each unit. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each remedial option.

6. Description of Selected Corrective Measure. This section should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected corrective measure will be effective.

7. Identification of Design Criteria. This section should identify what information must be available to design the selected corrective measure.

8. Review of Available Information. This section should contain an evaluation of the existing information to ensure that it is sufficient to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required additional information.

9. Procedures for Completing the Design. This section should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:

    a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.

    b. A description of the procedures which will be used to complete the design of the corrective measure.

    c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;

    d. Significant data to be used in the design effort;

    e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);

    f. Sample calculations to be used in the design effort;

    g. Conceptual process/schematic diagrams;

    h. A site plan showing a preliminary layout of the selected corrective measure;

    i. Tables giving preliminary mass balances;

j. Site safety and security provisions.

This information will form the technical basis for the detailed design of the remedial measure and the preparation of construction plans/specifications.

10. Identification of Required Permits. This section should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.

11. Long Lead Procurement Time Considerations. This section should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.

12. Project Management. This section should contain information regarding the procedures and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 PHASE II OF THE CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective action (Phase II of the CMP). Upon final completion of the design, a Final Design Report, consisting of final plans, specifications, construction work plan, etc., must be submitted to the Illinois EPA for review and approval.

Several documents must be submitted to the Illinois EPA as part of Phase II of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase II of the CMP.

1. Final Design Report and Construction Work Plan. The Final Design Report and Construction Work Plan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc., in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:

   b. Introduction/Purpose. This portion of the document should: (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.

   c. Detailed Plans of the Design System, including the following:

      1) Plan views;

2) Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;

3) Dimensions and relative elevations of structures;

4) Location and outline form of the equipment;

5) Ground elevations; and

6) Descriptive notations, as necessary, for clarity.

c. Technical Specifications. Complete technical specifications for the construction of the system, including, but are not limited to, the following:

1) All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the project;

2) The type, size, strength, and operating characteristics of the equipment;

3) The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;

4) Electrical apparatus, wiring and meters;

5) Construction materials;

6) Chemicals, when used;

7) Miscellaneous appurtenances;

8) Instruction for testing materials and equipment as necessary; and

9) Availability of soil boring information.

d. Project Management. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications if key personnel who will direct corrective measures construction/installation must be provided in the work plan.

e. Construction Quality Assurance/Quality Control. A construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.

f. Schedule. The work plan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted.

g. Waste Management Practices. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures and provide a description of the procedures for appropriate characterization and management of these wastes.

h. Required Permits. Copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure must be provided in the report. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.

i. Cleanup Verification. The report must contain the procedures which will be followed that the approved remediation objectives have been achieved when operation of the system is completed.

2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase II of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.

a. Introduction and Purpose. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

b. System Description. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the permit should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

c. Operation and Maintenance Procedures. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:

1) Description of tasks for operation;

2) Description of tasks for maintenance;

3) Description of prescribed treatment or operation conditions; and

4) Schedule showing the frequency of each operation and maintenance task.

d. Inspection Schedule. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look

for during the inspection procedure, specific inspection items, and frequency of the inspections.

e. Waste Management Practices. This portion of the document should provide a description of the wastes generated by the corrective measure, and the appropriate procedures for proper characterization/management of these wastes.

f. Contingency Procedures. This portion of the document should provide a description of the procedures which will address the following items:

1) System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;

2) Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure fails. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.

3) Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 PHASE III OF THE CMP

Once the final design report is approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

1. Summary of activities completed during the reporting period;

2. An estimate of the percentage of the work completed;

3. Summaries of all actual or proposed changes to the approved plans and specifications or its implementation;

4. Summaries of all actual or potential problems encountered during the reporting period;

5. Proposal for correcting any problems; and

6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Completion Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain

a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.

2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase II.

3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure. Justification regarding the need to vary from the approved plans and specifications must also be provided.

4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.

5. As built drawings, including identification of any variations from the approved plans, technical specifications and drawings.

6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.

7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.

8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re testing efforts.
9. Photographs documenting the various phases of construction.

10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.

11. A certification meeting the requirements of 35 IAC 702.126 by an independent qualified, licensed professional engineer and by an authorized representative of the owner/operator.

6.0 PHASE IV OF THE CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved plans and specifications (this is Phase IV of the CMP). During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports include the following:

1. Introduction. A brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

2. System Description. A description of the corrective measures constructed/installed at the site, and identify significant equipment.

3. Monitoring Results. A description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.

4. Effectiveness Determination. Calculations and other relevant documentation which demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.

5. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under Item 4 above, recommendations on continued operation of the corrective measure must be provided. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided.

7.0 PHASE V OF THE CMP

Once all corrective measures have been completed, a report must be developed documenting all the efforts which were carried out as part of implementing the corrective measure and demonstrating, as appropriate, that the approved remediation objectives have been achieved. This report should contain a compilation of all previous reports and also contain sufficient information to demonstrate that the approved remediation objectives have been achieved. It must be noted that such a report will not be developed for a unit closed as a landfill until the post-closure care period has been completed.

8.0 PROCEDURES WHICH SHOULD BE FOLLOWED WHEN SOIL REMOVAL IS THE SELECTED CORRECTIVE MEASURE

Sections 2.0 through 6.0 above describe the procedures which should be followed when it is necessary to design a physical corrective measure (e.g., a final cover system, certain type of treatment system, etc.). However, such detail is not necessary if excavation/removal is selected as the remedial action for the contaminated soil encountered at the site. In general, a work plan should be developed for this effort (for Illinois EPA review and approval) which fully describes each step to be used in removing the contaminated soil from the property. This includes a description of (1) the equipment utilized in the removal effort, (2) the pattern followed in removing the soil; (3) the depth to which the soil will be removed; (4) management of the soil on-site after it is removed from the ground; (5) loading areas; (6) the ultimate destination of the soil; and (7) any other steps critical to the removal effort.

One way to conduct a soil removal effort is to collect and analyze a sufficient number of soil samples to clearly determine the horizontal and vertical extent of soil contamination prior to conducting the soil removal effort. The boundaries of soil which must be removed are defined by the Illinois EPA established cleanup objectives for the project. Soil excavation must extend to sample locations where soil test results indicate that the remediation objectives are met. Closure verification sampling is not necessary in such cases, if a registered professional engineer oversees the soil removal effort and certifies that the remediation limits extend to these boundaries.

Another way to conduct a soil removal effort is to collect and analyze a limited number of soil samples prior to the soil removal effort and to rely mainly on field observation to determine the extent of the soil removal. In such cases closure verification sampling is necessary. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation. The following sampling/analysis effort is necessary to demonstrate that the remaining soil meets the established cleanup objectives:

1. A grid system should be established over the excavation.

2. Samples should be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

3. Samples should be collected at 6-inch to 12-inch below the ground surface (bgs) along the excavation sidewalls at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

4. Collection/analysis of all required samples must be in accordance with the procedures set forth in the approved plan.

5. Soil samples which must be analyzed for volatile organic compounds (VOCs) must be collected in accordance with the procedures set forth in Method 5035 of SW-846. In addition, such samples must be collected 6-inch to 12-inch beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

6. No random sampling may be conducted to verify achievement of cleanup objectives have been met.

Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Additional samples must be collected and analyzed in accordance with the procedures described above from areas where additional soil has been removed.

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

Updated as of September 2024

A. SUMMARY

The following subsections detail the historical and current remediation systems operated at the BP Main Plant to mitigate hydrocarbons and refinery product in accordance with Condition II.E of the facility's permit.

Historical remedial operations included a Hydrocarbon Recovery System (HRS) as an interim remedial measure (IRM), as discussed in Section C, below.

Current remedial operations include three pilot-scale Bioremediation Systems as successors to the HRS, which reached its limit of effectiveness. The Bioremediation Systems are being operated to mitigate hydrocarbons and refinery product, and to provide information on long-term performance and other essential data to evaluate the full-scale implementation of hydrocarbon and other refinery related product remediation at the BP Main Plant facility. These Bioremediation Systems include:

- Central Bioventing System (Section E)
- Sothern Biosparging/Bioventing System (Section F)
- Northern Air Sparge/Soil Vapor Extraction System (AS/SVE) (Section G)

B. DEFINITIONS

"Bioremediation systems" means systems or technologies that enhance the biodegradation of hydrocarbons, and preferentially remove compounds that are typically more toxic which results in compositional change. The biodegradation processes affect refinery product from the smear zone and vadose zone as it contributes to soil vapor and dissolved phase impacts. Systems to accomplish this include bioventing, biosparging, and AS/SVE systems or some combination of systems designed to remediate hydrocarbons. It may also include other technologies that could enhance bioremediation such as infiltration galleries or ambient air introduction that can increase oxygen to the subsurface to enhance aerobic biodegradation.

"Hydrocarbon Remediation Well" means any type of well, including Bioremediation System wells, installed to remediate hydrocarbons, from the smear zone and vadose zone.

"Remediating refinery product" means the use of physical, chemical, or biological means to remove or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts in order to reduce the mass present at the Site.

"Smear Zone" means the vertical profile of hydrocarbon impacted soil located across the area of groundwater fluctuations, between the high and low groundwater elevations.

"Vadose Zone" means the vertical profile of unsaturated soils located above the water table.

C. HISTORICAL HYDROCARBON RECOVERY SYSTEM (HRS) OPERATION

The HRS at the BP Main Plant facility was commissioned as an IRM in 1993 to hydraulically recover subsurface mobile LNAPL from above the water table. The original system included twenty-one (21) HRS extraction wells as listed below. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness. As described in the technical memorandum by BP entitled, Hydrocarbon Recovery System (HRS) Evaluation, dated May 24, 2017, the HRS removed 6.5 million gallons of LNAPL over twenty-two (22) years of operation. However, despite this volume of mobile LNAPL having been removed, the HRS did not have a significant impact on dissolved phase concentrations in groundwater. Accordingly, installation and operation of three (3) pilot-scale bioremediation systems (as discussed below) was implemented as a replacement for the HRS, to provide information needed to design full-scale remedies to target the remaining LNAPL with the goal to reduce dissolved phase concentrations of benzene.

Identification of Historical/Inactive HRS Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
G601	RC-1	56.0	373.40	393.40 – 373.40
G602	RC-2	55.0	374.96	394.96 – 374.96
G603	RC-3	51.0	379.39	399.39 – 379.39
G604	RC-4	49.5	382.18	402.18 – 382.18
G606	RC-6	55.0	373.27	408.27 – 378.27
G607	RC-7	58.5	368.97	403.97 – 373.97
G608	RC-8	61.0	364.90	399.90 – 369.90
G609	RC-9	64.0	367.40	402.40 – 372.40
G610	RC-10	69.0	366.61	401.61 – 371.61
G611	RC-11	70.0	369.96	404.96 – 374.96
G612	RC-12	73.0	368.21	395.21 – 373.21
G615	RC-15	58.4	371.77	407.15 – 377.15
G617	RC-17	58.0	370.41	392.41 – 375.41
G618	RC-18	57.5	371.76	411.76 - 376.76
G619	RC-19	58.0	368.92	408.92 – 373.92
G629	RC-H-29	57.6	379.88	401.48 – 379.88
G605	RC-5	49.8	380.56	401.27 – 381.27
G613	RC-13	60.0	371.25	406.25 – 376.25
G614	RC-14	59.5	371.60	406.60 – 376.60
G616	RC-16	65.0	367.61	402.61 – 372.61
G620	RC-20	85.4	344.72	406.49 – 349.72

ft. MSL= feet above mean sea level

D. CURRENT HYDROCARBON REMEDIATION SYSTEMS OPERATIONS

BP is currently operating three (3) pilot-scale bioremediation systems and has implemented pilot-scale passive bioventing in two (2) additional areas for remediation of groundwater and destruction of LNAPL impacts. These remedial approaches focus on in-situ remediation of hydrocarbons by delivering increased oxygen to the subsurface via different mechanisms as opposed to hydraulic recovery. Biodegradation also has the added benefit of not only removing LNAPL mass but changing the chemical composition of LNAPL in the subsurface, through sparging and venting, to mitigate impact to dissolved phase groundwater conditions. The locations of the bioremediation systems are depicted on Figure E-1.

The primary objectives of these bioremediation systems include:

I. Progressing LNAPL remediation beyond what the HRS could achieve including dissolved phase risk reduction;

II. Identification of technology combinations that will be flexible across water table conditions and optimize vapor treatment;

III. Evaluation of alternative remedial approaches for hydrocarbon and LNAPL mitigation; and

IV. Support for selection and design of appropriate final remedies.

Performance of the initial pilot-scale systems was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018) and found enhanced biodegradation via all three (3) technologies (i.e., bioventing, biosparging, and AS/SVE) to be viable for remediation of groundwater and more effective at destruction of remaining LNAPL impacts than physical hydrocarbon recovery. The passive bioventing technologies implemented promote the same remedial mechanisms as active bioventing but utilize natural pressure changes between the vadose zone and surface to deliver oxygen into the vadose zone in the form of ambient air. The technologies all specifically enhance the removal rate of hydrocarbon compared to historical systems and promote compositional change to decrease concentrations of aromatic BTEX compounds at the site.

BP completed modifications to the pilot-scale bioremediation systems and technologies between 2019 to 2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the BP Main Plant Property. Installation of air injection wells, piezometers, and soil vapor monitoring points (VMPs) was initiated in 2019 and completed during First Quarter 2020. Surveying of the newly installed wells was also completed in First Quarter 2020. Installation of requisite equipment and start-up activities were completed in 2020 and 2021. Passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those area to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation.

The three (3) expansion pilot bioremediation systems continue to operate as of 2024. Any changes to the operations or configuration of the systems is documented through an annual update to Attachment C of the permit as required by Section IV.C.8 of the permit. Information presented in the following previously submitted Class 1* Permit modification requests has been incorporated into this exhibit: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024). The configuration and operation of the three pilot-scale bioremediation systems are detailed in Sections E (Central Biovent System), F (Southern Biosparge/Biovent System) and G (Northern AS/SVE System). Each section includes a timeline of operations, enhancements, and modifications for each system.

E. PILOT-SCALE CENTRAL BIOVENTING SYSTEM

A bioventing pilot test was performed to evaluate performance of this remedial approach and to quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/contaminants of concern (COCs) removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018). The pilot test finding is that bioventing is more effective at treating hydrocarbons through mass removal (biodegradation) and compositional change than physical removal of hydrocarbon.

The biovent system underwent an expansion in 2019-2020, including installation of additional biovent wells to treat a larger area to the west of the original biovent implementation area (Figure 3). Performance data from the initial pilot test was utilized in design of the expansion pilot system to more efficiently deliver oxygen into the subsurface. The monitoring network was also modified with the installation of additional piezometers and VMPs in 2019-2020. Active bioventing in six (6) biovent wells in the initial Central Biovent pilot system area was shut down in July 2020 and transitioned to passive bioventing in 2021 as part of the modifications to the current operating system. Full-time operation of the expanded Central Biovent System was initiated in April 2021.

The six (6) biovent wells from the initial biovent system area were converted to passive biovent wells by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface. In April 2023, Main Plant Observation Well G050 was also fitted for passive bioventing as an IRM to address LNAPL.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-June 2020	Initial pilot wells operate with active bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
July 2020-March 2021	System shut down for completion of system	

	expansions and electrical system upgrades.	
April 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A3BV-1A, A3BV-1B, A3BV-2A, A3BV2B, A3BV-3A, A3BV-3B, A3BV-4A, A3BV-4B, A3BV-5A, A3BV-5B, A3BV-6A, A3BV-6
December 2021- 2024 (ongoing)	Initial pilot wells used for passive bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
April 2023-2024 (ongoing)	Main Plant Observation Well used for passive bioventing.	G050

System Description

The pilot-scale biovent system equipment is designed to deliver sufficient air into the subsurface at low pressures to allow for aerobic respiration to dominate the treatment zone. Flow from a rotary vane compressor delivers air at total flow rates up to 60 standard cubic feet per minute (scfm) @ 10 pounds per square inch (psi), split into up to 12 of the 18 total biovent wells. Air from the compressor has a throttling valve, temperature indicator, check valve, and pressure indicator. The biovent process and instrumentation diagram is presented as Figure 2, and the biovent system schematic is presented as Figure 2A.

Flow from the equipment is routed through a 6-leg manifold. Each manifold leg has a flow control valve, rotameter-style flowmeter, and pressure gauge. Each manifold leg feeds up to two (2) biovent wells via aboveground piping. Each of the biovent well lateral legs has its own flow control valve and pressure indicator. Operation of each of the six (6) manifold legs is controlled with a normally closed solenoid controlled via a human machine interface (HMI) screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting, heating, and ventilation).

Biovent configurations and flow rates are controlled by system valves, the Programmable Logic Controller (PLC) and HMI. The system is designed to operate up to 12 of the 18 total individual biovent points at a time in any combination. Individual point flow rates are between 1 to 20 scfm, with a combined rate of up to 60 scfm. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Biovent System Layout and Well Network

The pilot-scale biovent system layout and well network are depicted on Figure 3. The Central Biovent System remediation wells include 18 biovent wells, and performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biovent Wells: Eighteen (18) total biovent wells are present; six (6) were components of the initial system installation, and twelve (12) were installed during the system expansion. Biovent

well construction was designed to target the vadose zone directly above the water table under typical conditions.

Piezometers: Six (6) total piezometers were installed to monitor the shallow water table and identify LNAPL presence in the remediation areas. Piezometers supplement existing monitoring wells in the north (G99L) and south (G13L) of the expansion treatment area. One (1) additional deep monitoring well is present in the initial treatment area – A3AS-C.

Vapor Monitoring Points: A total of twenty (20) nested VMP locations are used to monitor the vadose zone to measure degradation. VMP depths are staggered to ensure granularity in measuring impacts and changing gradients. The twenty (20) nested VMPs are located at differing distances from the pilot test wells and throughout the treatment zones to allow for monitoring the influence of the system. Each location contains 3-4 nested VMPs for a total of 67 individual VMPs.

The wells comprising the Bioventing system are listed below:

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	366.19 - 361.19
A3BVS-S	A3BVS-S	25	406.27	416.27 - 406.27
A3BVS-D	A3BVS-D	35	396.20	406.20 – 396.20
A3BVNW-S	A3BVNW-S	25	406.05	416.05 – 406.05
A3BVNW-D	A3BVNW-D	35	396.11	406.11 – 396.11
A3BVNE-S	A3BVNE-S	25	406.27	416.27 – 406.27
A3BVNE-D	A3BVNE-D	35	396.28	406.28 – 396.28
A3BV-1A	A3BV-1A	32	397.77	407.77-397.77
A3BV-1B	A3BV-1B	32	397.24	407.24-397.24
A3BV-2A	A3BV-2A	32	397.72	407.72-397.72
A3BV-2B	A3BV-2B	32	397.02	407.02-397.02
A3BV-3A	A3BV-3A	32	398.35	408.35-398.35
A3BV-3B	A3BV-3B	32	399.09	409.09-399.09
A3BV-4A	A3BV-4A	32	396.96	406.96-396.96
A3BV-4B	A3BV-4B	32	397.71	407.71-397.71
A3BV-5A	A3BV-5A	32	398.58	408.58-398.58
A3BV-5B	A3BV-5B	32	398.77	408.77-398.77
A3BV-6A	A3BV-6A	32	399.35	409.35-399.35
A3BV-6B	A3BV-6B	32	399.16	409.16-399.16

Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)

A3PZ-N	A3PZ-N	35	396.11	396.11 - 411.11
A3PZ-C	A3PZ-C	35	396.22	396.22 - 411.22
A3PZ-S	A3PZ-S	35	396.14	396.14 - 411.14
A3PZ-N2	A3PZ-N2	34	394.64	404.64-394.64
A3PZ-C2	A3PZ-C2	35	394.61	404.61-394.61
A3PZ-S2	A3PZ-S2	36	394.66	404.66-394.66

Bioventing System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A3VMPNA-10	A3VMPNA-10	10	9.5-10	0.75
A3VMPNA-20	A3VMPNA-20	20	19.5-20	0.75
A3VMPNA-24	A3VMPNA-24	24	23.5-24	0.75
A3VMPNA-28	A3VMPNA-28	28	27.5-28	0.75
A3VMPNB-15	A3VMPNB-15	15	14.5-15	0.75
A3VMPNB-22	A3VMPNB-22	22	21.5-22	0.75
A3VMPNB-26	A3VMPNB-26	26	25.5-26	0.75
A3VMPNB-30	A3VMPNB-30	30	29.5-30	0.75
A3VMPC-10	A3VMPC-10	10	9.5-10	0.75
A3VMPC-20	A3VMPC-20	20	19.5-20	0.75
A3VMPC-24	A3VMPC-24	24	23.5-24	0.75
A3VMPC-28	A3VMPC-28	28	27.5-28	0.75
A3VMPSW-10	A3VMPSW-10	10	9.5-10	0.75
A3VMPSW-20	A3VMPSW-20	20	19.5-20	0.75
A3VMPSW-24	A3VMPSW-24	24	23.5-24	0.75
A3VMPSW-28	A3VMPSW-28	28	27.5-28	0.75
A3VMPSW-15	A3VMPSW-15	15	14.5-15	0.75
A3VMPSW-22	A3VMPSW-22	22	21.5-22	0.75
A3VMPSW-26	A3VMPSW-26	26	25.5-26	0.75
A3VMPSW-30	A3VMPSW-30	30	29.5-30	0.75
A3VMPSE-10	A3VMPSE-10	10	9.5-10	0.75
A3VMPSE-20	A3VMPSE-20	20	19.5-20	0.75
A3VMPSE-24	A3VMPSE-24	24	23.5-24	0.75
A3VMPSE-28	A3VMPSE-28	28	27.5-28	0.75
A3VMPSE-15	A3VMPSE-15	15	14.5-15	0.75
A3VMPSE-22	A3VMPSE-22	22	21.5-22	0.75
A3VMPSE-26	A3VMPSE-26	26	25.5-26	0.75
A3VMPSE-30	A3VMPSE-30	30	29.5-30	0.75
A3VMP1-S	A3VMP1-S	17	16-17	0.75
A3VMP1-M	A3VMP1-M	22	21-22	0.75
A3VMP1-D	A3VMP1-D	27	26-27	0.75
A3VMP2-S	A3VMP2-S	17	16-17	0.75
A3VMP2-M	A3VMP2-M	22	21-22	0.75
A3VMP2-D	A3VMP2-D	27	26-27	0.75
A3VMP3-S	A3VMP3-S	17	16-17	0.75

A3VMP3-M	A3VMP3-M	22	21-22	0.75
A3VMP3-D	A3VMP3-D	27	26-27	0.75
A3VMP4-S	A3VMP4-S	17	16-17	0.75
A3VMP4-M	A3VMP4-M	22	21-22	0.75
A3VMP4-D	A3VMP4-D	27	26-27	0.75
A3VMP5-S	A3VMP5-S	17	16-17	0.75
A3VMP5-M	A3VMP5-M	22	21-22	0.75
A3VMP5-D	A3VMP5-D	27	26-27	0.75
A3VMP6-S	A3VMP6-S	17	16-17	0.75
A3VMP6-M	A3VMP6-M	22	21-22	0.75
A3VMP6-D	A3VMP6-D	27	26-27	0.75
A3VMP7-S	A3VMP7-S	17	16-17	0.75
A3VMP7-M	A3VMP7-M	22	21-22	0.75
A3VMP7-D	A3VMP7-D	27	26-27	0.75
A3VMP8-S	A3VMP8-S	17	16-17	0.75
A3VMP8-M	A3VMP8-M	22	21-22	0.75
A3VMP8-D	A3VMP8-D	27	26-27	0.75
A3VMP9-S	A3VMP9-S	17	16-17	0.75
A3VMP9-M	A3VMP9-M	22	21-22	0.75
A3VMP9-D	A3VMP9-D	27	26-27	0.75
A3VMP10-S	A3VMP10-S	17	16-17	0.75
A3VMP10-M	A3VMP10-M	22	21-22	0.75
A3VMP10-D	A3VMP10-D	27	26-27	0.75
A3VMP11-S	A3VMP11-S	17	16-17	0.75
A3VMP11-M	A3VMP11-M	22	21-22	0.75
A3VMP11-D	A3VMP11-D	27	26-27	0.75
A3VMP12-S	A3VMP12-S	17	16-17	0.75
A3VMP12-M	A3VMP12-M	22	21-22	0.75
A3VMP12-D	A3VMP12-D	27	26-27	0.75
A3VMP13-S	A3VMP13-S	17	16-17	0.75
A3VMP13-M	A3VMP13-M	22	21-22	0.75
A3VMP13-D	A3VMP13-D	27	26-27	0.75

Bioventing System Area Deep Monitoring Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	361.19 - 366.19

F. PILOT-SCALE SOUTHERN BIOSPARGE/BIOVENT SYSTEM

A biosparging/bioventing pilot test was performed to evaluate the performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The test was also intended to determine the efficiency of using a horizontal well for sparging, and whether this approach could potentially be used to serve as a barrier for contaminant migration in the

dissolved phase. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that biosparging/bioventing is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The biosparge system was modified to treat a larger area to the north and west of the original implementation area and to include use of bioventing. When operating under the expanded bioventing scenario, flow from the existing compressor is routed through a flow amplifying air eductor and manifold to deliver air to 36 vertical biovent wells (as opposed to the original single horizontal biosparge well). The monitoring network was also expanded with the addition of piezometers and VMPs. The wells associated with the bioparge/biovent system expansion were installed in 2019-2020. Active biosparging in the horizontal well was shut down in September 2020 as part of the modifications to the current operating system. Full-time operation of the modified and expanded Southern Biosparge/Biovent System was initiated in July 2021.

In April 2023, BP Main Plant Observation Well G16L was converted to a passive biovent well by fitting a one-way valve to allow ambient air into the vadose zone when negative pressure is present in the subsurface. In December 2023, G16L was then converted to an active biovent well as part of the Pilot-Scale Southern Biosparge/Biovent System.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-September 2020	Initial horizontal well operates with active biosparging.	A5HBS
October 2020-June 2021	System shut down for completion of system expansions and electrical system upgrades.	
July 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A5BV-1, A5BV-2, A5BV-3, A5BV-4, A5BV-5, A5BV-6, A5BV-7, A5BV-8, A5BV-9, A5BV-10, A5BV-11, A5BV-12, A5BV-13, A5BV-14, A5BV-15, A5BV-16, A5BV-17, A5BV-18, A5BV-19, A5BV-20, A5BV-21, A5BV-22, A5BV-23, A5BV-24, A5BV-25, A5BV-26, A5BV-27, A5BV-28, A5BV-29, A5BV-30, A5BV-31, A5BV-32, A5BV-33, A5BV-34, A5BV-35

April 2023- November 2023	Main Plant Observation Well used for passive bioventing.	G16L
December 2023- 2024 (ongoing)	Main Plant Observation Well used for active bioventing.	G16L

System Description

The biosparge/biovent pilot test system is designed to deliver air into the subsurface at moderate flow rates and pressure. The biosparge scenario volatizes VOCs in the saturated zone and enhances biodegradation of those impacts via inducing aerobic conditions. The biovent scenario delivers air to the vadose zone to ensure aerobic conditions are present which enhances hydrocarbon biodegradation. Flow from a compressor delivers air at flow rates up to 150 scfm at 40 psi. Air from the compressor has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. The biosparge/biovent process and instrumentation diagram is presented as Figure 4, and the biosparge/biovent process flow schematic is presented as Figure 4A.

Under the biosparge scenario, flow from the equipment is routed directly to the biosparge horizontal well with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of the well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge configurations and flow rates are controlled by system valves, the pressure regulator, PLC and HMI. The system is designed to operate the biosparge well at flow rates between 30 and 150 scfm but typically operates in the range of 50 to 85 scfm total flow. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Under the biovent configuration, rather than running compressed air directly to the biosparge horizontal well, compressed air is run through an air eductor to boost flow rates up to 240 scfm at 10 psi in a manifold building with 36 manifold points. Each well on the manifold is equipped with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of each well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The manifold components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge System Layout and Well Network

The biosparge/biovent system layout and well network are depicted on Figure 5. The Biosparge Remediation Well includes the horizontal biosparge well. There are 35 biovent remediation wells in the Southern Biosparge/Biovent System area, plus the monitoring well (G16L) to

which bioventing is being applied. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biosparge Horizontal Well:

One (1) horizontal biosparge well was installed for the pilot test. The biosparge well construction described below was designed to be placed at the bottom of groundwater impacts to create an oxygen curtain through which impacted water should pass. The screened portion of the well is 150 feet long and placed perpendicular to groundwater flow; the screen length allows for groundwater flow to be influenced within the targeted area even with minor temporal variations in groundwater flow.

Horizontal biosparge well construction specifications are summarized below:

I. Horizontal directional drilling methodology;
II. Installed at a depth of 45 ft-bgs;
III. Screen length of 150 feet;
IV. Riser length of 240 to 250 feet on each end of well (630 feet total length horizontally);
V. 3-inch diameter, HDPE construction;
VI. Custom slotting to uniformly sparge approximately 2 to 10 scfm per 10 horizontal feet of screen.

Biovent Wells:
Thirty-five (35) biovent wells were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the groundwater table under typical conditions. In December 2023, G16L was converted to an active biovent well, for a current total of thirty-six (36) biovent wells.

Piezometers:
A total of twenty-two (22) piezometers were installed at three different depths – fifteen (15) shallow, six (6) mid, and one (1) deep to monitor the vertical extent of impacts in the water table. In the biosparge area, seven (7) wells were installed upgradient of the biosparge well and twelve (12) wells downgradient. In the biovent area, three (3) additional piezometers supplement existing monitoring wells in the treatment area (A6MW03, G048, and G049).

Vapor Monitoring Points:
Twenty-eight (28) nested VMPs were installed to monitor the vadose zone impacts. Each set of nested points contains two (2) to three (3) depths of monitoring points to assess the vadose zone vertically for a total of 81 points. VMP placement is meant to measure influence at different depths and measure the extent of influence perpendicular from the well screen orientation.

The wells comprising the Biosparging system are listed below:

Biosparging Hydrocarbon Remediation Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5HBS*	A5HBS	45	varies*	(150 ft long)*

*Horizontal Well

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5BV-1	A5BV-1	36	395.27	405.27-395.27
A5BV-2	A5BV-2	36	396.77	406.77-396.77
A5BV-3	A5BV-3	36	396.08	406.08-396.08
A5BV-4	A5BV-4	36	395.99	405.99-395.99
A5BV-5	A5BV-5	36	395.93	405.93-395.93
A5BV-6	A5BV-6	36	394.65	404.65-394.65
A5BV-7	A5BV-7	36	395.51	405.51-395.51
A5BV-8	A5BV-8	36	NS	NS
A5BV-9	A5BV-9	36	396.53	406.53-396.53
A5BV-10	A5BV-10	36	396.45	406.45-396.45
A5BV-11	A5BV-11	36	396.33	406.33-396.33
A5BV-12	A5BV-12	36	396.32	406.32-396.32
A5BV-13	A5BV-13	34	397.05	407.05-397.05
A5BV-14	A5BV-14	36	397.62	407.62-397.62
A5BV-15	A5BV-15	36	NS	NS
A5BV-16	A5BV-16	36	NS	NS
A5BV-17	A5BV-17	36	396.39	406.39-396.39
A5BV-18	A5BV-18	36	396.38	406.38-396.38
A5BV-20	A5BV-20	36	395.21	405.21-395.21
A5BV-21	A5BV-21	36	395.26	405.26-395.23
A5BV-22	A5BV-22	36	397.00	407.00-397.00
A5BV-23	A5BV-23	38	391.95	406.95-391.95
A5BV-24	A5BV-24	41	391.75	406.75-391.75
A5BV-25	A5BV-25	41	391.38	406.38-391.38
A5BV-26	A5BV-26	36	397.40	407.40-397.40
A5BV-27	A5BV-27	38	395.68	405.68-395.68
A5BV-28	A5BV-28	38	393.43	408.43-393.43
A5BV-29	A5BV-29	38	395.04	410.04-395.04
A5BV-31	A5BV-31	38	394.73	409.73-394.73
A5BV-32	A5BV-32	33	398.32	408.32-398.32
A5BV-33	A5BV-33	34	397.61	407.61-397.61
A5BV-34	A5BV-34	38	391.53	406.53-391.53
A5BV-35	A5BV-35	38	391.48	406.48-391.48
A5BV-36	A5BV-36	38	391.65	406.65-391.65

NS – Not surveyed, in a health and safety exclusion zone during surveying.

Biosparging/Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5PZN-S	A5PZN-S	40	389.29	389.29 - 399.29
A5PZNW-S	A5PZNW-S	38	391.56	391.56 - 401.56
A5PZNW-M	A5PZNW-M	45	384.51	384.51 - 389.51
A5PZW-S	A5PZW-S	39.5	390.44	390.44 - 400.44
A5PZW-M	A5PZW-M	45	385.07	385.07 - 390.07
A5PZW-D	A5PZW-D	65	365.04	365.04 - 370.04
A5PZW-S1	A5PZW-S1	40	389.51	389.51 - 399.51
A5PZW-S2	A5PZW-S2	40	389.85	389.85 - 399.85
A5PZSW-S	A5PZSW-S	40	389.82	389.82 - 399.82
A5PZSW-M	A5PZSW-M	45	384.86	384.86 - 389.86
A5PZNE-S	A5PZNE-S	40	389.51	389.51 - 399.51
A5PZNE-M	A5PZNE-M	45	384.51	384.51 - 389.51
A5PZE-S1	A5PZE-S1	40	389.93	389.93 - 399.93
A5PZE-S2	A5PZE-S2	40	390.72	390.72 - 400.72
A5PZE-M	A5PZE-M	45	384.62	384.62 - 389.62
A5PZSE-S	A5PZSE-S	40	389.79	389.79 - 399.79
A5PZSE-M	A5PZSE-M	45	384.71	384.71 - 389.71
A5PZS-S1	A5PZS-S1	40	389.51	389.51 - 399.51
A5PZS-S2	A5PZS-S2	40	389.90	389.90 - 399.90
A5PZ-1	A5PZ-1	40	392.47	402.47-392.47
A5PZ-2	A5PZ-2	40	391.59	401.59-391.59
A5PZ-3	A5PZ-3	40	NS	NS

Biosparging System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A5VMPNW-S	A5VMPNW-S	10	9.5-10	0.75
A5VMPNW-M	A5VMPNW-M	20	19.5-20	0.75
A5VMPNW-D	A5VMPNW-D	25	24.5-25	0.75
A5VMPSW-S	A5VMPSW-S	10	9.5-10	0.75
A5VMPSW-M	A5VMPSW-M	20	19.5-20	0.75
A5VMPSW-D	A5VMPSW-D	25	24.5-25	0.75
A5VMPW-S	A5VMPW-S	10	9.5-10	0.75
A5VMPW-M	A5VMPW-M	20	19.5-20	0.75
A5VMPW-D	A5VMPW-D	25	24.5-25	0.75
A5VMPE-S	A5VMPE-S	10	9.5-10	0.75
A5VMPE-M	A5VMPE-M	20	19.5-20	0.75

A5VMPE-D	A5VMPE-D	25	24.5-25	0.75
A5VMP1-S	A5VMP1-S	23	22-23	0.75
A5VMP1-M	A5VMP1-M	28	27-28	0.75
A5VMP2-S	A5VMP2-S	23	22-23	0.75
A5VMP2-M	A5VMP2-M	28	27-28	0.75
A5VMP2-D	A5VMP2-D	33	32-33	0.75
A5VMP3-S	A5VMP3-S	22	21-22	0.75
A5VMP3-M	A5VMP3-M	27	26-27	0.75
A5VMP3-D	A5VMP3-D	32	31-32	0.75
A5VMP4-S	A5VMP4-S	22	21-22	0.75
A5VMP4-M	A5VMP4-M	29	28-29	0.75
A5VMP4-D	A5VMP4-D	33	32-33	0.75
A5VMP5-S	A5VMP5-S	23	22-23	0.75
A5VMP5-M	A5VMP5-M	28	27-28	0.75
A5VMP6-S	A5VMP6-S	21	20-21	0.75
A5VMP6-M	A5VMP6-M	26	25-26	0.75
A5VMP6-D	A5VMP6-D	31	30-31	0.75
A5VMP7-S	A5VMP7-S	21	20-21	0.75
A5VMP7-M	A5VMP7-M	26	25-26	0.75
A5VMP7-D	A5VMP7-D	31	30-31	0.75
A5VMP8-S	A5VMP8-S	22	21-22	0.75
A5VMP8-M	A5VMP8-M	27	26-27	0.75
A5VMP8-D	A5VMP8-D	32	31-32	0.75
A5VMP9-S	A5VMP9-S	20	19-20	0.75
A5VMP9-M	A5VMP9-M	25	24-25	0.75
A5VMP10-S	A5VMP10-S	20	19-20	0.75
A5VMP10-M	A5VMP10-M	25	24-25	0.75
A5VMP10-D	A5VMP10-D	30	29-30	0.75
A5VMP11-S	A5VMP11-S	22	21-22	0.75
A5VMP11-M	A5VMP11-M	27	26-27	0.75
A5VMP11-D	A5VMP11-D	32	31-32	0.75
A5VMP12-S	A5VMP12-S	22	21-22	0.75
A5VMP12-M	A5VMP12-M	27	26-27	0.75
A5VMP12-D	A5VMP12-D	32	31-32	0.75
A5VMP13-S	A5VMP13-S	22	21-22	0.75
A5VMP13-M	A5VMP13-M	27	26-27	0.75
A5VMP13-D	A5VMP13-D	32	31-32	0.75
A5VMP14-S	A5VMP14-S	22	21-22	0.75
A5VMP14-M	A5VMP14-M	27	26-27	0.75
A5VMP14-D	A5VMP14-D	32	31-32	0.75
A5VMP15-S	A5VMP15-S	22	21-22	0.75
A5VMP15-M	A5VMP15-M	27	26-27	0.75
A5VMP15-D	A5VMP15-D	32	31-32	0.75
A5VMP16-S	A5VMP16-S	22	21-22	0.75
A5VMP16-M	A5VMP16-M	27	26-27	0.75
A5VMP16-D	A5VMP16-D	32	31-32	0.75
A5VMP17-S	A5VMP17-S	22	21-22	0.75

A5VMP17-M	A5VMP17-M	27	26-27	0.75
A5VMP17-D	A5VMP17-D	32	31-32	0.75
A5VMP18-S	A5VMP18-S	22	21-22	0.75
A5VMP18-M	A5VMP18-M	27	26-27	0.75
A5VMP18-D	A5VMP18-D	32	31-32	0.75
A5VMP19-S	A5VMP19-S	22	21-22	0.75
A5VMP19-M	A5VMP19-M	27	26-27	0.75
A5VMP19-D	A5VMP19-D	32	31-32	0.75
A5VMP20-S	A5VMP20-S	24	23-24	0.75
A5VMP20-M	A5VMP20-M	28	27-28	0.75
A5VMP20-D	A5VMP20-D	32	31-32	0.75
A5VMP21-S	A5VMP21-S	22	21-22	0.75
A5VMP21-M	A5VMP21-M	27	26-27	0.75
A5VMP21-D	A5VMP21-D	32	31-32	0.75
A5VMP22-S	A5VMP22-S	22	21-22	0.75
A5VMP22-M	A5VMP22-M	27	26-27	0.75
A5VMP22-D	A5VMP22-D	35	34-35	0.75
A5VMP23-S	A5VMP23-S	22	21-22	0.75
A5VMP23-M	A5VMP23-M	27	26-27	0.75
A5VMP23-D	A5VMP23-D	32	31-32	0.75
A5VMP24-S	A5VMP24-S	23	22-23	0.75
A5VMP24-M	A5VMP24-M	28	27-28	0.75
A5VMP24-D	A5VMP24-D	32	31-32	0.75

G. PILOT-SCALE AIR SPARGE / SOIL VAPOR EXTRACTION (AS/SVE) SYSTEM

An AS/SVE pilot test was performed to evaluate performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The AS/SVE test is evaluating the combined effects air sparging below the water table for stripping of contaminants and enhancing aerobic biodegradation in the vadose zone and below the water table via introduction of ambient air. SVE is specifically utilized when biodegradation is insufficient to control the VOCs in soil gas during sparging or bioventing. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that AS/SVE is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The AS/SVE extraction system was modified to treat a larger area to the south, east, and west of the original AS/SVE pilot test area. This included installation of additional air sparge and soil vapor extraction wells. To treat the additional loading, a catalytic oxidizer is being used for the treatment of off-gases, a change from the previous granular activated carbon off-gas treatment system. The monitoring network was also modified with the addition of piezometers and VMPs. All of the expansion wells were installed in 2019-2020. The initial AS/SVE pilot system was shut down in July 2020 as part of the modifications to the current operating system. Full-time operation of the expanded AS/SVE System was initiated in December 2020.

The four SVE wells and four shallow piezometers from the initial AS/SVE system area were converted to passive biovent wells in December 2021 by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface.

A timeline of system operations is provided below.

Time Period	Description	Wells
June 2017-July 2020	Initial pilot wells operate AS/SVE with granular activated carbon (GAC) off-gas treatment.	A8AS-N, A8AS-W, A8AS-E, A8AS-S, A8AS-C, A8SVE-NW, A8SVE-NE, A8SVESW, A8SVE-SE
August 2020- November 2020	System shut down for completion of system expansions and electrical system upgrades.	
December 2020- 2024 (ongoing)	Expansion system wells operate AS/SVE with catalytic oxidizer off-gas treatment.	A8AS-1A, A8AS-1B, A8AS-1C, A8AS-2A, A8AS-2B, A8AS-2C, A8AS-3A, A8AS-3B, A8AS-3C, A8AS-4A, A8AS-4B, A8AS-4C, A8AS-5A, A8AS-5B, A8AS-5C, A8SVE-1A, A8SVE-1B, A8SVE-2A, A8SVE-2B, A8SVE-3A, A8SVE-3B
October 2022-2024 (ongoing)	Initial pilot SVE wells and shallow piezometers used for passive bioventing.	A8SVE-NW, A8SVE-NE, A8SVE-SW, A8SVE-SE, A8PZS-S, A8PZN-S, A8PZNE-S, A8PZSW-S

System Description

The AS/SVE pilot test system is designed to deliver air into the subsurface and capture resultant vapors. Flow from the AS compressor delivers air at total flow rates up to 150 scfm at 50 psi, split into up to fifteen (15) of the twenty (20) AS wells. Air from the blower has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 inches of water column (iw), split among up to six (6) of the ten (10) SVE wells. Vapors collected from the blower pass through throttling valves, a moisture knockout tank, dilution valve, vacuum gauges, and particulate filter prior to entering the blower. After exiting the blower discharged vapors pass through a flow meter, pressure gauge, and temperature gauge prior to passing through a heat exchanger and catalytic oxidizer prior to discharging through a stack. The off-gas treatment via a catalytic oxidizer was installed in the third quarter of 2020 and is a change from granular activated carbon treatment utilized during initial pilot test operation.

Condensate collected in the moisture separator is drained via an automated pumping system to a condensate holding tank within the enclosure. This condensate is periodically pumped out manually and discharged to the catch basin in the wash down pad for entry into the site groundwater treatment system. The AS/SVE process and instrumentation plan is presented as Figure 6, and the AS/SVE system schematic is presented as Figure 6A.

AS flow is routed through a five (5)-point manifold and split to reach up to fifteen (15) of the twenty (20) AS wells. Each manifold leg has a solenoid valve, flow control valve, rotameter-style flowmeter, and pressure gauge. SVE flow is collected through a four (4)-point manifold to up to six (6) of the ten (10) SVE wells. Each manifold leg has a flow control valve, pilot-tube flowmeter, and vacuum gauge.

The system components are plumbed in a modular/mobile enclosure with interior/exterior lighting and environmental controls (e.g. heating and ventilation). Operational controls for the system include programmed/automated controls in the form of a PLC with HMI, individual equipment components, and automated operation of the process control valves. The gas flow capacities of the AS/SVE system are controlled by the air compressor and the SVE blower. AS compressor flow rates to the individual air sparge wells are between 1 and 30 scfm, with a combined rate of up to 150 scfm at 50 psi. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 iw, split among the SVE wells. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

AS/SVE System Layout and Well Network

The AS/SVE system layout and well network are depicted on Figure 7. The Remediation Wells include twenty (20) AS wells and ten (10) SVE wells. At any given time, up to fifteen (15) AS wells and six (6) SVE wells can be active; the active Remediation Wells can be configured based on the capacity of the equipment and manifold listed above. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Air Sparge Wells: Twenty (20) AS wells were installed in the treatment areas. The AS wells were installed to the full depth of groundwater impacts.

SVE Wells: Ten (10) SVE wells were installed to capture vapors created by the AS wells. The wells were placed to cover the AS well layout to ensure capture of any generated vapors.

Piezometers: A total of sixteen (16) piezometers were installed at three different depths - shallow, mid, and deep to monitor the full extent of impacts in groundwater. In the expansion area, the piezometers supplement existing monitoring wells in the treatment area (G85L and G86L). In June 2023, R85L, R85D, and R85A were installed to replace G85L, which was plugged and abandoned in November 2023.

Vapor Monitoring Points: Seventeen (17) nested VMPs were installed to monitor the vadose zone impacts. Each nested point contains three depths of monitoring points to assess the full vadose zone vertically, for a total of fifty-one (51) total VMPs.

The wells comprising the AS/SVE system are listed below:

Active AS/SVE Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8AS-N	A8AS-N	50	390.49	395.49 – 390.49
A8AS-W	A8AS-W	50	390.51	395.51 – 390.51
A8AS-C	A8AS-C	50	390.74	395.74 – 390.74
A8AS-E	A8AS-E	45	395.59	400.59 – 395.59
A8AS-S	A8AS-S	45	395.71	400.71 – 395.71
A8SVE-NW	A8SVE-NW	35	405.55	415.55 – 405.55
A8SVE-NE	A8SVE-NE	35	405.49	415.49 – 405.49
A8SVE-SW	A8SVE-SW	35	405.71	415.71 – 405.71
A8SVE-SE	A8SVE-SE	35	405.64	415.64 – 405.64
A8AS-1A	A8AS-1A	67	373.53	378.53-373.53
A8AS-1B	A8AS-1B	67	373.57	378.57-373.57
A8-AS-1C	A8-AS-1C	70	369.62	374.62-369.62
A8AS-2A	A8AS-2A	67	373.28	378.28-373.28
A8AS-2B	A8AS-2B	67	372.67	377.67-372.67
A8AS-2C	A8AS-2C	70	369.06	374.06-369.06
A8-AS-3A	A8-AS-3A	65	375.59	380.59-375.59
A8AS-3B	A8AS-3B	67	372.66	377.66-372.66
A8-AS-3C	A8-AS-3C	70	368.98	373.98-368.98
A8-AS-4A	A8-AS-4A	65	376.67	381.67-376.67
A8-AS-4B	A8-AS-4B	65	375.83	380.83-375.83
A8-AS-4C	A8-AS-4C	65	375.25	380.25-375.25
A8-AS-5A	A8-AS-5A	65	376.87	381.87-376.87
A8-AS-5B	A8-AS-5B	65	376.71	381.71-376.71
A8-AS-5C	A8-AS-5C	65	376.10	381.10-376.10
A8SVE-1A	A8SVE-1A	25	415.27	425.27-415.27
A8SVE-1B	A8SVE-1B	25	411.49	421.49-411.49
A8SVE-2A	A8SVE-2A	25	415.73	425.73-415.73
A8SVE-2B	A8SVE-2B	25	413.82	423.82-413.82
A8SVE-3A	A8SVE-3A	25	416.91	426.91-416.91
A8SVE-3B	A8SVE-3B	25	416.31	426.31-416.31

AS/SVE System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8PZN-S	A8PZN-S	30	410.88	410.88 - 420.88
A8PZN-M	A8PZN-M	40	400.78	400.78 - 405.78
A8PZN-D	A8PZN-D	45	395.70	395.70 - 400.70
A8PZNW-S	A8PZNW-S	30	410.56	410.56 - 420.56
A8PZNW-M	A8PZNW-M	40	400.57	400.57 - 405.57

A8PZNW-D	A8PZNW-D	45	395.63	395.63 - 400.63
A8PZSE-S	A8PZSE-S	30	410.77	410.77 - 420.77
A8PZSE-M	A8PZSE-M	40	400.76	400.76 - 405.76
A8PZSE-D	A8PZSE-D	45	395.71	395.71 - 400.71
A8PZS-S	A8PZS-S	30	410.66	410.66 - 420.66
A8PZS-M	A8PZS-M	40	400.62	400.62 - 405.62
A8PZS-D	A8PZS-D	45	395.61	395.61 - 400.61
A8PZ-C	A8PZ-C	52	387.85	397.85-387.85
A8PZ-SE	A8PZ-SE	45	396.18	406.18-396.18
A8PZ-NE	A8PZ-NE	50	391.82	401.82-391.82
A8PZ-SW	A8PZ-SW	49	387.30	397.30-387.30

AS/SVE System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A8VMPN-S	A8VMPN-S	10	9.5-10	0.75
A8VMPN-M	A8VMPN-M	20	19.5-20	0.75
A8VMPN-D	A8VMPN-D	25	24.5-25	0.75
A8VMPNE-S	A8VMPNE-S	10	9.5-10	0.75
A8VMPNE-M	A8VMPNE-M	20	19.5-20	0.75
A8VMPNE-D	A8VMPNE-D	25	24.5-25	0.75
A8VMPS-S	A8VMPS-S	10	9.5-10	0.75
A8VMPS-M	A8VMPS-M	20	19.5-20	0.75
A8VMPS-D	A8VMPS-D	25	24.5-25	0.75
A8VMPSW-S	A8VMPSW-S	10	9.5-10	0.75
A8VMPSW-M	A8VMPSW-M	20	19.5-20	0.75
A8VMPSW-D	A8VMPSW-D	25	24.5-25	0.75
A8VMP1-S	A8VMP1-S	5	4-5	0.75
A8VMP1-M	A8VMP1-M	15	14-15	0.75
A8VMP1-D	A8VMP1-D	25	24-25	0.75
A8VMP2-S	A8VMP2-S	5	4-5	0.75
A8VMP2-M	A8VMP2-M	15	14-15	0.75
A8VMP2-D	A8VMP2-D	25	24-25	0.75
A8VMP3-S	A8VMP3-S	5	4-5	0.75
A8VMP3-M	A8VMP3-M	15	14-15	0.75
A8VMP3-D	A8VMP3-D	25	24-25	0.75
A8VMP4-S	A8VMP4-S	5	4-5	0.75
A8VMP4-M	A8VMP4-M	15	14-15	0.75
A8VMP4-D	A8VMP4-D	25	24-25	0.75
A8VMP5-S	A8VMP5-S	5	4-5	0.75
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A8VMP6-D	A8VMP6-D	25	24-25	0.75

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A8VMP12-D	A8VMP12-D	25	24-25	0.75
A8VMP13-S	A8VMP13-S	5	4-5	0.75
A8VMP13-M	A8VMP13-M	15	14-15	0.75
A8VMP13-D	A8VMP13-D	25	24-25	0.75

Figures to Attachment E:

E-1 -- Site Plan
E-2 -- Process and Instrumentation Plan – Central Biovent System
E-2A- Process Flow Schematic Central Biovent Area
E-3 – Area 3 Biovent Expansion
E-4 -- Process and Instrumentation Plan – Southern Biosparge System
E-4A-Process Flow Schematic Southern Biosparge/Biovent Area
E-5 – Area 5 Biosparge/ Biovent System Area
E-6 – Process and Instrumentation Plan – Air Sparge/SVE System
E-6A-Process Flow Schematic Northern AS/SVE Area
E-7 – Northern Air Sparge/ Soil Vapor Extraction System Area

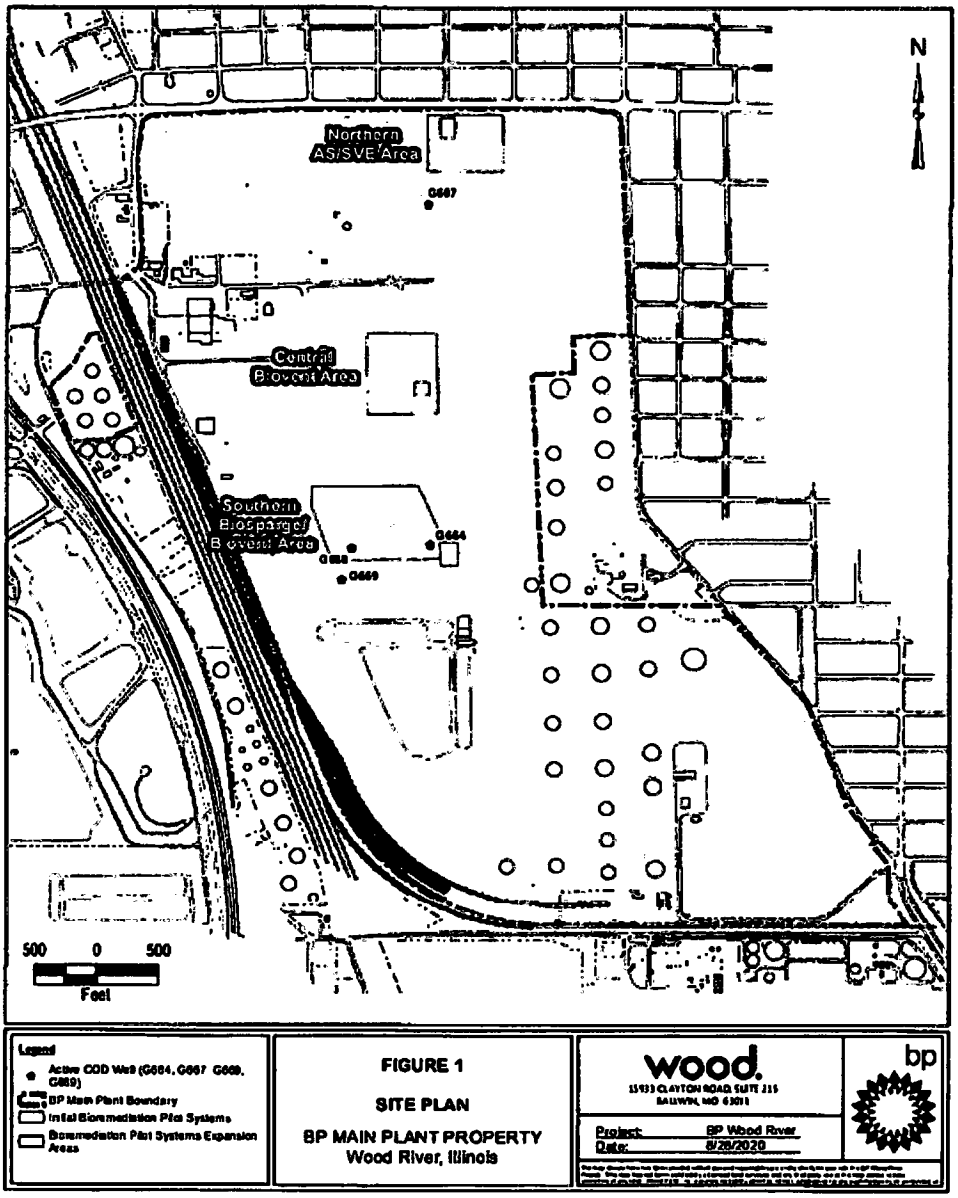

Figure E-1 -- Site Plan

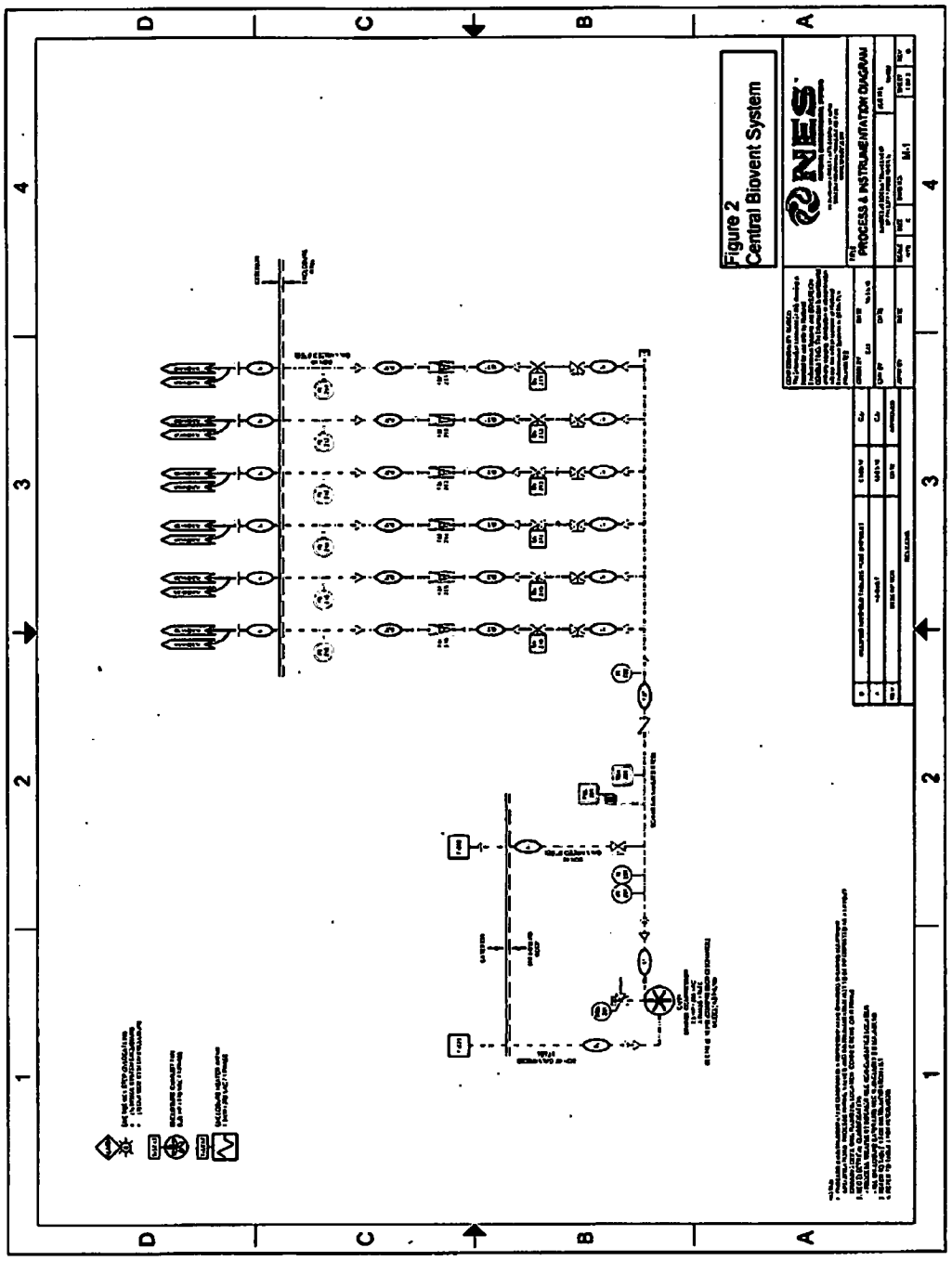

Figure E-2 -- Process and Instrumentation Plan – Central Biovent System

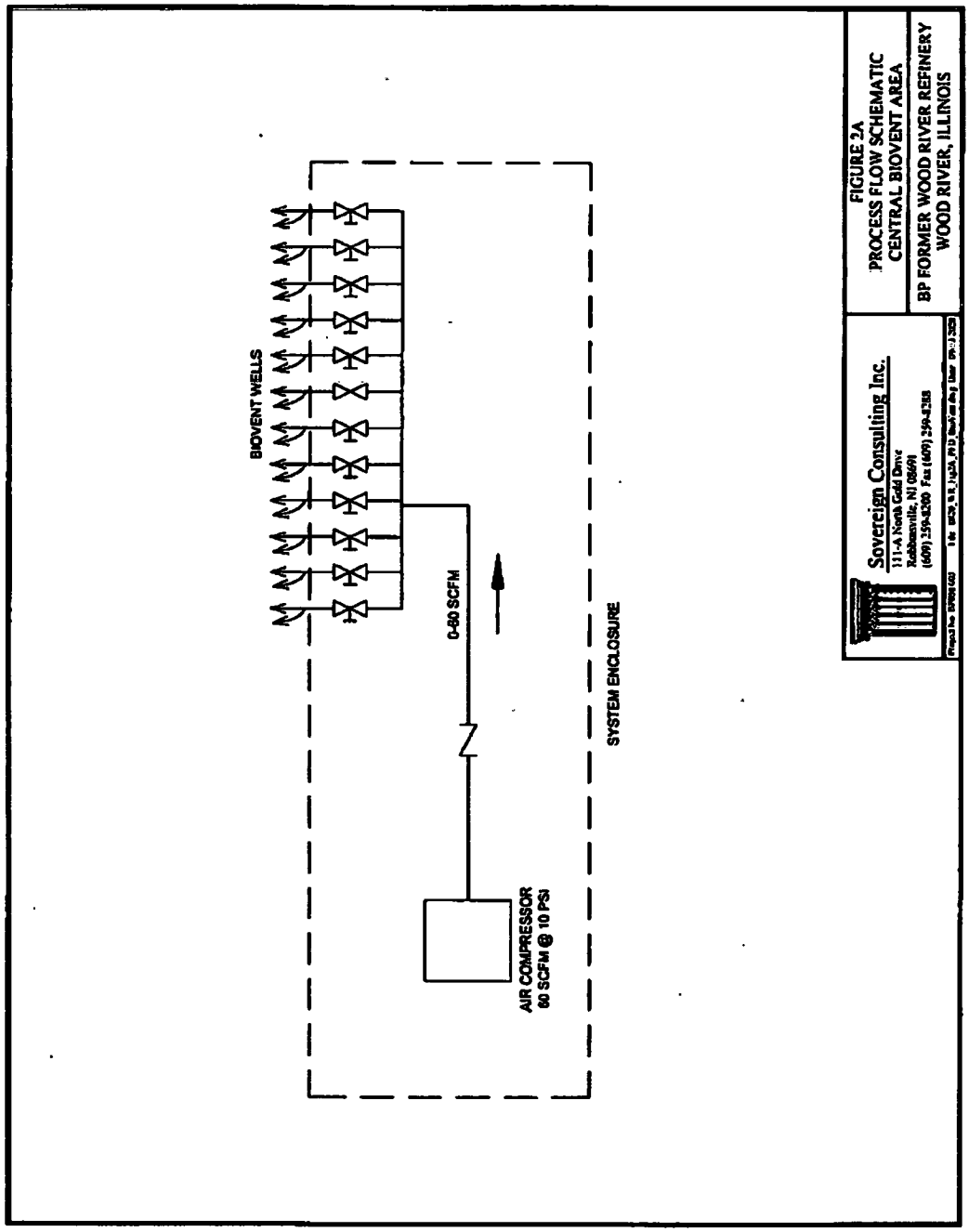

Figure E-2A- Process Flow Schematic Central Biovent Area



Figure E-3 – Area 3 Biovent Expansion

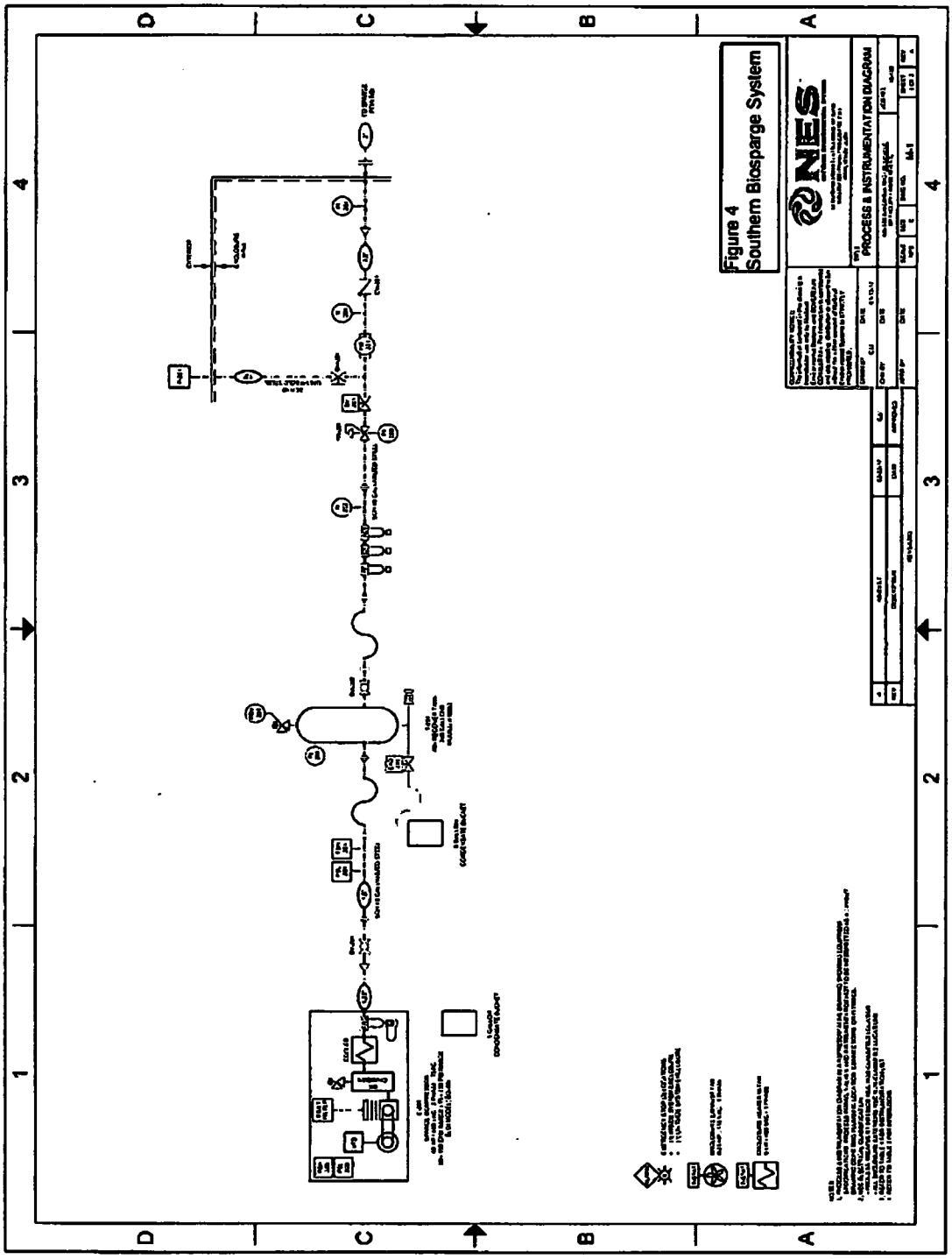

Figure E-4 – Process and Instrumentation Plan – Southern Biosparge System

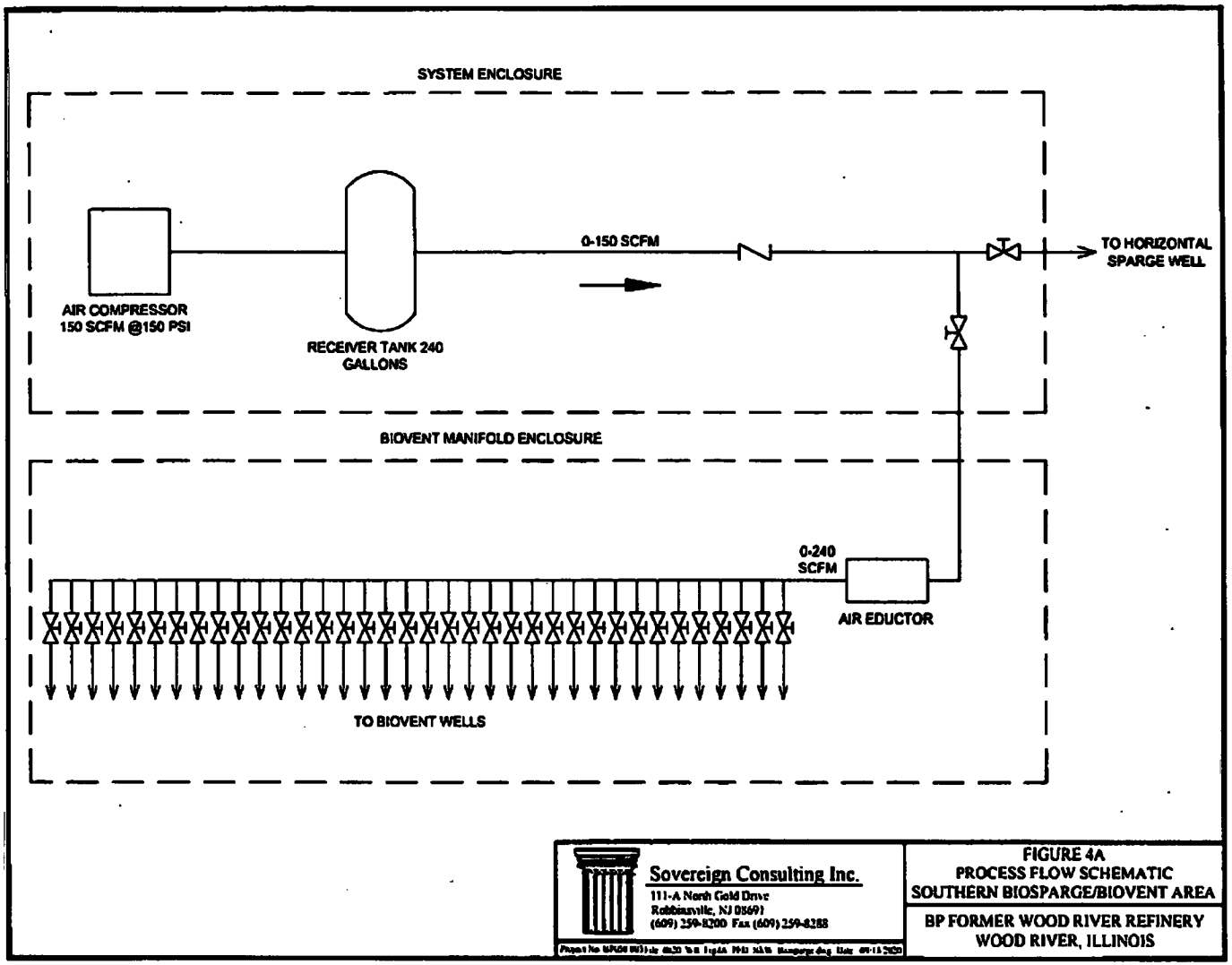

Figure E-4A-Process Flow Schematic Southern Biosparge/Biovent Area

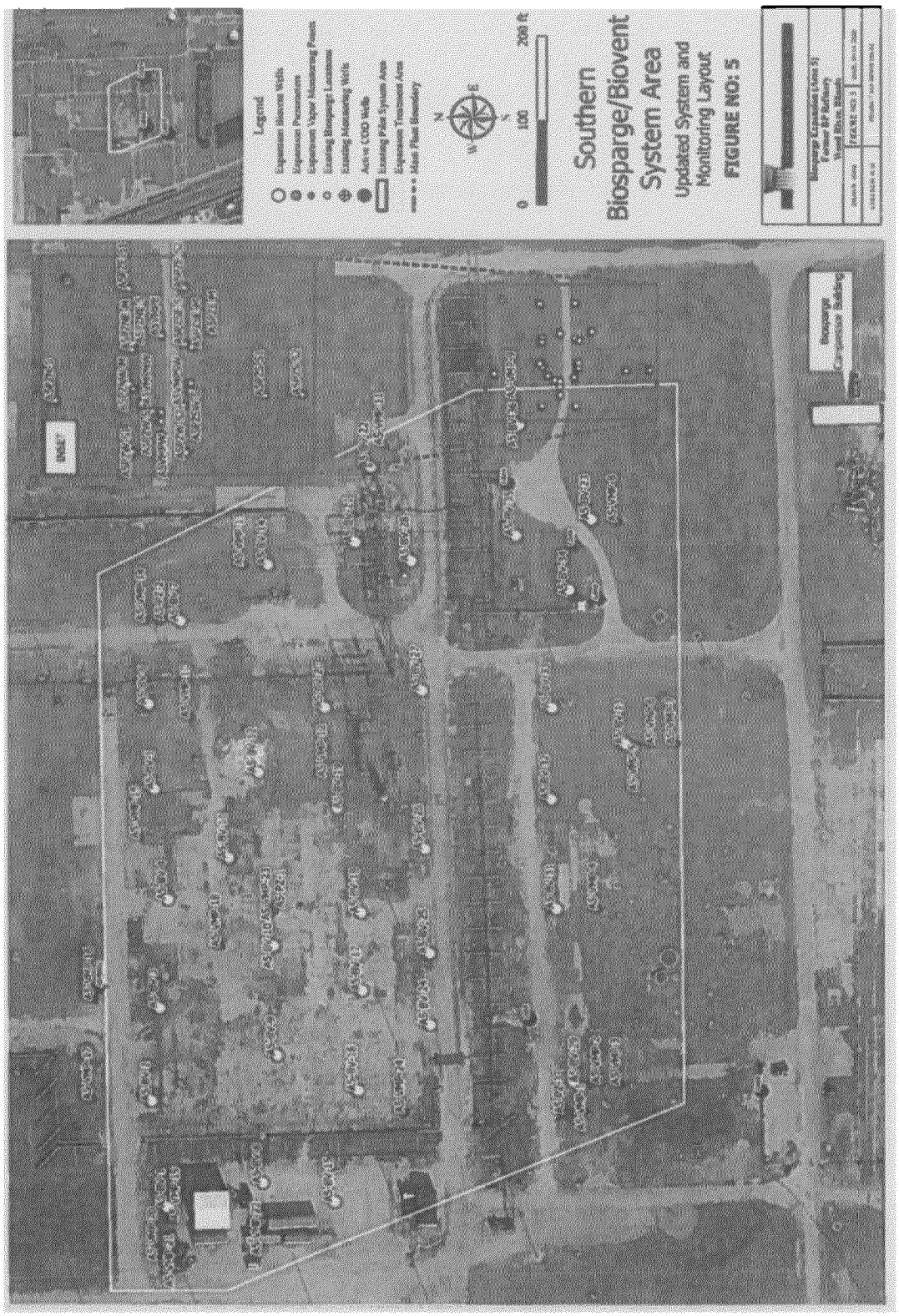

Figure E-5 – Area 5 Biosparge/ Biovent System Area

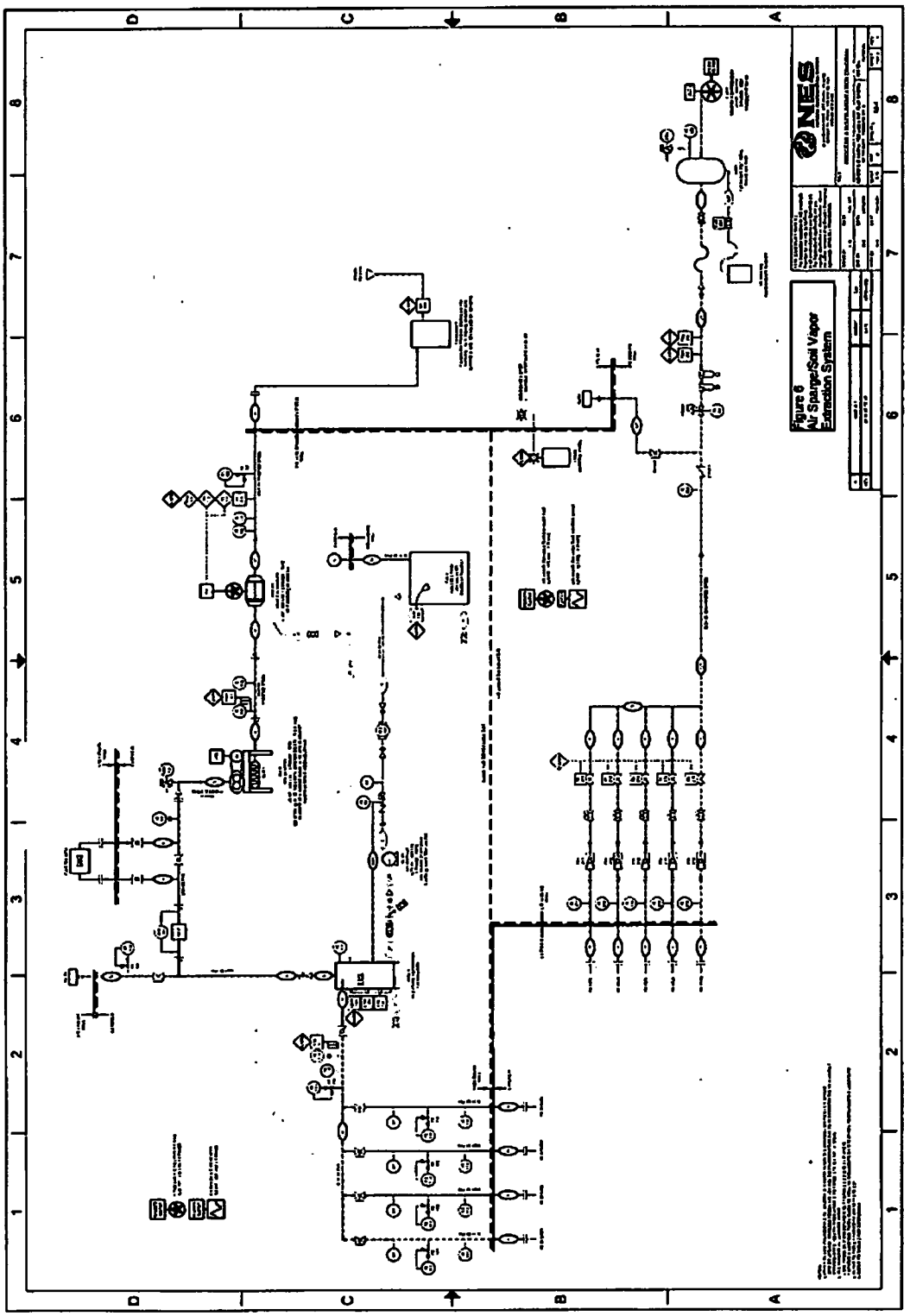

Figure E-6 – Process and Instrumentation Plan – Air Sparge/SVE System

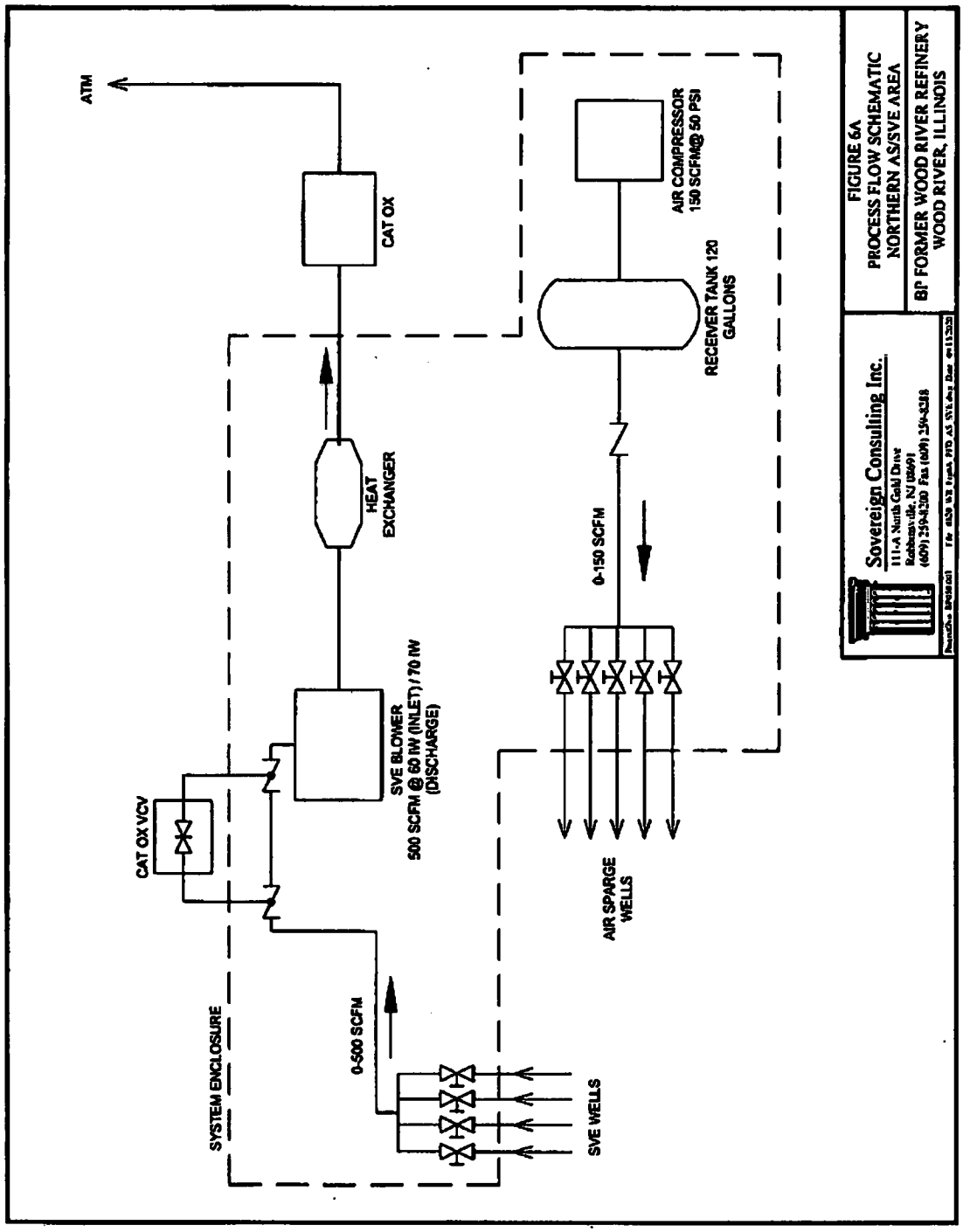

Figure E-6A-Process Flow Schematic Northern AS/SVE Area



Figure E-7 – Northern Air Sparge/ Soil Vapor Extraction System Aréa

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

Facility Well ID	IEPA Well ID	Northing	Easting
G-01R	G002	2315679.6730	798263.3670
B-5D	G005	2320442.8070	794103.4080
B-6	G006	2321445.3990	792326.8380
B-8D	G008	2318701.1380	794139.4760
B-9	G009	2317504.0380	797808.5810
C-1	G011	2316145.9890	798128.1810
C-3	G013	2315486.7910	797313.6600
C-6	G016	2315568.4280	796545.3270
C-7	G017	2316068.8140	796709.5230
C-10	G020	2316846.4770	796084.5010
C-11	G021	2316032.8980	795553.1050
C-13	G023	2316726.7590	794627.7530
G-5	G045	2319331.7120	798107.7350
G-6	G046	2319352.1710	797717.7080
G-8	G048	2317665.9870	794905.3140
G-9	G049	2317730.1180	794933.0350
B-4R	G04R	2319383.4870	796886.7270
G-10	G050	2316647.7000	797276.8380
G-15	G055	2319304.5810	798579.1090
G-17	G057	2314016.8910	797192.5450
G18	G058	2313697.9150	797669.3160
G-19	G059	2314720.3470	796603.7740
G-22	G062	2316138.2830	798781.4700
G-24	G064	2317405.0010	798759.2780
G-25	G065	2318431.6080	798763.5760
G-27	G067	2317282.7860	798854.8410
G-28	G068	2317437.6450	798858.2920
G-33	G073	2316629.9380	798762.8210
G-39	G079	2314655.5710	796217.3950
G-42	G082	2315061.8680	796341.7040
G32R	G084	2315809.4730	798824.7170
G-26R	G085	2319412.1830	797888.5090
H-20	G10L	2318428.6930	796675.2540
SWMU12-MW02	G111	2321150.8470	792075.9720
G-H1	G112	2320408.7820	792141.5070
G128	G128	2321505.0490	791869.4520
H-23	G13L	2317555.5600	796223.3910
H-24	G14L	2318100.0690	796149.0410

Facility Well ID	IEPA Well ID	Northing	Easting
H-26A	G16L	2317933.9290	795414.3950
H-28	G18	2318392.0710	798666.2510
H-29	G19	2317302.5480	798664.2160
C-12R	G22R	2316821.8910	795303.2200
RP-1	G301	2318950.2690	793678.5400
RP-3D	G303	2317187.1060	793125.3120
RP-4D	G304	2316844.8760	794402.4720
RP-5	G305	2317182.2120	794484.3180
RP-6	G306	2317650.7810	794478.4090
RP-7D	G307	2318033.2090	794439.6030
H-30R	G30R	2316949.7660	798660.8350
H-31R	G31R	2316452.9700	798645.6100
H32R	G32R	2315452.6910	797881.6690
H-33	G33	2315831.1310	795895.8320
H-34	G34	2317227.4270	795061.9100
H-37	G37	2319887.0480	791941.2110
H-39	G39	2318294.9450	793276.9050
B-17	G417	2317985.3380	796482.1650
G-5B	G5B	2319331.6770	798112.5710
RC-1	G601	2317016.0710	797966.4900
RC-2	G602	2317021.1740	797306.8430
RC-3	G603	2317054.1820	796580.3380
RC-4	G604	2316673.2710	797256.1700
RC-5	G605	2317658.7670	794911.5820
RC-6	G606	2316366.9220	798334.8220
RC-7	G607	2316841.2620	798360.1430
RC-8	G608	2317174.6960	798373.7870
RC-9	G609	2317389.3470	798157.0880
RC-10	G610	2317589.3950	798369.7090
RC-11	G611	2317919.3640	798321.7330
RC-12	G612	2318326.6020	798335.2680
RC-13	G613	2317136.7880	795587.8480
RC-14	G614	2317659.8050	795257.5300
RC-15	G615	2317812.4390	795006.7230
RC-16	G616	2316988.7800	795311.7320
RC-17	G617	2316517.6020	797774.1780
RC-18	G618	2316620.1360	797976.4530
RC-19	G619	2316679.6860	798115.2650
RC-20	G620	2316673.3790	797366.0800
RC-H-29	G629	2317403.7210	798663.8640
G-29R	G69R	2317835.9950	798880.4770

Facility Well ID	IEPA Well ID	Northing	Easting
G-31	G71L	2318022.9480	798666.1450
G-34	G74L	2318878.5220	798776.9620
G-35	G75L	2318335.5340	798849.9300
G-36	G76L	2318005.7010	798852.2200
G-37	G77L	2317535.8570	798767.0950
H-3	G83L	2316856.7180	798243.9080
H-4	G84L	2317395.0430	798262.1620
H-6	G86L	2318343.7720	798335.5420
H-7	G87L	2315843.9780	797583.0780
H-9	G89L	2316801.1780	797725.1370
M-1D	G91	2320805.0380	793634.6680
H-11	G91L	2318078.0000	797797.7740
M-2D	G92	2320963.8860	793234.9600
H-12	G92L	2318520.0740	797772.2940
M-3D	G93L	2321139.3660	792810.7060
H-16	G96L	2318043.8500	797261.2130
H-17	G97L	2318509.0470	797205.0340
H-18	G98L	2315593.1660	796997.6950
H-19	G99L	2317507.8130	796699.9450
H-31B	H31B	2316448.2440	798648.0050
G-2D	R042	2319932.2010	793607.1120
G-23R	R063	2317101.3500	798768.1600
G-4DR	R083	2320117.5960	792916.8810
H-21R	R11L	2316250.0960	796182.4280
RP-2D	R302	2318146.3020	792164.0310
H36R	RG36	2318906.9170	796630.9950

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

In order to determine the impacts and potential impacts to potable water supply wells from soil, soil gas, or groundwater contamination, 35 IAC 1600, Subpart B establishes the minimum standards and requirements for performing water well surveys to ensure these wells are accurately identified and located. All Solid Waste permitted facilities, RCRA permitted facilities, and facilities pursuing RCRA closure, where exceedances of the applicable 35 IAC Part 620 groundwater quality standards (or in the case of RCRA closure, 35 IAC Part 742, Tier 1 groundwater remediation objectives), have the potential to impact potable water supply wells, must determine the existence and location of potable water supply wells as described in 35 IAC Part 1600 and this procedure. This procedure applies to projects that require the location of potable water wells to be identified as part of site investigation, corrective action activities, or Right to Know evaluation.

In order to meet these requirements, the facility in question must submit maps that identify the following:

1. All private, semi-private and non-community water system wells located at the property where the release occurred or within 200 feet of the property boundary where the release occurred;

2. All community water system wells located at the property where the release occurred or within 2,500 feet of the property boundary where the release occurred; and

3. All wellhead protection areas in which all or any portion of the property where the release occurred is located within that zone or area.

The facility must submit verification that all of the below sources have been investigated and the water well survey data (electronic, paper or physical) from these sources have been included on the map. This information shall be obtained from the following sources:

- Illinois State Geological Survey
- Illinois State Water Survey
- Illinois EPA Division of Public Water Supplies
- Illinois Department of Public Health
- County and Municipal Health Departments
- Local water supply entity (i.e., public water districts, public water supply companies), if data is not included in the previous listed sources.

If it is determined that groundwater contamination exceedances of the applicable 35 IAC Part 620, groundwater quality standards (or in the case of RCRA closure the 35 IAC Part 742, Tier 1, groundwater remediation objectives), are measured or modeled to migrate off-site, the area of the water well survey must be expanded based on the measured and/or modeled groundwater plume.

NOTE: If contamination at a remediation site cannot be modeled due to geological constraints (i.e. bedrock), the information requested above shall be collected inside a survey area to be determined by the Illinois EPA on a site-by-site basis.

Documentation of the results of the water well survey or the expanded water well survey, must include the following information:

- Map(s) to appropriate scale showing the location of community water supply wells, potable water supply wells, and all applicable wellhead protection areas of the wells identified in the survey. The location of the measured and modeled contamination plume shall also be shown on the map(s) if the measured or modeled plume extends off-site.

- Tables of potable water supply wells and their respective wellhead protection areas.

- Narrative to supplement the map(s) and table(s) identified above. This includes the person(s) contacted as part of the survey, that person's title, sources of information used, field observations, etc.

- Certification by a Licensed Professional Engineer or Licensed Professional Geologist that the entities listed above have been contacted as part of the well survey and the information obtained is included in the map(s), table(s) and narrative.

When data sources as identified above do not appear to have adequately identified the location of potable wells or site-specific conditions warrant, additional investigation may be required. Such conditions include, but are not limited to:

- The local water supply entity does not bill a residence/business located within the search area, and the other record searches do not show a potable well on the property; or

- The water well survey does not appear to identify an accurate number of potable wells for the area when the locational information is compared to aerial photography or local zoning maps which identify residential and commercial structures.

The additional investigation must include, at a minimum, notification in the form of written communication to properties within the water well survey area and may include a physical well survey (e.g. face-to-face interviews with property owners, a reconnaissance survey looking for wellheads, etc.)

BOL RCRA Tracking Sheet

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1191150001*** *Federal ID(s)* ***ILD980700967*** *Respond by:* ***5/29/2025***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Data Regarding Logged Submittal(s) per Log # ***B-147R2***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA GAU
Inactive	Renewal Part B Pmt	RCRA Part B	OF			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
BP Wood River Main Plant Property Part B RCRA permit renewal application	Additional Info	Technical	

Date Received 08/30/2024 Date Due 11/28/2024 Date Mailed

Submittal Comment:

Reponsed to permit NOD	Resp-Technical NOD	Technical	

Date Received 08/02/2024 Date Due 10/31/2024 Date Mailed

Submittal Comment:

Time extension request for submittal of a response to the IEPA RCRA Permit Renewal App NOD letter dated 6/18/2024	Resp-Technical NOD	Technical	

Date Received 07/05/2024 Date Due 10/03/2024 Date Mailed

Submittal Comment:

Replacement pages submitted 1) Consition C.8.1.5 - Page 13 and 2) Exhibit C-1, Table 1 - Page 4			Technical NOD

Date Received Date Due Date Mailed 06/18/2024

Submittal Comment:

Renewal application	1st Submittal	Technical	

Date Received 10/09/2020 Date Due 01/07/2021 Date Mailed

Submittal Comment:

BOLSiteCode ***1191150001*** *Federal ID(s)* ***ILD980700967*** *Respond by:* ***5/29/2025***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Data Regarding Logged Submittal(s) per Log # ***B-147R2***

Final Action Data

For Log No: B-147R2

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
	Approved	04/29/2025			0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

RCRA Administrative Record

- Review Notes
  - Omar Faruk
  - Shawntay Dial
- Public Participation Documents
- Permit Application

ADMINISTRATIVE RECORD
for
BP Products North American Inc./Main Plant
1191150001– Madison County
ILR980700967
Log No. B-147R2

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for
Final Permit Decision

Volume

(1 of 4) **Final Decision**

- Cover Letter
- Illinois EPA's Response to Comments
- Final Permit
- Computer Tracking Sheet

(1 of 4) Final **Administrative Record for Permitted Units and Corrective Action**

- Review Notes – Omar Faruk

(1 of 4) Final **Administrative Record for Groundwater**

- Groundwater Review Memo – Shawntay Dial

(1 of 4) Final **Public Participation Documents**

Public Notice Documents

- Public Notice
- Radio Advertisement
- Repository Cover Letter
- Verification of Repository Receipt
- Evidence of Publication
- Dated Mailing List
- Newspaper Tear Sheet

Public Comment Period

- Comments received during the public comment period

(2-3 of 4) Final **Permit Application that is the basis for the Final Decision**

Administrative Record for Draft Permit Decision

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1191150001*** *Fed ID(s):* ***ILD980700967*** *Respond by:* ***4/18/2025***

Site: ***Dome Petroleum Corp*** *Region:* ***Collinsville***

City: Wood River *County:* Madison

Facility Permit Universe: ☐ **OperatingUniverse** ☐ **PostClosureUniverse** ☑ **CorrActionUniverse** ☐ **UIC**

Facility Type: ***Right-to-Know Status:*** ***RTK Status Change Date:***

Site Comments:

Data Regarding Log #: *B-147R2*

Review Status	PermitClass	AppType	Reviewers: RCRA	CAU	DAU	GU
Active	Renewal Part B Pmt	RCRA Part B	OF			SDD

LogComments:

Submittals for Log

DocTitle_Description	Submittal Type	Review Type	Agency Response
BP Wood River Main Plant Property Part B RCRA permit renewal application	Additional Info	Technical	

Submittal Received: 08/30/2024 **Date Due:** 11/28/2024 **Pub Notice/Date Mailed:**

Submittal Comments:

Reponsed to permit NOD	Resp-Technical NOD	Technical	

Submittal Received: 08/02/2024 **Date Due:** 10/31/2024 **Pub Notice/Date Mailed:**

Submittal Comments:

Time extension request for submittal of a response to the IEPA RCRA Permit Renewal App NOD letter dated 6/18/2024	Resp-Technical NOD	Technical	

Submittal Received: 07/05/2024 **Date Due:** 10/03/2024 **Pub Notice/Date Mailed:**

Submittal Comments:

Replacement pages submitted 1) Consition C.8.1.5 - Page 13 and 2) Exhibit C-1, Table 1 - Page 4			Technical NOD

Submittal Received: **Date Due:** **Pub Notice/Date Mailed:** 06/18/2024

Submittal Comments:

Renewal application	1st Submittal	Technical	

Submittal Received: 10/09/2020 **Date Due:** 01/07/2021 **Pub Notice/Date Mailed:**

Submittal Comments:

1191150001– Madison County
BP Products North American Inc./Main Plant
ILR980700967
Log No. B-147R2
RCRA Corrective Action Permit
RCRA Administrative Record – Final Permit Decision

REVIEW NOTES: Omar Faruk

09-25-2024

The draft permit was mailed to the facility on September 25, 2024 and electronic copies sent. The draft permit, fact sheet and renewal permit application were posted to Illinois EPA's website for public view and comment. The public notice dates are September 30, 2024-November 14, 2024.

11-14-2024

BP submitted comments dated November 13, 2024. Illinois EPA will write a response to each comment and provide it to ASI in our final permit approval.

1-15-2025

The only comments received on the draft permit were from the facility (BP). A response to each comment is provided as an attachment to the cover letter for the final permit (please see final permit cover letter).

3-11-2025

I received the Shawntay's memo dated 3/10/25 and she has provided responses to each comment for the GW sections of the draft permit.

The final RCRA permit will become effective 35 days after the issue date.

The RCRA renewed permit will expire 10 years after the effective date.

Faruk, Omar

From: Dial, Shawntay D.
Sent: Monday, March 10, 2025 4:54 PM
To: Faruk, Omar
Subject: BP MP Draft Comments

1191150001-RCRA-B147R2_Final Permit SDD.docx
IEPA Response to Public Comment.docx

Omar,

Please see attached links with my draft comments and my updated sections to the draft permit. Please let me know if you need anything else (or I missed something!)

Thanks!

Shawntay Dial
Environmental Protection Geologist
Bureau of Land, Permit Section
2520 W Iles Ave
Springfield, IL 62794-9276
217/558-0177
Shawntay.Dial@illinois.gov

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R001990

PUBLIC PARTICIPATION CHECKLIST
FOR
RCRA PERMIT AMINISTRATIVE RECORD

FACILITY: BP Products North American Inc./Main Plant in Wood River and Hartford
DATE: November 14, 2024

- ✓ Public Notice
- ✓ Radio paid advertisement and/or payment voucher
- ___ Cover letters (legislative, concerned citizens, etc.)
- ✓ Repository cover letter
- ✓ Verification that materials were received by repository location
- ✓ Press release or evidence of any other public participation activity
- ✓ Dated mailing list
- ✓ Newspaper tear sheets or affidavit of publications and payment voucher
- ___ Public hearing transcript or hearing record # (if hearing held)
- ✓ Public comment(s) (Copy of comments or hearing record # where comments may be found)
- ___ Response summary (if prepared)
- ___ Final permit issuance or denial notice (if any)

Illinois Environmental Protection Agency

PUBLIC NOTICE OF HAZARDOUS WASTE PERMIT

BP Products North American Inc./Main Plant in Wood River and Hartford

The Illinois Environmental Protection Agency (EPA) hereby gives notice of intent to approve a Resource Conservation and Recovery Act (RCRA) corrective action only permit for the BP Products North American Inc. (BP) Main Plant facility. The facility's mailing address is 301 Evans Avenue, PO Box 167, Wood River, Illinois 62095. The Main Plant is located at 301 Evans Avenue in Wood River (Site ID: 1191150001; Permit log No: 147R2). BP Products North American Inc. Main Plant's approximately 569 acres property is currently operating under a RCRA permit. The application addresses the continuation of site-wide corrective action and also redefines the BP facility boundary to 450.75-acre by removing a portion of the land purchased by KM Phoenix Holdings LLC (KMPH) as KMPH is addressing any corrective action remaining at the portion of the land under its RCRA Corrective Action Only permit (issued on March 4, 2024; effective on April 8, 2024).

The interested public is invited to review copies of the permit application, draft corrective action renewal permit and related fact sheet, at:

Wood River Public Library
326 E. Ferguson Ave.
Wood River, IL 62095

Written comments on the draft corrective action renewal permit may be submitted during the 45-day comment period. **Send comments to the Illinois EPA contact listed at the end of this notice postmarked by 11:59PM, November 14, 2024.** In response to public requests or at the discretion of the Illinois EPA, a public hearing can be held to clarify technical issues concerning the draft post-closure renewal permit. A public hearing request must be made in writing, express opposition to the draft corrective action renewal permit and state the nature of the issue(s) to be raised at the hearing. Written hearing requests should be sent to the Illinois EPA contact listed below by the end of the comment period. Public notice will be issued 45 days before any hearing.

All comments received will become part of the Administrative Record (AR) and will be evaluated by the Illinois EPA in making the final corrective action renewal permit decision. The Illinois EPA will respond to comments on the draft corrective action renewal permit and indicate whether additional documents have been included in the AR. Commenters will be notified of the final corrective action renewal permit decision and the permit decision appeal process.

The facility is located in an area of Environmental Justice concern. More information concerning Environmental Justice may be found at https://www2.illinois.gov/epa/topics/environmental-justice/Pages/default.aspx.

The AR, including the permit application, draft corrective action renewal permit, related information and all data submitted by the applicant, is now available for public inspection by appointment only Monday through Friday between 9:00 a.m. and 5:00 p.m. Please call the Illinois EPA contact below for an appointment to view the documents at Illinois EPA's offices in Springfield. Copies of the draft permit and factsheet are available at https://epa.illinois.gov/public-notices/bol-permit-public-notice.html.

Sarah Brubaker, Public Involvement Coordinator (#5), Sarah.Brubaker@illinois.gov
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276 Phone: (217) 786-0790
Springfield, Illinois 62794-9276

For further RCRA information, go to: https://www.epa.gov/rcra

IL 401-0105

September 24, 2024

AGENCY OFD# EPA-25300

STATE OF ILLINOIS

ORDER FOR DELIVERY

VENDOR

KRTS The Big 550 AM
638 West Port Plaza
St. louis, MO 63146
Phone: (314) 453-5536

Ship To
(Transportation Charges To Be Prepaid)

Illinois EPA
Office of Community Relations
1021 North Grand Avenue East
Springfield, Il 62702

Bill To
IEPA Fiscal Services
P.O. Box 19276
Springfield, Illinois 62794-9276
(217) 782-3250
Submit invoices to EPA.FiscalServ@illinois.gov

Agency Phone Number: Purchasing (217) 782-1249

Item No.	Description of Article	Qty	U/M	Unit Price	Total Price
	:30 radio ad notice for the BP Products Main Plant	1	Ea	$100.00	$100.00
	Request total includes all shipping and handling charges.				$100.00

Illinois Environmental Protection Agency

1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276 • (217) 782-3397

Purchase Request Form

Requestor Name: Sarah Brubaker
Email Address: Sarah.Brubaker@Illinois.gov
Phone: 217-786-0790

Request Type: Small Purchase under $10,000
Type of Procurement: Services, Non-IT
Delivery Address:

Date: 9/23/2024
Location: Headquarters
Bureau: Associate Director
Section: Community Relations

Proposed Contract Dates
Start: 9/23/2024
End: 11/14/2024

↓↓ For Staff Use Only ↓↓

Tracking Number:

Approver	Approvals
Bureau Chief	
Accounts Payable	
Cost Recovery / Grants	
Finance Manager	
CFO	
IT/DoIT Manager (if applicable)	

Suggested Vendor #1	Suggested Vendor #2
Name: KTRS The Big 550 AM	Name:
Address: 638 West Port Plaza	Address:
City: St. Louis State: MO Zip: 63146	City: State: Zip:
Contact: Mark Dorsey	Contact:
Email: markd@ktrs.com	Email:
Phone: (314) 453-5536	Phone:

Description of Services

Describe what it is that you intend to procure (software, hardware, services, maintenance, etc.) including quantity if relevant. Describe business need for the procurement, and how the procurement will meet objectives of your agency and the State. Please make sure to spell out acronyms. Explain the potential consequences if this procurement is not approved. If other than a one-time purchase, explain solicitation method and pricing structure (hourly, per item, not-to-exceed, etc.).

Pursuant to 35 Ill. Adm. Code 705.163(b), Resource Conservation and Recovery Act (RCRA) permit radio advertisements for BP Products North American Inc/ Main Plant. 30-second ad to air once on an English broadcast radio station serving the Wood River area.

Run date- soon after September 30, 2024.

R001994

Object Code	Item Description (Include catalog # or MFG) [1]	Equipment? [2]	Quantity	Unit of Measure	Unit Price	Total Price
	Radio Ad Notice- BP Products Main Plant	No	1	:30 radio ad	100	$100.00

[1] Any IT purchases must be approved by EPA DoIT COI.

[2] Mark "No" if unit price is under $100.

Note: Attach detailed specification, if required, on separate sheet of paper.

Shipping	
Request Total	$100.00

Small Purchase with Sole Source Conditions Justification

◯ Yes ◯ No Is this a small purchase with sole source conditions?

Quality Management Plans (EPA QA/R-2)

◯ Yes ◯ No Will the recipient of this contractual agreement perform environmentally related measurements or data generation? (View QMP details here.)

Estimated Multi-Year Funding			
FY	Amount	FY	Amount

↓↓ For Fiscal Use Only ↓↓

Funding Source(s)					
Fund	**Functional Area**	**Cost Center**	**GL**	**Internal Order**	**Amount**

R001996

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

Wood River Public Library
326 E. Ferguson Ave.
Wood River, IL 62095

September 24, 2024

Dear Lindsey Herron,

Enclosed please find the binders of information regarding the Illinois Environmental Protection Agency's intent to approve a Resource Conservation and Recovery Act (RCRA) corrective action only permit. BP Products North American Inc. Main Plant's approximately 569 acres property is currently operating under a RCRA permit. The application addresses the continuation of site-wide corrective action and also redefines the BP facility boundary to 450.75-acre by removing a portion of the land purchased by KM Phoenix Holdings LLC (KMPH) as KMPH is addressing any corrective action remaining at the portion of the land under its RCRA Corrective Action Only permit (issued on March 4, 2024; effective on April 8, 2024).

It is very important that citizens in the area have the opportunity to review the application materials submitted by the company and the permit renewal proposed by the state Environmental Protection Agencies.

My name and phone number are listed in the envelope with this letter in case citizens have questions regarding this process. Written comments should be sent to me by November 14, 2024.

This binder should not be allowed to circulate since interested citizens might then be prevented from reviewing the materials during the 45-day comment period. At the end of the permit process (approximately 6-9 months) you may recycle all of the repository information. I would recommend, however, that you keep it for your community's archives.

I would appreciate it if you would complete the attached verification form and return it to me in the enclosed postage-paid envelope. Thank you again for your cooperation in this effort.

Sincerely,

Sarah Brubaker
Office of Community Relations
217/786-0790
Sarah.Brubaker@illinois.gov

Attachment and Enclosure

VERIFICATION OF REPOSITORY RECEIPT

Please fill out this form and return it to Sarah Brubaker in the enclosed envelope or send to Sarah.Brubaker@Illinois.gov.

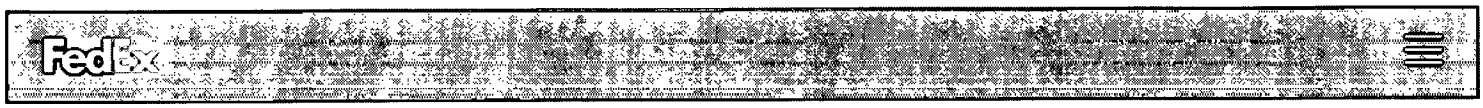
Repository Location: Wood River Public Library
326 E Ferguson Ave.
Wood River, IL 62095

Facility: BP Products North American Inc. (BP) Main Plant facility
301 Evans Avenue
Wood River, IL 62095

Date package/documents arrived: 09/26/2024

Signature of documents recipient: Lindsey Herron

Lindsey Herron



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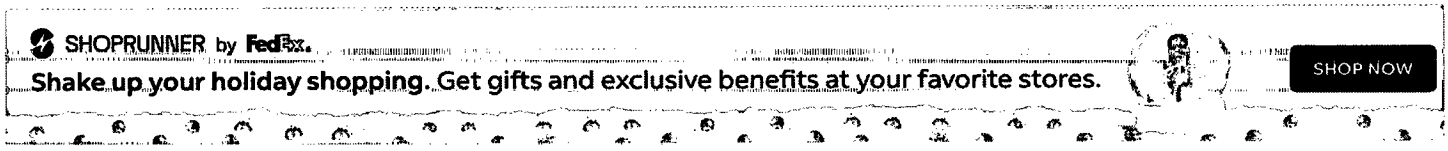

DELIVERED

Thursday

9/26/24 at 11:15 AM

Signed for by: MTOTTEN

Obtain proof of delivery

How was your delivery?

☆ ☆ ☆ ☆ ☆

DELIVERY STATUS

Delivered

Report missing package

TRACKING ID

778815659570

FROM
SPRINGFIELD, IL US

Label Created
9/25/24 9:14 AM

WE HAVE YOUR PACKAGE
SPRINGFIELD, IL
9/25/24 3:27 PM

ON THE WAY
SAINT LOUIS, MO
9/26/24 6:15 AM

OUT FOR DELIVERY
SAINT LOUIS, MO
9/26/24 6:29 AM

DELIVERED
Wood River, IL US

Delivered
9/26/24 at 11:15 AM

FedEx

Your email

SUBMIT

MORE OPTIONS

Shipment facts

Shipment overview

TRACKING NUMBER 778815659570

SHIP DATE 9/25/24

STANDARD TRANSIT 9/26/24

DELIVERED 9/26/24 at 11:15 AM

Services

SERVICE FedEx Ground

TERMS Shipper

Package details

WEIGHT 13.6 lbs / 6.17 kgs

DIMENSIONS 17x11x6 in.

TOTAL PIECES 1

PACKAGING Package

↑ Back to to

Travel history

SORT BY DATE/TIME

Ascending

Time zone

Local Scan Time



- 9:14 AM
  Shipment information sent to FedEx

- 3:27 PM
  Picked up
  SPRINGFIELD, IL

- 6:22 PM
  Arrived at FedEx location
  SPRINGFIELD, IL

- 6:23 PM
  Shipment arriving On-Time
  SPRINGFIELD, IL

- 10:17 PM
  Left FedEx origin facility
  SPRINGFIELD, IL

Thursday, 9/26/24

- 1:37 AM
  Arrived at FedEx location
  SAINT PETERS, MO

- 5:00 AM
  Departed FedEx location
  SAINT PETERS, MO

- 6:15 AM
  At local FedEx facility
  SAINT LOUIS, MO

- 6:29 AM
  On FedEx vehicle for delivery
  SAINT LOUIS, MO

- 11:15 AM
  Delivered
  Wood River, IL

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@IlepaNotices

BP Products North American Inc- Main Plant in Wood River & Hartford
Draft RCRA Corrective Action Permit
Illinois EPA is accepting public comments from 9/30/2024 to 11/14/2024.

Illinois Environmental Protection Agency
PUBLIC NOTICE OF HAZARDOUS WASTE PERMIT
BP Products North American Inc./Main Plant in Wood River and Hartford

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Wood River, IL 62095

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Sarah Brubaker, Public Involvement Coordinator (#5), Sarah.Brubaker@illinois.gov
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276 Phone: (217) 786-0790
Springfield, Illinois 62794-9276

For further RCRA information, go to: http://www.epa.gov/rcra

8:30 AM · Sep 30, 2024 · 49 Views

Agency	Name	Address	City	State	Zip	Phone (if Applicab	Email (if Available)	
	Alton Telegraph	219 Piasa St., PO Box 278	Alton	IL	62002			
United States Senator	The Honorable Richard Durbin	230 S. Dearborn Street, Suite 3892	Chicago	IL	60604	312-353-4952		
United States Senator	The Honorable Tammy Duckworth	230 S. Dearborn Street, Suite 3900	Chicago	IL	60604	312-886-3506		
U.S. Representative, District 12	The Honorable Mike Bost	205 East Harnett Street	Mascoutah	IL	62258			
Illinois State Senator, District 56	The Honorable Erica Harriss	120 North Main Street, Suite 1B	Edwardsville	IL	62025			
Illinois State Representative, District 111	The Honorable Amy Elik	192 Alton Square Mall Dr., Suite C	Alton	IL	62002			
Illinois State Representative, District 112	The Honorable Katie Stuart	2105 Vandalia St., Unit 16m	Collinsville	IL	62234			
USEPA - Region V, Land, Chemicals & Redevelopment Division	D. Scott Ireland, Chief	77 West Jackson Blvd., MC: LR-17J	Chicago	IL	60604			
USEPA - Region V, Land, Chemicals & Redevelopment Division	Mary Setnicar, Associate Chief	77 West Jackson Blvd., MC: LL-17J	Chicago	IL	60604			
USEPA - Region V, Land, Chemicals & Redevelopment Division	RCRA C&D Section Susan Mooney, Chief	77 West Jackson Blvd., MC: LL-17J	Chicago	IL	60604			
USEPA - Region V, Land, Chemicals & Redevelopment Division	Public Affairs Specialist	77 West Jackson Blvd., MC: RE-19K	Chicago	IL	60604			
U.S. Army Corps of Engineers	U.S. Army Corps of Engineers	231 S. LaSalle Street, 15th Floor	Chicago	IL	60604			
U.S. Army Corps of Engineers	St. Louis Civil Works Division	1222 Spruce Street	St. Louis	MO	63103	314-331-8000		
Office of Illinois Attorney General	Environmental Bureau South	500 S. 2nd St.	Springfield	IL	62701			
Illinois Historic Preservation Agency	Preservation Services/ Archeology Sect.	1 Old State Capitol Plaza	Springfield	IL	62701	217-785-4836	* Remailed to correct address 1 Natural Resources Way	
Illinois Department of Natural Resources	Resource Management	One Natural Resources Way	Springfield	IL	62702	217-782-6302	DNR.DWRM@Illinois.gov	
Illinois Department of Natural Resources	Office of Water Resource Management	One Natural Resources Way	Springfield	IL	62702			
Illinois Department of Natural Resources	Div. of Natural Resource Review & Coord., Office of Realty/Env. Planning	One Natural Resources Way	Springfield	IL	62702			
Illinois Department of Transportation	Bureau of Design & Environment, Geological Waste and Assessment Unit	2300 S. Dirksen Parkway	Springfield	IL	62764	217-782-7820		
Illinois Department of Agriculture	I Division of Natural Resources	State Fairgrounds, PO Box 19281	Springfield	IL	62794	217-782-2172		
Illinois Department of Commerce and Economic Opportunity	Sylvia I. Garcia, Acting Director	500 East Monroe Street	Springfield	IL	62701			
Illinois State Chamber of Commerce	Illinois State Chamber of Commerce	215 East Adams Street	Springfield	IL	62701	217-522-5512		
Illinois Department of Public Health	Illinois Department of Public Health	525-535 West Jefferson Street	Springfield	IL	62761			
Illinois Department of Public Health	Metro East Regional Office	11 Executive Drive, Suite 10	Fairview Heights	IL	62208			
Waste Management Research Center	Waste Management Research Center	1 East Hazelwood Drive	Champaign	IL	61820	217-333-8940		
Illinois State Natural History Survey	Eric Schauber	1816 South Oak Street, MC: 652	Champaign	IL	61820	217-333-6880		
Illinois State Geological Survey	Richard Berg, Director	615 East Peabody	Champaign	IL	61820	217-333-4747	info@isgs.illinois.gov	
Illinois State Water Survey	Illinois State Water Survey Director	2204 Griffith Drive	Champaign	IL	61820	217-333-2210		
Waste Management Program	Division of Environmental Quality	P.O. Box 176	Jefferson City	MO	65102	(573) 751-5401	wmp@dnr.mo.gov	
	Madison County Emergency Management Agency	101 East Edwardsville Rd., Ste. 260	Wood River	IL	62095			
Honorable Thomas A. Haine	Madison County State's Attorney	157 N. Main St., Suite 109, PO Box 402	Edwardsville	IL	62025		Sainfo@co.madison.il.us	
Honorable Kurt Prenzler, CPA	Madison County Board Chair	157 N. Main St., Suite 165	Edwardsville	IL	62025		cobboard@co.madison.il.us	
Honorable Linda Andreas,	Madison County Clerk	157 N. Main St., Suite 109, PO Box 218	Edwardsville	IL	62025		cdming@co.madison.il.us	
Mayor Tom Stalcup	City of Wood River Mayor	111 North Wood River Avenue	Wood River	IL	62095			
Steve Palen	Wood River City Manager	111 North Wood River Avenue	Wood River	IL	62095			
Danielle Sneed	Wood River City Clerk	111 North Wood River Avenue	Wood River	IL	62095		cityclerk@cityofwoodriver.com	
Michael Velloff	Wood River Public Works Director	111 North Wood River Avenue	Wood River	IL	62095			
BP Products North American Inc.	BP Pipeline Company N.A., Vaughn Matthews	800 S. 6th St.	Wood River	IL	62095			
BP Products North American Inc.		301 Evans Avenue	Wood River	IL	62095			
Wood River Public Library		326 E Ferguson Ave	Wood River	IL	62095		info@woodriverlibrary.org	
IL League of Women Voters		332 South Michigan Avenue, Suite 634, #1050	Chicago	IL	60604	312-939-5935		
Envirite Corporation	Operations Manager	16435 South Center Avenue	Harvey	IL	60426	708-596-7040		
Sierra Club	Sierra Club, Jack Darin	70 E. Lake Street, Suite 1500	Chicago	IL	60601	312-251-1680		
Pollution Control Industries	Tita LaGrimas, Director of Regional Affairs	4343 Kennedy Ave.	East Chicago	IN	46312	219-391-7020		
Safety-Kleen Dolton Recycle Center	Operations Manager	633 E. 138th Street	Dolton	IL	60419	708-225-8500		
American Lung Association of Illinois	Angela Tin, Director or Environmental Programs	3000 Kelly Lane	Springfield	IL	62711	217-787-5864	info@lung.org	
American Environmental Corporation - Emergency Services & Public Involver	Greg Michaud, Manager	3700 W. Grand Ave., Suite A	Springfield	IL	62711	217-585-9517		
Delgan & Associates, LLC - Environmental Consultants	Gary J. Delgan	28835 N. Herky Drive, Unit 120	Lake Bluff	IL	60044	847-578-5000		
Neighborhood Law Office	Kathleen O'Keefe	7 Vieux Carre Dr.	E. St. Louis	IL	62203			
~~Americans Bottoms Conservancy~~		~~PO Box 4242~~	~~Fairview Heights~~	~~IL~~	~~62208~~			~~Returned~~
~~Washington University School of Law~~	~~Andrea M. Gross~~	~~One Brookings Drive, Campus Box 1120~~	~~St. Louis~~	~~MO~~	~~63130~~			Returned
Cheryl Ingle	Alton City Clerk	101 E. Third St.	Alton	IL	62002			
Mayor David Goins	Alton Mayor	101 E. Third St.	Alton	IL	62002			
Sharon Arnold	BP Volunteers	106 Kutter Dr.	East Alton	IL	62024			
Wood River Fire Department		501 East Edwardsville Road	Wood River	IL	62095			
Phillips 66 Wood River Refinery	Conoco-Phillips	900 S Central Ave	Roxana	IL	62084			
Greater Alton Twin Rivers	Convention and Tourism Bureau	200 Piasa	Alton	IL	62002			
Office of Planning and Programming	Illinois Dept. of Transportation	2300 Dirksen Pkwy	Springfield	IL	62794			
Terminal Supervisor	KM Phoenix Terminal	1000 BP Lane	Hartford	IL	62048			
Robert R. Kuehn, Law Professor & Assoc. Dean-Clinical Education	Washington University School of Law	One Brookings Drive, Campus Box 1120	St. Louis	IL	63130			
Ducks Unlimited	National Headquarters	One Waterfowl Way	Memphis	TN	38102			
Michelle Knapp, Liability Manager	BP Products North America, Inc.	301 Evans Avenue	Wood River	IL	62095			
Liability Manager	BP Products North America, Inc., Remediation Management Services Company	30 S. Wacker Drive, Suite 900	Chicago	IL	60606			
Building and Zoning	Madison County Administration Building	157 North Main Street, Suite 254	Edwardsville	IL	62025			
Pollution Control Board	Illinois Pollution Control Board	60 E. Van Buren St. Ste. 630	Chicago	IL	60605			Resent to correct address
Local Audubon Office	Audubon Center at Riverlands	301 Riverlands Way	West Alton	MO	63386			
Bruce Murphy, Project Manager	Wood River Regional WWTP	559 State Aid Road, PO Box 343	Wood River	IL	62095			
Illinois Department of Natural Resources, Pere Marquette State Park	Region IV Office	13112 Visitor Center Lane	Grafton	IL	62037			
Mayor Darren Carlton	Mayor of East Alton	119 West Main Street	East Alton	IL	62024			
Lori Palmer	Village Clerk of East Alton	119 West Main Street	East Alton	IL	62024			
Mayor Bill Robertson	Mayor of Hartford	140 W. Hawthorne	Hartford	IL	62048			
Carolyn Daniels	Clerk of Hartford	140 W. Hawthorne	Hartford	IL	62048			
Deanna Barnes	Projects Manager of Hartford	140 W. Hawthorne	Hartford	IL	62048			
Kristi Carter	Village Clerk of Roxana	310 N. Central Avenue	Roxana	IL	62084			
Village President Marty Reynolds	Village President of Roxana	310 N. Central Avenue	Roxana	IL	62084			
Andrea M. Gross	Washington University School of Law	One Brookings Drive, Campus Box 1120	St. Louis	IL	63130			
Maintenance Superintendent	Wood River Rdrainage & Levee District	543 W. Madison Avenue	Wood River	IL	62095			
~~Midwest Center for Environmental Science & Public Policy~~		~~1845 N. Farewell Ave., Suite 109~~	~~Milwaukee~~	~~WI~~	~~53202~~			~~Returned~~
National Audubon Society		225 Varick Street, 7th Fl.	New York	NY	10014			

R002005

River Bend Growth Association		5800 Godfrey Road, Alden Hall	Godfrey	IL	62035			
Mark Burris		861 Halloran	Wood River	IL	62095			
~~Wildlife Habitat Council~~		~~8737 Colesville Road, Suite 800~~	~~Silver Spring~~	~~MD~~	~~20910~~			Returned
Marathon-Ashland Pipe Line Co.		700 S. 6th St.	Wood River	IL	62095			
Madison County Health Dept.	Administrator	101 E. Edwardsville Rd.	Wood River	IL	62095			
Mike Babcock	Supervisor, Wood River Township	49 S. 9th St.	East Alton	IL	62024			
Sherry Tite	Clerk, Wood River Township	49 S. 9th St.	East Alton	IL	62024			
Sandy Shaw	Assessor, Wood River Township	49 S. 9th St.	East Alton	IL	62024			
Virginia Woulfe-Belle	Three Rivers Project Coordinator, Piasa Palisades Group, The Sierra Club	200 W. 3rd St., Suite 512	Alton	IL	62002			
NAACP, Alton Board		731 Silver St.	Alton	IL	62002			
U.S. EPA, Region V, RCRA/TSCA Programs RCRA Branch	8th Floor Land and Chemicals Division	77 West Jackson Boulevard	Chicago	IL	60604			
Kentucky Energy and Environmental Cabinet	Attn: April Webb, Hazardous Waste Branch	300 Sower Blvd	Frankfort	KY	40601			
Waste Management Program	Division of Environmental Quality	P.O. Box 176	Jefferson City	MO	65102			
Indiana Department of Environmental Management	Office of Land Quality	100 North Senate Avenue	Indianapolis	IN	46204			
Iowa Department of Natural Resources	Office of Land Quality	6200 Park Avenue, Suite 200	Des Moines	IA	50321			
Michigan Department of Environment, Great Lakes and Energy	Materials Management Division	Constitution Hall P.O. Box 30241	Lansing	MI	48909			
Wisconsin Department of Natural Resources	Waste & Materials Management Program	101 S Webster St. P.O. Box 7921	Madison	WI	53707			

LPC / County: 1191150001/ Madison County
Municipality / Facility Name: Wood River/ BP Products North American Inc./ Main Plant
Facility Address: 301 Evans Avenue, Wood River, IL 62095
Repository location: Wood River Public Library
Radio* options to consider: WSIE 88.7 The Sound
Newspaper*: Alton Telegraph
Updated: 8/14/2024

This mailing list is modeled after 35 Ill. Adm. Code 705.163(a), to be used whenever a permit application is denied, a draft permit has been prepared, or a hearing has been scheduled.
* 35 Ill. Adm. Code 705.163(b)

Internal:

Illinois EPA- Reg. Off. Manager, Bureau of Land	Chris Cahnovsky	1101 Eastport Plaza Drive, Suite 100	Collinsville	IL	62234			
Illinois EPA- BOL Permit Reviewer, #33	Omar Faruk	1021 North Grand Avenue, East, PO Box 19276	Springfield	IL	62794-9276			
Illinois EPA	Takako Halteman	1021 North Grand Avenue, East, PO Box 19276	Springfield	IL	62794-9276			
Illinois EPA- Office of Community Relations, #5	Sarah Brubaker	1021 North Grand Avenue, East, PO Box 19276	Springfield	IL	62794-9276			
Illinois EPA, #24	Amy Butler	1021 North Grand Avenue, East, PO Box 19276	Springfield	IL	62794-9276			

R002007

Edwardsville Fire Chief to retire in October

By Cathy Hensley
PROVIDED BY CITY OF EDWARDSVILLE

Fire Chief James Whiteford, who has been a full-time member of the Edwardsville Fire Department for 28 years, announced on Friday, September 20, that he plans to retire next month to spend more time with his family. Whiteford's final day on the job will be Friday, October 11.

"It has been a true honor to work with such a dedicated and caring group of people," Whiteford said. "Working for the Edwardsville Fire Department has been one of the greatest parts of my life. It's no accident that Edwardsville has such a good fire department. Over the years, City leaders have had the foresight to make public safety a priority and this forward vision is largely responsible for the top-notch fire, rescue and emergency medical services we provide. This Fire Department has a dedicated group of hard-working people who really care about the community. These are some of the finest paramedics and firefighters in the area, and having a chance to lead them has been a privilege."


Whiteford

A Florida native, Whiteford came to the Edwardsville Fire Department in 1995 as a volunteer firefighter after three years volunteering for the Williamson County, Illinois, Fire Protection District. He started his career as a full-time firefighter and paramedic in Edwardsville on September 23, 1996, later obtaining a fire administration degree from Western Illinois University, executive fire officer certification from the National Fire Academy and numerous technical certifications. Over the next 24 years, he rose through the ranks, ascending to chief on July 14, 2020, following the retirement of Chief Rick Welle.

"I've had the pleasure of knowing and working with Chief Whiteford for many years," Mayor Art Risavy said. "His commitment to protecting this community, keeping his employees safe, and preparing the Fire Department for any and all challenges is unparalleled. He is the very definition of professionalism and has served Edwardsville with honor."

Whiteford's tenure as both chief and the City's Emergency Management Agency coordinator was marked by a series of challenging circumstances. He took command just months into the coronavirus pandemic. Then, on December 10, 2021, a powerful tornado destroyed a warehouse on the western edge of the City, leaving six people dead before it continued a path of destruction farther into Edwardsville.

Whiteford was at the forefront of the City's response to that tragedy, which placed Edwardsville in the national spotlight. He also led the department through a period of growth, as its ranks rose to meet the City's needs and the state-of-the-art East Fire Station opened on Governors' Parkway to better serve the expanding population.

STUART

From page A1

the Illinois House.

A "disinvestment" in education by the state was one of the reasons she ran, citing frequent cuts at SIUE that were "just not the dynamic of what SIUE students chose SIUE for."

"My kids were in high school, and the message from the school district was, 'We're not going to let kids suffer, we'll do more with less,'" she said. "That message really bothered me, because why do my kids deserve less?"

She was also dissatisfied with the very conservative Kay, who she said didn't represent her values and policies. She considers herself a "moderate."

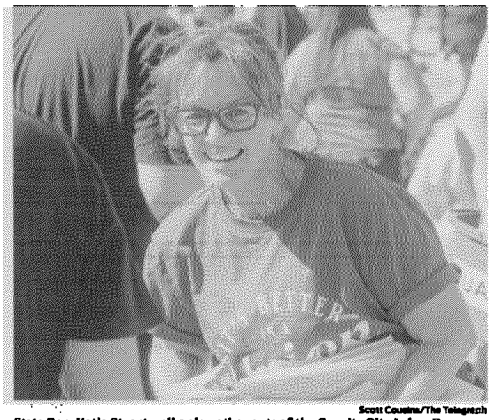
"Those two things together, plus a lot of encouragement from friends and my family made me take the leap," Stuart added.

"The hardest thing about running when you're new is introducing yourself, making sure people know who you are," she said of that first campaign. "It's lots of knocking on people's doors and hoping to find them at home, mailing letters and political cards that everybody gets all the time."

She described knocking on doors as "really interesting," especially because of doorbell cameras.

"I've had complete conversations over this tiny little camera on the outside of someone's door," she said. "Sometimes they're at work 50 miles away, and I've had someone talk to me from the beach on the ring doorbell."

"Then it's also working to get the endorsement of groups," she said, specifically citing teachers' unions and trade unions.


Scott Cousins/The Telegraph

State Rep. Katie Stuart walks along the route of the Granite City Labor Day Parade on Sept. 2, 2024. Stuart served as the parade's grand marshal.

Katie Stuart discusses election wins and future challenges

Katie Stuart defeated Kay in 2016 in a very close race and won in a rematch two years later by a larger margin. In 2020 and 2022, respectively, she defeated former Madison County Board members Lisa Ciampoli and Jennifer Korte.

"I've won four elections. I think that shows I represent the people of the area," she said. "They've continued to send me to Springfield to continue to represent them."

However, she doesn't take that for granted.

"We live in a very divided district," Stuart said. "I don't think anybody can really assume that because they have a certain letter behind their name in this area they will automatically win an election. Maybe that was true in the past, I don't think it's true nowadays."

Although she acknowledges that the county as a whole is more conservative/Republican, that is different in her district, which includes both Madison and St. Clair County.

She said voters she has talked to have had a variety of responses to the upcoming election.

"I think some people are anxious and worried about election results," she said. "Some people are very energetic and excited about the top of the ticket on the Democratic side. Some people are ready for it all to be over ... especially at the presidential level."

She described her job as both dealing with legislative issues and dealing with constituents.

"When they need something from the Department on Aging, and they don't know how to get connected, that's what we're really here for," she said. "We vote on bills and introduce legislation that is meant to support our constituents, but we are also here to support them."

Stuart added that she doesn't just wait for people to come to her or her office, but they often partner with other agencies for outreach programs.

Katie Stuart highlights safety, education, affordability for voters

Going into this election cycle, Katie Stuart said safety is important to voters.

"I think the main issues are people want to feel safe, people want to feel they have a community that has what their family needs," she said. "They want a good school for their kids to go to, and they want it to be affordable."

She also discussed the current state of the Illinois General Assembly and the Democratic supermajorities.

"The work we do is intended to be a deliberative process," she said. "The committee process is there so these discussions can happen in a public way so everybody can be aware of what the discussions are and someone can bring up and point to specific language and say this might be interpreted differently than what you intend, or 'I think you can improve on this by making this small adaptation,' or realistically, the cost to implement this."

Stuart said she takes committee hearings "very seriously, citing several examples of ongoing legislation.

One involved inappropriate relationships between teachers and students.

"We have a hole in coverage protecting young people in school from sexual predators," she said. "Basically if an inappropriate student-teacher relationship. If a student is under 18 no question. Where it gets fuzzy is there are people still in school above the age of 18, and we need to fine-tune that. We've been working to get that legislation for a while now, and we finally got it passed through the House.

"I had filed a piece of legislation, another representative filed a piece of legislation," she said. "What finally passed through the (judicial/criminal) committee was the Republican bill, and I celebrated that."

In another case, she said a Democrat filed a bill saying everybody had to at least make minimum wage.

"But there is a sector of the disabled community that have work opportunities," Stuart said. "(Companies and agencies) are able to place individuals into these work environments."

However, they often do piece work (where they are paid for each item they produce) or don't always make minimum wage.

"The concern was there are a lot of companies that are providing these opportunities for individuals. There is pride in the work they do, they really love feeling they are contributing to the community," she said. "If the company has to up those wages, they will not be able to afford to allow these individuals to have these opportunities.

"We just see other ways to reach that goal," she added. "We have to be able to support those companies, and that wasn't in the bill. I was able to force the discussion. We were able to hold it back to where changes are going to be made."

She also discussed the law enacted earlier this year that many Republicans said was designed specifically to protect her from opposition in the race.

In May the General Assembly passed a bill barring the slating of candidates in state legislative races. Keeven is a slated candidate who maintained the law did not apply to him because he had filed all of his paperwork before the bill passed through the Senate and was signed into law.

While Republicans argued it was designed to limit voters' options, Democrats called it an "ethics reform" bill.

Stuart agreed with that.

"That (slating) was a mechanism put in place to kind of game the system," she said, adding it was a favorite tactic of former democratic house speaker Mike Madigan.

"The idea that we could undo that was important," Stuart said. "I think it's important that if someone wants to run for office that they put themselves out and go through the primary process and give voters the opportunity to have their voice heard. It was subverting that process; it was backroom deals and all the things everybody gets angry about in the political process."

Eventually, Illinois courts said that while the law itself was valid, it could not be applied to this election cycle.

Local Democrats praise Katie Stuart's dedication and intelligence

Katie Stuart is enthusiastically supported by local Democrats.

"I love Katie, I love her enthusiasm," Madison County Democratic Party Chair Debra Ming-Mendoza said last week at the party's annual JFK Dinner. "She's a fighter for the rights of her constituents, Katie never stops fighting, the woman never has a day off."

Ming-Mendoza said she admires, "When she's dragging every day, there's always a little bit more gas in her tank to keep her going."

Madison County Board Member Alison Lamothe, D-18th District, said she has known Stuart since she was a math instructor at SIUE, and "We were all quite excited" when Stuart announced her first campaign.

"She's very intelligent," Lamothe said. "She focuses on issues that matter to me. I appreciate that as a mathematician she is savvy about numbers. When she says she supports taxpayers, I believe her."

Lamothe also noted Stuart's "unbridled support for women's reproductive rights," adding the current environment "is making a lot of women's lives miserable and putting people's lives in danger."

"I think she has common sense, she does her homework, and she has also shown that she is capable of working across the aisle (with Republicans)," Lamothe said.

Illinois Environmental Protection Agency

PUBLIC NOTICE OF HAZARDOUS WASTE PERMIT
BP Products North American Inc./Main Plant in Wood River and Hartford

The Illinois Environmental Protection Agency (EPA) hereby gives notice of intent to approve a Resource Conservation and Recovery Act (RCRA) corrective action only permit for the BP Products North American Inc. (BP) Main Plant facility. The facility's mailing address is 301 Evans Avenue, PO Box 167, Wood River, Illinois 62095. The Main Plant is located at 301 Evans Avenue in Wood River (Site ID: 1191150001; Permit log No: 147R2). BP Products North American Inc. Main Plant's approximately 569 acres property is currently operating under a RCRA permit. The application addresses the continuation of site-wide corrective action and also redefines the BP facility boundary to 450.75-acre by removing a portion of the land purchased by KM Phoenix Holdings LLC (KMPH) as KMPH is addressing any corrective action remaining at the portion of the land under its RCRA Corrective Action Only permit (issued on March 4, 2024; effective on April 8, 2024).

The interested public is invited to review copies of the permit application, draft corrective action renewal permit and related fact sheet, at:

Wood River Public Library
326 E. Ferguson Ave.
Wood River, IL 62095

Written comments on the draft corrective action renewal permit may be submitted during the 45-day comment period. **Send comments to the Illinois EPA contact listed at the end of this notice postmarked by 11:59 PM, November 14, 2024.** In response to public requests or at the discretion of the Illinois EPA, a public hearing can be held to clarify technical issues concerning the draft post-closure renewal permit. A public hearing request must be made in writing, express opposition to the draft corrective action renewal permit and state the nature of the issue(s) to be raised at the hearing. Written hearing requests should be sent to the Illinois EPA contact listed below by the end of the comment period. Public notice will be issued 45 days before any hearing.

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The facility is located in an area of Environmental Justice concern. More information concerning Environmental Justice may be found at https://www2.illinois.gov/epa/topics/environmental-justice/Pages/default.aspx.

The AR, including the permit application, draft corrective action renewal permit, related information and all data submitted by the applicant, is now available for public inspection by appointment only Monday through Friday between 9:00 a.m. and 5:00 p.m. Please call the Illinois EPA contact below for an appointment to view the documents at Illinois EPA's offices in Springfield. Copies of the draft permit and factsheet are available at https://epa.illinois.gov/public-notices/bol-permit-public-notice.html.

Sarah Brubaker, Public Involvement Coordinator (#5).
Sarah.Brubaker@illinois.gov
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, Illinois 62794-9276
Phone: (217) 786-0790

For further RCRA information, go to: https://www.epa.gov/rcra

R002008

OUR PAST

Oct. 15 marks 166 years since Lincoln-Douglas debate in Alton

Today is Tuesday, Oct. 15, the 289th day of 2024. There are 77 days left in the year.

Today in history:

On Oct. 15, 2017, actress and activist Alyssa Milano tweeted that women who had been sexually harassed or assaulted should write "Me too" as a status. Within hours, tens of thousands had taken up the #MeToo hashtag (using a phrase that had been introduced a decade earlier by social activist Tarana Burke).

Also on this date:

In 1815, Napoleon Bonaparte, the deposed French emperor, arrived on the British-ruled South Atlantic island of St. Helena, where he spent the last 5 1/2 years of his life in exile.

In 1946, Nazi war criminal Hermann Goering fatally poisoned himself hours before he was to have been executed.

In 1954, Hurricane Hazel made landfall on the Carolina coast as a Category 4 storm; Hazel was blamed for about 1,000 deaths in the Caribbean, 95 in the U.S. and 81 in Canada.

In 1976, the first debate of its kind took place between vice-presidential nominees, Democrat Walter F. Mondale and Republican Bob Dole faced off in Houston.

In 1989, Wayne Gretzky of the Los Angeles Kings broke Gordie Howe's all-time NHL scoring record in a game against his former team, the Edmonton Oilers.

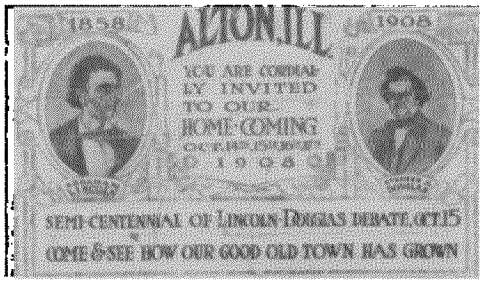
In 1998, despite sexual harassment allegations by Anita Hill, the Senate narrowly confirmed the nomination of Clarence Thomas to the U.S. Supreme Court, 52-48.

In 1997, British Royal Air Force pilot Andy Green twice drove a jet-powered car in the Nevada desert faster than the speed of sound, officially shattering the world's land-speed record.

In 2003, eleven people were killed when a Staten Island ferry slammed into a maintenance pier. (The ferry's pilot, who had blacked out at the controls, later pleaded guilty to eleven counts of manslaughter.)

Today's Birthdays:

Actor Linda Lavin is 87. Baseball Hall of Famer Jim Palmer is 79. Musician Richard Carpenter is 78. Film director Mira Nair is 67. Britain's Duchess of York, Sarah Ferguson, is 65. Chef Emeril Lagasse is 65. Actor Dominic West is 55. R&B singer Ginuwine is 54. Singer-TV personality Keyshia Cole is 43. Actor Ballce Madison is 23.



File photo

Alton staged a homecoming event and commemorated the 50th anniversary of the Lincoln-Douglas debate in Alton, Illinois, in 1858. The dedication of a bronze tablet was one of the signature events. Merchants sponsored a parade and pageant at the semi-centennial and homecoming in Alton. The Telegraph printed extensive reminiscences by people who attended the original debate held at Alton City Hall. This vintage postcard is from the collection of Richard K. Patterson.

GET OUT: HERE'S WHAT'S HAPPENING

NGRREC hosts 'NGRREC Strikes Back' event with science and art

By Dylan Suttles
STAFF WRITER

EAST ALTON — The National Great Rivers Research and Education Center (NGRREC) will host an October STREAM Series event titled "NGRREC Strikes Back."

Participants will join the Habitat Strike Team for an evening of science and art from 4:30-6 p.m., Wednesday, Oct. 16, at NGRREC's Jerry F. Costello Field Station in East Alton.

At 4:30 p.m., guests will be invited into the Field Station lobby for light refreshments and a hands-on activity led by some local Girl Scouts. These "younglings" will teach participants "the ways of the Force," of nature, that is. Learn to craft seed bombs — a weapon for good in the fight for a healthier planet.

Following this training exercise, guests will embark on a tour of NGRREC's eco-friendly marvel, the LEED-certified Field Station. Led by the expert Habitat Strike Team, visitors will discover the tools and techniques needed to combat invasive species and restore balance to the natural world.

Each attendee will receive a limited-edition copy of the NGRREC Field Guide and Nature Journal — a treasure trove of knowledge. This illustrated guide will help nature lovers navigate the wonders of the natural world with the wisdom of a Jedi Master Naturalist.

Here's what else is happening in the area:

Tuesday, October 15

• Colin and Nanney: 6-10 p.m., Fast Eddie's Bon Air, 1530 E. Fourth St., Alton.

• Community Talk: 6:30 p.m., Emmanuel Baptist Church, 2730 Vieuland St., Alton.

• Tiny Trekkers: 9 a.m., The Nature Institute, 2213 S. Levis Lane, Godfrey.

• Heart Chakra Workshop: 6 p.m., The Ruby Wren Eclectic Boutique, 5761 Godfrey Road, Godfrey.

• Godfrey Board meeting: 6 p.m., Godfrey Village Hall, 6810 Godfrey Road, Godfrey.

• East Alton Farmer's Market: 3-7 p.m., Eastgate Plaza parking lot, Eastgate Plaza, East Alton. Every Tuesday until Oct. 29.

• Lauren Ash: 1 p.m., Fairmount Park Race Track, 9301 Collinsville Road, Collinsville.

• Books for Babies Story Time: 10 a.m., Edwardsville Public Library, 112 S. Kansas St., Edwardsville.

• Teen Game Night: 6 p.m., Edwardsville Public Library, 112 S. Kansas St., Edwardsville.

• SIUE Concert Jazz Band: Ritmo y Jazz with percussionist Matthew Henry: 7:30 p.m., SIUE Dunham Hall Theater, 50 Hairpin Drive, Edwardsville.

• Bridge at Senior Services Plus: 1-4 p.m., Senior Services Plus, 2603 N. Rodgers Ave., Alton. Admission is $1.

• TOPS 0885 Alton: 9 a.m. weigh-in, 9:30 a.m. meeting, Community Christian Church, 2345 Union School Road, Alton.

• Stretch and Strengthen Chair Class: 4:45-5:30 p.m., RP Lumber Center (Community Room), 6289 Tiger Drive, Edwardsville. Admission for non-members is $6, members are free.

• Taco Tuesday: 3-8 p.m., Edwardsville American Legion Post 199, 58 S. Illinois Route 157, Edwardsville.

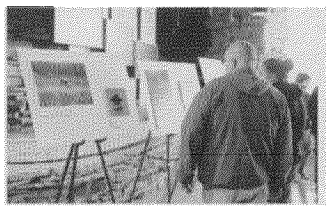
• Southern Illinois PAL: 7-8:30 p.m., Contact Craig at 618-567-6095 to receive the link for the Zoom meeting or for questions. More information can at palgroup.org.

• Xtreme Bar Bingo: 7-9 p.m., Alton Sports Tap, 3812 College Ave., Alton.

• Yoga at the Wildey: 7-8 p.m., The Wildey Theatre, 252 N. Main St., Edwardsville.

• Camelot Cribbage Club: 6 p.m., Camelot Bowl, 801 Bellline Road, Collinsville. Occurs every Tuesday. For more information, call Phill at 618-288-7910.

• For information about Al-Anon Meetings, call 618-463-2429. To find other helpful meetings, visit SIAFG.org or District-18.org.



Submitted photo/Alan Shawgo

Attendees at the 2024 World Water Day Photo Contest (STREAM Series Event)

Wednesday, Oct. 16

• Industry Interaction Day: National Great Rivers Museum, 1 Locks and Dam Way, Alton.

• D-Lux Duo: 6 p.m., Fast Eddie's Bon Air, 1530 E. Fourth St., Alton.

• Bingo at Alton VFW: 7-9 p.m., Alton VFW Post 1308, 4445 Alby St., Alton.

• Queen of Hearts: 7 p.m., Alton VFW Post 1308, 4445 Alby St., Alton.

• Pool League: 7 p.m., Alton VFW Post 1308, 4445 Alby St., Alton.

• NGRREC Strikes Back: 4:30-6 p.m., Jerry F. Costello Field Station, 1 Confluence Way, East Alton.

• After School Explorers: 3 p.m., The Nature Institute, 2213 S. Levis Lane, Godfrey.

• Rob Schwartz: 6 p.m., Bakers and Hale, 7120 Montclair Ave., Godfrey.

• Video Game Wednesdays: 6-11 p.m., Clifton Terrace Inn, 4922 Clifton Terrace Road, Godfrey.

• Gameday Men's Health: 9 a.m., Edwardsville | Glen Carbon Chamber of Commerce, 1 N. Research Drive, Edwardsville.

• Time for Twos Storytime: 10 a.m., Edwardsville Public Library, 112 S. Kansas St., Edwardsville.

• Danny Kalaher: 6 p.m., Moussalli's Prime, 7415 Marine Road, Edwardsville.

• Annual Chilly Chili Run & Cook-off: 6 p.m., RunWell, 142 N. Main St, Edwardsville.

• Checking Out: Ask a Mortician What You're Dying to Know: 6 p.m., Edwardsville Public Library, 112 S. Kansas St., Edwardsville.

• Family Storytime: 6:30 p.m., Edwardsville Public Library, 112 S. Kansas St., Edwardsville.

• Sing Wing Night/Bar Bingo: 4-8 p.m., Edwardsville American Legion Post 199, 58 S. Illinois Route 157, Edwardsville.

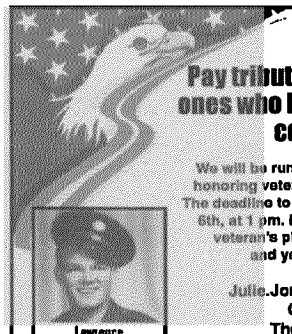
• Xtreme Bar Bingo at Wigglers: 7-9 p.m., Wiggler's Bar and Grill, 7243 Saint James Drive, Edwardsville.

• Celebrate Recovery Alton: 6:30 -9 p.m., Calvary Baptist Church, 1422 Washington Ave., Alton.

• Take Off Pounds Sensibly (TOPS): 9 a.m. weigh-in; 9:45 a.m., meeting follows the weigh-in until 10:30 a.m., First Christian Church, 150 E. Lorena Ave., Wood River. For more information call 618-259-7343.

• Al-Anon Meeting: 9:15-815 a.m., Lecliare Christian Church, 1514 Esic Drive, Edwardsville. Enter through the last set of doors.

• Al-Anon Meeting: 7 p.m., Upper Alton Baptist Church and Preschool, 2726 College Ave., Alton. For more information, call 618-463-2429. To find other helpful meetings, visit SIAFG.org or District-18.org.



Lawrence Fennewald
U.S. Army
1942-1945

Pay tribute to your loved ones who have served our country!

We will be running a special section honoring veterans on November 9th. The deadline to participate is November 6th, at 1 pm. Please submit $10 fee, veteran's photo, name, branch, and years served to:

Julie.Jones@Hearst.com
Or mail to
The Telegraph
P.O. Box 278
Alton, IL 62002
Attn: Julie

Don't miss this opportunity to show your support for our local veterans!

Illinois Environmental Protection Agency

PUBLIC NOTICE OF HAZARDOUS WASTE PERMIT
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Sarah Brubaker, Public Involvement Coordinator (#5).
Sarah.Brubaker@illinois.gov
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, Illinois 62794-9276
Phone: (217) 786-0790

For further RCRA information, go to: https://www.epa.gov/rcra

R002009

YOUNG

From page A1



Rudy Pate of Murrayville stands in one of his soybean fields near Murrayville.

decision on the farm often is in their 50s or older, Ratliff said.

"We do see a lot of the older generations making the choices for their farms, but I think there are a lot of young people waiting to take over," Ratliff said.

The [illegible] of producers [illegible] a decline, according to the 2022 Census of Agriculture.

About 2[illegible] farmers were under the age of 35, [illegible] million were between 35 and 64, and 1.15 million were 65 or older, according to numbers from the 2017 Census of Agriculture.

By the 2022 Census of Agriculture, the number of farmers in the 35 to 64 age range declined by 9% to 1.78 million, while the number of farmers under 35 increased slightly, to about 300,000, and those over the age of 65 increased to 1.29 million.

Organizations such as Young Leaders, operating through county Farm Bureaus, are helping younger people find their way into the ag industry, whether it on the farm or in ag-related businesses.

"We provide tools, networking, opportunities for anyone between 18 and 35 who is interested in ag," Ratliff said. "Some discussions include how to find markets and opportunities in agriculture and in their family operations."

Part of the reason older generations are staying longer is because of the technological advances in equipment, Ratliff said.

"The technology we are seeing in agriculture is making the job less laborious, so it allows farmers to work later in life," he said. "Modern tractors can be pleasant places to work."

Eric Schnelt, leader of Greene County Farm Bureau Young Leaders, said many farms are overseen and run by an older generation. He doesn't believe it's a cause for concern.

"I don't think the problem is finding young farmers," Schnelt said. "I think there are plenty of guys who want to come back to the farm. I think a lot of it is that the older generation isn't ready to let go of the reins. In many cases, the dad might be 70, the son 40 and the dad is just now slowing down."

Macy Wellhausen, manager for Jersey and Greene County Farm Bureau, said family farming, especially, contains a lot of tradition and pride.

With increased technology and new [illegible]es, the [illegible] generation is getting more opportunities to prove themselves as they adapt their farm operations, she said.

"I think with the new technology [illegible] there [illegible] opportunity for young people to [illegible] contribute," Wellhausen said. "I do think the population will eventually get younger."

While the farming population has [illegible] to be older, Schnelt doesn't believe it will lead to a shortage of farmers, he said.

"My whole life I've heard the population in ag is getting older," Schnelt said.

"It's [illegible] been a thing. But farms are only getting bigger."

Ratliff agrees the push for [illegible] to join the family operation could lead to an increase [illegible] families [illegible] more acres or livestock operations to support more family members.

"I think there are a lot of young people [illegible] the farm or in ag who are willing to take over the operation," Ratliff said.

HUNT

From page A1

vice," Middendorf said of the program's [illegible] mission.

[illegible] even the [illegible] of [illegible] [illegible] said.

"We started seeing a lot of interest in [illegible] [illegible] to hunt deer," she said. "But the pantries are more concerned with needs. It's [illegible] a burden to [illegible] [illegible] the [illegible]"

Later Access Food, which encourages hunters [illegible] deer meat to food pantries in Pike, Brown, Schuyler and Scott counties.

"We thought if we removed any barriers [illegible] which would [illegible] that would enable food pantries to offer protein," Middendorf said. "They don't get protein ordinarily."

In 2023, Access Food [illegible] roughly 30 [illegible] [illegible] [illegible] worth [illegible] the four counties, Middendorf said.

Items such as [illegible] [illegible] [illegible] how to [illegible] ly [illegible] the most popular items at the pantries, she said.

"It's a very needed program," she said. "Even though unemployment numbers aren't high, there are a lot of people still working minimum wage [illegible] afford [illegible] in the store."

But [illegible] without can [illegible], she said.

"Children under 5 suffer long-term effects if they don't have protein," Middendorf said. "Seniors [illegible] limited income, and, with [illegible] prices increasing along with food prices, they're more [illegible] than [illegible]. These are two very vulnerable populations that need this protein."

Hunters interested in donating to the program can bring legally obtained and tagged deer to a participating [illegible]. The [illegible] the [illegible] hunter and Access Food then distributes to participating pantries.

[illegible] include [illegible] Custom Meats in Pittsfield, [illegible] Meats in Rushville, [illegible] Meat Co. in Carth[illegible] and Downing Deer Processing in Clayton.

The program isn't only [illegible] finding a way to lighten their load on the trip [illegible].

"We also have a lot of [illegible] a good thing," Middendorf said.

"Their freezer's full but they still enjoy hunting and helping out."

The program gets a good deal on processing costs and benefits from grants but still finds processing 10,000 pounds of deer meat to be a bit pricey.

"We're looking at around $[illegible] to $10,000 for processing," Middendorf said. "But we're [illegible] to get a lot more meat for under [illegible] than that money would buy at a grocery store."

Those wanting to donate deer during the upcoming deer hunting seasons should contact a participating meat locker. Those wanting to donate money to help offset the price of processing can do so by contacting Access Illinois Outdoors' Pittsfield office at 217-285-2464.



A program that connects deer hunters with owners of property where deer can be hunted is entering its 19th season of helping stock food banks in four west-central Illinois counties.

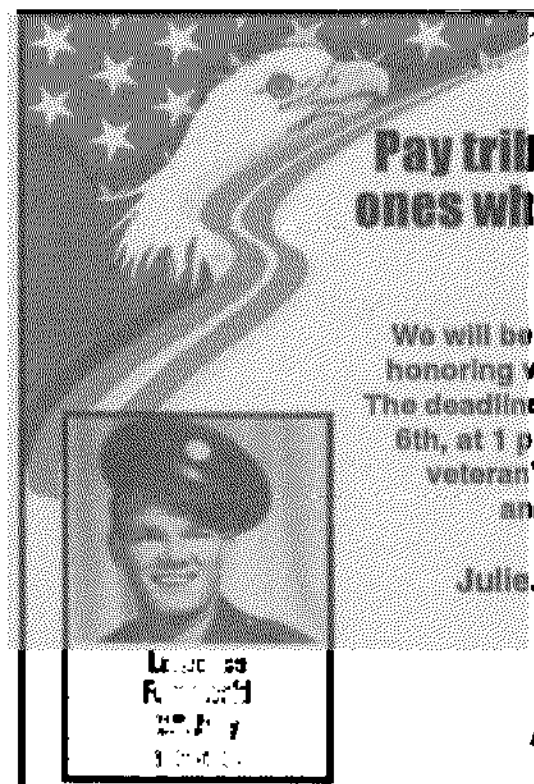
MAYOR

From page A1

resolutely that I have been a good steward of your hard-earned money.

We will persist in seeking and securing state and federal funds that will result in improvements, expansions, and beautification efforts. Our mantra has been growth and development tempered with the desire to [illegible] the quiet, safe community feel. Godfrey has been voted one of the safest communities in Illinois for a reason.

Under my [illegible] leadership and with the help of the wonderful group of employees I've assembled, I am confident that we will continue to make Godfrey one of the greatest places to live and operate a business. As always, I am available to the public at all times, as I'm the first person you'll see upon visiting Village Hall. I am receptive to suggestions, concerns, and dialogue while maintaining an open-door policy. It is with great pleasure that I am of service to the Village of Godfrey, and I hope that you allow me to continue to do so. Thank you for your consideration.



Pay tribute to your loved ones who have served our country!

We will be running a special section honoring veterans on November 8th, The deadline to participate is November 6th, at 1 pm. Please submit $10 fee, veteran's photo, name, branch, and years served to:

Julie.Jones@Hearst.com
Or mail to
The Telegraph
P.O. Box 278
Alton, IL 62002
Attn: Julie

Don't miss this opportunity to show your support for our local veterans!

Illinois Environmental Protection Agency

PUBLIC NOTICE OF HAZARDOUS WASTE PERMIT
BP Products North American Inc./Main Plant in Wood River and Hartford

The Illinois Environmental Protection Agency (EPA) hereby gives notice of intent to approve a Resource Conservation and Recovery Act (RCRA) corrective action only permit for the BP Products North American Inc. (BP) Main Plant facility. The facility's mailing address is 301 Evans Avenue, PO Box 167, Wood River, Illinois 62095. The Main Plant is located at 301 Evans Avenue in Wood River (Site ID: 1191150001; Permit log No: 147R2). BP Products North American Inc. Main Plant's approximately 569 acres property is currently operating under a RCRA permit. The application addresses the continuation of site-wide corrective action and also redefines the BP facility boundary to 450.75-acre by removing a portion of the land purchased by KM Phoenix Holdings LLC (KMPH) as KMPH is addressing any corrective action remaining at the portion of the land under its RCRA Corrective Action Only permit (Issued on March 4, 2024; effective on April 8, 2024).

The interested public is invited to review copies of the permit application, draft corrective action renewal permit and related fact sheet, at:

Wood River Public Library
326 E. Ferguson Ave.
Wood River, IL 62095

Written comments on the draft corrective action renewal permit may be submitted during the 45-day comment period. **Send comments to the Illinois EPA contact listed at the end of this notice postmarked by 11:59 PM, November 14, 2024.** In response to public requests or at the discretion of the Illinois EPA, a public hearing can be held to clarify technical issues concerning the draft post-closure renewal permit. A public hearing request must be made in writing, express opposition to the draft corrective action renewal permit and state the nature of the issue(s) to be raised at the hearing. Written hearing requests should be sent to the Illinois EPA contact listed below by the end of the comment period. Public notice will be issued 45 days before any hearing.

All comments received will become part of the Administrative Record (AR) and will be evaluated by the Illinois EPA in making the final corrective action renewal permit decision. The Illinois EPA will respond to comments on the draft corrective action renewal permit and indicate whether additional documents have been included in the AR. Commenters will be notified of the final corrective action renewal permit decision and the permit decision appeal process.

The facility is located in an area of Environmental Justice concern. More information concerning Environmental Justice may be found at https://www2.illinois.gov/epa/topics/environmental-justice/Pages/default.aspx.

The AR, including the permit application, draft corrective action renewal permit, related information and all data submitted by the applicant, is now available for public inspection by appointment only Monday through Friday between 9:00 a.m. and 5:00 p.m. Please call the Illinois EPA contact below for an appointment to view the documents at Illinois EPA's offices in Springfield. Copies of the draft permit and factsheet are available at https://epa.illinois.gov/public-notices/bol-permit-public-notice.html.

Sarah Brubaker, Public Involvement Coordinator (#5).
Sarah.Brubaker@illinois.gov
Illinois Environmental Protection Agency
1021 North Grand Avenue East, P.O. Box 19276
Springfield, Illinois 62794-9276
Phone: (217) 786-0790

For further RCRA information, go to: https://www.epa.gov/rcra

bp

Remediation Management Services Company

RECEIVED

NOV 14 2024

Community Relations
Illinois EPA

30 S. Wacker Dr. Ste 900
Chicago, IL 60606

Mobile: (847) 346-7112
Michelle.Knapp@bp.com

November 13, 2024

Ms. Sarah Brubaker
Public Involvement Coordinator (#5)
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Re: 1191150001 - Madison County
BP Products North America Inc. – Main Plant
USEPA ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Public Notice Comments for Draft Permit

Dear Ms. Brubaker:

On behalf of BP Products North America Inc. (bp), Remediation Management Services Company (RMSC) is submitting to the Illinois Environmental Protection Agency (Illinois EPA) comments on the Draft Resource Conservation and Recovery Act (RCRA) Corrective Action Permit (Draft Permit) for the bp Wood River Main Plant in Wood River, Madison County, Illinois. bp's comments on the Draft Permit are presented in italicized font. The proposed text revisions for the Draft Permit are presented in red-line strikeout format.

If you have any questions regarding the comments provided, please contact me at (847) 346-7112.

Sincerely,

Michelle Knapp
Liability Manager
Remediation Management Services Company

Enclosure: Public Notice Comments for Draft RCRA Permit

cc: Illinois EPA Bureau of Land, Division of Land Pollution Control, Permit Section
Becky Raftery, bp Legal

Public Notice Comments for Draft RCRA Permit

Page	Comment	Reference / Proposed Revision(s)
	FACT SHEET	
I. INTRODUCTION		
1 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The draft renewed RCRA permit for BP Main Plant contains all of the standard conditions required by 35 IAC Parts 702, 703 and 724; and the applicable conditions of 35 IAC 724.201 and Section 3004(u) of RCRA for the completion of corrective action activities at the subject facility.
IV. CORRECTIVE ACTION ACTIVITIES		
A. Solid Waste Management Units (SWMUs)		
3 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	35 IAC 724.201 and the original and current RCRA permit for this facility requires corrective action, as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents from any SWMUs and areas of concern at this facility.
B. Groundwater Corrective Action		
4 of 7	*It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this draft renewed RCRA permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

R002012

Page	Comment	Reference / Proposed Revision(s)
	a. Parameters	
4 of 7 and 5 of 7	*Please revise hazardous constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA-85 and 89).* *bp submitted a Site-Wide Inorganics and Metals (SWIM) Evaluation Report dated January 25, 2022 for both the Riverfront and Main Plant facilities in which it was demonstrated that increases in dissolved-phase inorganics may be due to naturally occurring fluctuations or other external influences; and that these fluctuations may exceed the established Class 1 GQS. The SWIM evaluation determined that arsenic is present in the uppermost aquifer at background concentrations that exceed the Class 1 GQS of 0.01 mg/L. bp proposed that a site-specific groundwater quality standard for arsenic be established at a concentration of 0.036 mg/L. Please revise to include a footnote stating the Concentration Limit for arsenic may be increased to a site-specific groundwater quality standard if approved by Illinois EPA.*	Hazardous Constituents / Storet No. / Concentration Limits (mg/L) Antimony 01097 0.006 Arsenic 01002 0.01** Barium 01007 2.0 ~~Beryllium 01012 0.004~~ ~~Cadmium 01027 0.005~~ Chromium 01034 0.1 ~~Cobalt 01037 1.0~~ Lead 01051 0.0075 ~~Mercury 71900 0.002~~ Nickel 01067 0.1 Selenium 01147 0.05 ~~Vanadium 01087 0.049~~ VOCs 1,2-Dichloroethane 34531 0.005 1,3-Dichlorobenzene 34561 0.0002 ~~1,4-Dichlorobenzene 34571 0.075~~ ~~2-Butanone (MEK) 81595 4.2~~ Benzene 34030 0.005 ~~Carbon Disulfide 77041 0.7~~ ~~Chlorobenzene 34301 0.1~~ Chloroform 32106 0.0002 Ethylbenzene 78113 0.7 Toluene 34010 1.0 Total Xylenes 34020 10.0 Methyl Tertiary-Butyl Ether 46491 0.07 Styrene 77128 0.1

R002013

Page	Comment	Reference / Proposed Revision(s)		
4 of 7 and 5 of 7	*[Continued]*	SVOCs		
		2,4-Dimethylphenol	34606	0.14
		~~2,4-Dinitrophenol~~	~~34616~~	~~0.014~~
		~~2-Methylphenol (o-cresol)~~	~~77152~~	~~0.35~~
		4-Methylphenol (p-cresol)	77146	0.035
		~~4-Nitrophenol~~	~~34646~~	~~–~~
		~~Anthracene~~	~~34220~~	~~2.1~~
		Benzo(a)anthracene	34526	0.00013
		Benzo(a)pyrene	34247	0.0002
		Benzo(b)fluoranthene	34230	0.00018
		Benzo(k)fluoranthene	34242	0.00017
		Bis(2-ethylhexyl)phthalate	39100	0.006
		~~Butyl benzyl phthalate~~	~~34292~~	~~1.4~~
		Chrysene	34320	0.0015
		Dibenzo(a,h)anthracene	34556	0.0003
		~~Diethyl phthalate~~	~~34336~~	~~5.6~~
		~~Dimethyl phthalate~~	~~34341~~	~~–~~
		~~Di-n-butyl phthalate~~	~~39110~~	~~0.7~~
		~~Di-n-octyl phthalate~~	~~34596~~	~~0.14~~
		~~Fluoranthene~~	~~34376~~	~~0.28~~
		Naphthalene	34696	0.14
		~~Phenanthrene~~	~~34461~~	~~0.21~~
		Phenol	34466	0.035
		~~Pyrene~~	~~34469~~	~~0.1~~
		~~Pyridine~~	~~77045~~	~~0.007~~
		Biogeochemical[1] Analytes	Storet No.	Concentration Limits (mg/L)
		Dissolved iron	N/A	--
		Dissolved sulfate	N/A	--
		Dissolved manganese	N/A	--

R002014

Page	Comment	Reference / Proposed Revision(s)
4 of 7 and 5 of 7	*[Continued]*	-- Not available N/A = Not applicable 1 = To monitor natural attenuation conditions ** Site-specific concentration limit may be used if approved by the Illinois EPA.
C. Standard Permit Conditions		
6 of 7	2nd sentence: *As noted in Condition I.C.1 of the draft permit, Illinois EPA should revise this language in the Fact Sheet to clarify that some standard conditions are not applicable to this facility.*	The standard conditions are of a general nature and are applicable to all hazardous waste management facilities regulated pursuant to an Illinois EPA RCRA permit except as noted within this draft renewed RCRA permit (e.g., Condition I.C.1). The standard conditions include the effectiveness of the permit, permit actions, permit severability, permit expiration, monitoring, retention of records, permit transfer, and compliance schedules.
V. CONSIDERED PERMIT ACTIONS OTHERS THAN RCRA		
B. Water		
6 of 7	2nd sentence: *Please revise the Water Pollution Control Permit No. to align with the current permit issued by Illinois EPA on September 16, 2024.*	The groundwater remediation and treatment system at the facility has a permit from Illinois EPA's Bureau of Water (Permit No. ~~2020-EP-64994~~2024-EP-71491).

R002015

Page(s)	Comment	Reference / Proposed Revision(s)
RCRA CORRECTIVE ACTION PERMIT – MAIN PLANT FACILITY Illinois EPA No. 1191150001 USEPA No: ILD980700967		
I. GENERAL FACILITY DESCRIPTION		
	B. LOCATION	
I-1	Condition 2.c, 2nd sentence: *Please revise to align with removal of the Area 2 Donation Parcel I – Stormwater Detention Basin (9.56 acres) and the Kinder Morgan Phoenix Holdings (KMPH) parcel (118.25 acres).*	The facility which is the subject of this permit, located between 418 ft above MSL and 428 ft above MSL, is approximately 442.19 acres in size. This is a reduction of approximately ~~7.5~~127.81 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a ~~(2)~~(1) and (3).
I-1	Condition 2.d, 2nd sentence: *Please revise to align with removal of only the KMPH parcel (118.25 acres).*	The facility which is the subject of this permit, located between 408 ft above MSL and 418 ft above MSL, is approximately 451.75 acres in size. This is a reduction of approximately ~~17.06~~118.25 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a ~~(1) and (2)~~(3).
	C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES	
I-3	Condition 1, 3rd sentence: *Please revise to include closure and post-closure care (35 IAC 724, Subpart G), financial (35 IAC 724, Subpart H), and 35 IAC 727 (Standards for Owners and Operators of Hazardous Waste Facilities Operating Under a RCRA Standardized Permit) in the list of requirements that are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.*	There are no regulated hazardous waste management units (HWMUs) operating or requiring closure/post-closure care under this permit at this facility. Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit. This includes the requirements for personnel training (35 IAC 724, Subpart B), preparedness and prevention (35 IAC 724, Subpart C), ~~and~~ contingency plan and emergency procedures (35 IAC 724, Subpart D), closure and post-closure care (35 IAC 724, Subpart G), and financial (35 IAC 724, Subpart H). Additionally, 35 IAC 727 requirements are not applicable to this permit. However, please note that through the application of other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site.

R002016

Page(s)	Comment	Reference / Proposed Revision(s)
II-4	Condition 3.b, 2nd paragraph: *Please revise to reflect that a certified ELUC for the South Flare Pit (SFP) was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit.* *Please correct the reference to the condition with Groundwater Requirements for the SFP.*	~~Condition II.F of this permit addresses the requirements of Conditions I.C.3.b (1) and (2) above, the remaining corrective action activities that need to be completed at the SFP. An ELUC must be established in accordance with the Conditions II.F of this permit renewal before a No Further Action (NFA) can be issued for the SFP.~~ A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. Condition II.C.~~5~~4 below (Groundwater Requirements for the SFP) addresses the requirements associated with Item 3 above.
II. CORRECTIVE ACTION		
A. INTRODUCTION		
II-1	Condition 1: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	In accordance with Section 3004(u) of RCRA and 35 IAC 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents, listed in 35 IAC 721, Appendix H, from any Solid Waste Management Unit (SWMU) at the BP Main Plant in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.
II-1	Condition 4, 2nd sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The facility has completed a substantial amount of corrective action efforts to date at this facility. This permit summarizes these efforts and describes the corrective action efforts which must still be completed at this facility to ensure the requirements of Section 3004(u) and (v) of RCRA and 35 IAC 724.201 are met.

R002017

Page(s)	Comment	Reference / Proposed Revision(s)
II-1	Condition 6: *bp does not agree with the requirement to investigate NFA parcels for TACO Part 742. bp completed all regulatory requirements for closure that were in place when the NFA determinations were made and issued by Illinois EPA. bp requests removal of the requirement to reinvestigate parcels with NFA letters.*	As 35 IAC Part 742 was amended to include indoor inhalation exposure route, all SWMUs which obtained no further action for corrective action as listed in Condition II.B.1 must be re-evaluated for the indoor inhalation pathway and meet all updated remediation standards to meet the requirements of 35 IAC Part 742.
II-2	Condition 15: *bp does not agree that the Illinois EPA has the right to withdraw any NFA. Please remove this clause.*	Based on the results of the investigative efforts as required in corrective action, the Illinois EPA reserves the right to withdraw any "No Further Action" (NFA) determinations.
II-2	Condition 16: *bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit. In addition, any guidance regarding what is intended by this language would be helpful.*	The Permittee shall incorporate, as necessary, climate change adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding integrating climate change adaptation considerations into the RCRA corrective action process.
B. CORRECTIVE ACTION REQUIREMENTS		
II-4	Condition 4: *bp requests clarification regarding whether this is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.*	Conduct additional investigation and remediation, as necessary, to address any on-site and/or off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility.

R002018

Page(s)	Comment	Reference / Proposed Revision(s)
II-5	Condition 6, 2nd sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The requirements of 35 IAC Parts 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 IAC 724.201.
II-6	Condition 8.e, 1st sentence: *Please correct the reference as noted.*	A report documenting the results of the efforts described in Conditions II.B.98.c and d above will be submitted to the Illinois EPA for review and approval (this report is referred to as the Investigation Report). This report will also identify any required remedial activities (including establishment of any required engineered barriers and/or institutional controls) needed to achieve the proposed remediation objectives.
C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED		
II-9	Condition 1, Area 7 Accomplishments as of Date, 4th sentence: *Please correct the date range for the environmental data submitted in March 2024.*	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008 to IEPA. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018~~-2019~~ submitted March 8, 2024.
II-9	Condition 1, Area 8 Accomplishments as of Date, 4th sentence: *Please correct the date range for the environmental data submitted in March 2024.*	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2017-2018-~~2019~~ submitted March 8, 2024.

R002019

Page(s)	Comment	Reference / Proposed Revision(s)
II-9	Condition 1, Area 9 Accomplishments as of Date: *Please revise to include the August 23, 2023, Corrective Action Modification request submitted by bp and approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).*	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Corrective Action Modification for microbial enhancement injection approved November 20, 2023.
II-9	Condition 1, Area 9 Current Status: *Please revise to include the reporting requirements related to the Corrective Action Modification request approved by the Illinois EPA in a letter dated November 20, 2023 (Log No. B-147R-CA-122).*	The Permittee to submit revised Inv. Report pending further discussion with IEPA. The Permittee to submit results of microbial enhancement injection in the Corrective Action Progress Reports required by Conditions II.L.1 and II.L.2.
II-10	Condition 1, Area 13 Accomplishments as of Date: *bp did not submit an Area 13 report on March 12, 2024. Please revise to reference the March 8, 2024, bp submittal of additional environmental data collected in 2017-2019.*	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26, 2011. ~~Further revised Investigation Report submitted March 12, 2024.~~ Additional environmental data collected in 2017-2019 submitted March 8, 2024.
II-10	Condition 1, Area 14 Current Status: *Please revise to align with the Current Status language for other Land Reuse Areas requiring a revised Land Reuse Investigation (LRI) Report pending further discussion with Illinois EPA.*	~~March 2024 submittal under IEPA review.~~ The Permittee to submit revised Inv. Report pending further discussion with IEPA.
II-11	Condition 1, Area 18 Current Status, 2nd sentence: *Please replace period with a comma for clarity.*	NFA at NC-SP1. Regarding the SFP, ~~.~~ ~~T~~the Permittee must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. The Permittee must also comply with conditions of the ELUC.

R002020

Page(s)	Comment	Reference / Proposed Revision(s)
II-12	Condition 3, Area 15 NFA and Media, 1st sentence: *Please revise to reflect that the November 19, 2003, Illinois EPA letter included a NFA determination for perched groundwater based on the following:* - *Condition 8.a: "The groundwater with the Parcel must still be addressed in accordance with Section V of the RCRA Part B Permit and all subsequent permit modifications.* - *Condition 8.b.: "...Therefore, no further action is required with response to the groundwater at the parcel except as required by Condition 8.a. above."*	NFA ~~letter~~ determination for soil and groundwater ingestion route for perched-groundwater only was issued on November 19, 2003 (Log No. B-147-CA-31, 36 & 37). ELUC was established for Area 15 (see Conditions II.C.4 and 6 below).

R002021

Page(s)	Comment	Reference / Proposed Revision(s)
II-14	Condition 5.b (2) and (3): *After the 2013 TACO Part 724 effective date, Illinois EPA issued a NFA letter dated August 22, 2016, for the indoor air inhalation exposure route for Area 2 Donation Parcel II – Police Station, requesting new PINs for Donation Parcel II & the bp Retained Parcel and a draft ELUC for Donation Parcel II requiring: a) basement with concrete wall & floors; b) concrete slab on grade; or c) combo of a & b; and draft revised ELUC for the bp Retained Parcel. bp submitted draft ELUCs to the Illinois EPA on March 29, 2017. Illinois EPA approved the draft ELUCs in letters dated April 21, 2017, and May 4, 2017. bp submitted the Certified ELUCs to Illinois EPA in a letter dated June 21, 2017, then resubmitted both Certified ELUCs in a letter dated May 1, 2024, following Illinois EPA notification that the June 21, 2017, submittal was lost.* *No further action is required by bp on Donation Parcel II – Police Station due to having the Illinois EPA approved ELUC already in place which addresses indoor air inhalation. Additionally, this parcel is no longer owned by bp, it is also no longer part of the RCRA permit, so it is not appropriate to include in permit conditions.*	(2) Due to the amendments made in 35 IAC Part 742 associated with indoor air inhalation exposure route these requirements must be addressed. Thus, BP must conduct an investigation to demonstrate that the soils present in this second donation parcel met remediation objectives for the indoor air inhalation exposure route before it was removed from the defined facility covered by this RCRA permit in accordance with plans approved by Illinois EPA. (3) The Illinois EPA issued a NFA letter on August 22, 2016 regarding the indoor air inhalation exposure route for the second donation parcel. This NFA determination was based in part on the establishment of an ELUC which would place certain restrictions on future activities within this parcel.
II-15	Condition 5.b (4), 1st sentence: *Please revise to clarify agency name and correct the Certified ELUC Document No.*	The Illinois EPA approved a draft ELUC for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 2017R18528.

R002022

Page(s)	Comment	Reference / Proposed Revision(s)
II-15	Condition 5.b (5), 1st sentence: *Please revise to correct the Certified ELUC Document No.*	The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on May 4, 2017 (Log No. B-147R-CA-77) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. ~~R~~2017R18529.
II-15	Condition 5.c (3), 2nd sentence: *Please correct typos for clarity.*	The Permittee and KMPH recognize that the post-closure conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closure conditions, operations, and ~~activates~~activities at the property retained by ~~the~~ BP, or its successors could impact property owned and/or operated by KMPH or its successors.

R002023

Page(s)	Comment	Reference / Proposed Revision(s)
II-17	Condition 6.i - k: *Please remove Area 2 Donation Parcel I – Stormwater Detention Basin and Donation Parcel II – Police Station from the list of parcels where bp is required to comply with ELUCs or voidance of NFAs could result. The Area 2 Donation Parcels are not owned by bp so are not appropriate to be included in the Permit. It is incumbent on the owner of the parcel to comply with the ELUC.*	6. In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2 (bp retained parcel only), 4 and 15: i. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA's NFA determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Act. j. The limitations or requirements of an ELUC apply in perpetuity or until: (1) The Illinois EPA issues a new NFA determination approving modification or removal of the limitation/requirement; and (2) A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC. k. At no time shall this site be used in a manner inconsistent with the land use limitations established in an approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved; and (2) a new NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 IAC Part 742. (1) Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (I) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC Part 742. (2) Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

R002024

Page(s)	Comment	Reference / Proposed Revision(s)
	D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED	
II-18	Condition 1.b: *bp disagrees that this requirement is applicable to solid waste management units (SWMUs) and Product Release Sites (PRSs) that have Illinois EPA approved NFAs. Please clarify that this requirement is only applicable for parcels which have not received NFA.* *Please correct the reference to the condition that lists the SWMUs and PRSs.*	1. The Permittee must meet the applicable indoor inhalation remediation objectives both on-site and the impacted off-site properties in accordance with 35 IAC Part 742. a. The Permittee must continue to address the primary objectives set forth in these documents entitled, "Revised Indoor Inhalation Exposure Route Evaluation and Work Plan" dated August 28, 2019 (Log No. B-147R-CA-96) and received by Illinois EPA on August 29, 2019; "Action Plan For Potential Man-Made Pathway Evaluation" dated November 25, 2019 (Log No. B-147R-CA-98) and received by Illinois EPA on November 26, 2019; "Soil Gas Pathway Evaluation Report" dated June 7, 2021 (Log No. B-147R-CA-111) and received by Illinois EPA on June 8, 2021; "Additional Info to the Revised Indoor Inhalation Exposure Route Eval And Work Plan Dated August 29, 2019 To Provide An Update on Changed Site Conditions" dated April 12,2024 (Log No. B-147RCA-126) and received by Illinois EPA on April 16, 2024. Note, these documents are currently under review by the Illinois EPA. b. Additional evaluation for the indoor inhalation exposure route requirements must be met for all SWMUs and PRSs listed in Condition ~~IV~~II.B.~~1~~.

R002025

Page(s)	Comment	Reference / Proposed Revision(s)
	E. REMEDIATION OF HYDROCARBON AND REFINERY PRODUCTS	
II-19	Condition 2, 2nd paragraph: *Please revise to include updated information provided in Exhibit F-1 of the permit renewal application.* *As documented in the "Third Quarter 2024 Main Plant Corrective Action Progress Report" dated November 1, 2024, a mobile solar-powered biovent system was installed and commissioned in Third Quarter 2024 to address refinery LNAPL and impacts to groundwater at select monitoring wells.*	The locations of the three pilot remediation systems within the facility are shown in Figure E-1 of Attachment E. Since installation of the pilot-scale remediation systems, they have undergone upgrades and optimizations in response to performance monitoring. bp completed significant modifications to the pilot-scale bioremediation systems and technologies in 2019-2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the Main Plant. In addition, passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those areas to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation. A mobile solar-powered biovent system was also put into service to address refinery product in 2024. Excluding the mobile solar-powered biovent system, the configuration and operation of the pilot-scale bioremediation systems is detailed in Attachment E, including a timeline of operations, enhancements, and modifications for each system.
II-19	Condition 3, 1st sentence: *Please correct the reference as noted.*	The facility shut down the above-mentioned HRS in Condition II.E.1 above under the Temporary Authorization issued by Illinois EPA (effective date of December 5, 2017) provided the facility collected data as required, and submitted: (1) a Pilot-Scale Bioremediation System Performance Report for the pilot-scale tests identified in Condition II.E.~~1~~2 above; and (2) a workplan for developing a site-wide hydrocarbon recovery/remediation system to address the hydrocarbon contamination in the groundwater and the smear zone above the facility's remedial objectives as defined in the workplan and applicable regulations, as approved by Illinois EPA. The workplan was required to provide a conceptual plan to implement the hydrocarbon recovery/remediation systems for the entire facility in the groundwater and smear zone as well as an outline of the next steps in full-scale implementation of the hydrocarbon remedial systems. A report entitled, "Remedial Action Selection Report and Main Plant Remedy Roadmap" was received January 31, 2022, to meet this requirement. The document is currently under review by the Illinois EPA.

R002026

Page(s)	Comment	Reference / Proposed Revision(s)
II-20	Condition 4, 1st sentence: *Please clarify if updates to Attachment E are only required to be documented in the Corrective Action Progress Reports (required by Condition II.L.1), or if updates must continue to be incorporated into the Permit on an annual basis through a Class 1* Permit Modification.*	The Permittee shall operate, expand and use the pilot-scale Bioremediation Systems and technologies in order to remediate hydrocarbons and refinery product from the smear zone and vadose zone as it contributes to dissolved phase impacts. The number and location of Bioremediation Systems and Bioremediation wells, as detailed in Attachment E, can be modified to maintain or enhance remediation of hydrocarbons and refinery product. As the Permittee has continued to successfully operate these systems, activities associated with these systems shall be summarized in the Corrective Action Progress Reports required by Condition II.L.1.
II-20	Condition 5.b (1): *Please revise for clarity.*	The refinery product recoverability shall be determined through product baildown testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method (calculation method described in ASTM E2856-13 or most current method);
	F. RCRA CLOSURE, RCRA POST-CLOSURE AND RCRA CORRECTIVE ACTION STATUS OF THE NORTH CELL SPRAY POND 1 AND THE SOUTH FLARE PIT	
II-21	Condition 1.b (2): *Please revise to reflect that a certified ELUC for the SFP was previously approved by the Illinois EPA as is documented for Land Reuse Area 18 in Section II.C.1 of this draft Permit. Accordingly, bp requests that Condition II.F.2 be deleted.*	A closure-by-removal demonstration for the soils at the SFP, was approved by the Illinois EPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the HWMU. A certified ELUC for the SFP was submitted to Illinois EPA on December 31, 2015 and approved by Illinois EPA in a letter dated July 18, 2016 (Log No. B-147R-CA-58). Therefore, no further action is necessary for soil at the SFP. ~~The requirements regarding the restrictions that must be contained in the ELUC are set forth in Condition II.F.2.~~
	H. CORRECTIVE MEASURES REQUIREMENTS	
II-25	*bp is following the Land Reuse process (Section II.G); therefore, Section H is only applicable if bp withdraws from the Land Reuse Process.*	N/A

R002027

Page(s)	Comment	Reference / Proposed Revision(s)
	I. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s)	
II-28	Condition 8: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	All efforts carried out at newly identified SWMU/AOCs must meet the requirements of 35 IAC 724.201.
	J. FUTURE RELEASES FROM SWMU(s)	
II-28	Last sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	There exists a potential that a release may occur in the future from SWMUs identified in the RCRA Facility Assessment (RFA) which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition II.I.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in condition II.H. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

R002028

Page(s)	Comment	Reference / Proposed Revision(s)
	M. COST ESTIMATES/FINANCIAL ASSURANCE FOR CORRECTIVE ACTION	
II-31	Condition 2: *Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.* *Also, it is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee shall prepare a cost estimate for the completion of any corrective action required under this permit, in order to provide financial assurance for completion of corrective action, in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required under 35 IAC 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201 and this permit. These estimates must be based upon third party costs. The revised cost estimate for corrective action must be submitted to the Illinois EPA annually by January 1. Cost estimates adjusted only for annual inflation are not required to be submitted to the Illinois EPA.
II-31	Condition 3, 1st sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition II.M.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the submittal of the initial or revised cost estimates required under Condition II.M.1. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 IAC 724.246 at its discretion.

R002029

Page(s)	Comment	Reference / Proposed Revision(s)
II-31	Condition 4: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	It must be noted that cost estimates and financial assurance must be provided for the operation of the groundwater remediation system required by Section III of this permit as such a system is necessary to meet the requirements of 35 IAC 724.201.
II-31	Condition 5: *Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.*	All cost estimates prepared under the requirements of Conditions II.M.1 through II.M.4 must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281. Cost estimates adjusted only for annual inflation in accordance with 35 IAC 724.201 are not required to be submitted as a Class 1* permit modification request.
III. GROUNDWATER CORRECTIVE ACTION PROGRAM		
	A. Summary	
III-1	First paragraph, 2nd and 3rd sentences: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.* *Additionally, bp requests clarification regarding whether the last sentence is standard language for all RCRA Permits in order to understand why this new language is included in the draft Permit.*	Hazardous constituents associated with historical activities at the BP Main Plant have been detected in the groundwater across the site which exceed the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

R002030

Page(s)	Comment	Reference / Proposed Revision(s)
III-1	Condition 4: *Please consider the proposed revision.*	Remediating and/or removing refinery ~~product~~ hydrocarbon sources to groundwater impacts~~from above the water table~~, including hydrocarbon sources to groundwater at the water table and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the BP Main Plant.
III-1	Condition 5: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.*	In the event that the Permittee is unable to demonstrate an inward gradient in the southeast corner of the facility, or in the vicinity of Land Reuse Area 9, compliance will be satisfied by demonstration that the groundwater quality at designated Sentry Observation Monitoring Wells in the southeast corner and/or Demonstration Wells in the vicinity of Land Reuse Area 9 ~~in this portion of the facility~~ meet applicable groundwater quality standards. The Permittee shall comply with the requirements of III.E.12 in the event that groundwater quality in ~~this~~these portions of the facility does not meet groundwater quality standards. Contingent actions could include increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.
III-2	Condition 6: *Please consider the proposed revision.*	Implementation of the bioremediation systems for impacted groundwater and refinery hydrocarbon zones impacting groundwater~~, treatment and reduction of free phase and residual product,~~ and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

R002031

<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td colspan="3">B. IMPLEMENTATION</td></tr>
<tr><td>III-2</td><td>Condition 4:

It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.</td><td>The Permittee must continue corrective action measures to the extent necessary to ensure that the groundwater protection standard is not exceeded to meet the requirements of 35 IAC 724.201.</td></tr>
<tr><td colspan="3">C. WELL LOCATIONS AND CONSTRUCTION</td></tr>
<tr><td>III-3
-
III-6</td><td>Condition 1:

Please revise well construction information (for select wells as noted) to match what was provided in permit renewal application replacement pages.

Also, please revise footnote 11 to reflect that former Riverfront Observation Well (RFOW) G030 no longer exists. RFOW G030 was abandoned due to an excavation for a natural gas pipeline repair as documented in the Main Plant GMZ Well G078 Well Condition Letter dated July 11, 2023 (Log No. B-147R-CA-121).</td><td>
<table>
<tr><th>IEPA Well No.</th><th>Facility Well No.</th><th>Well Depth ft.</th><th>Well Depth Elevation (ft. MSL)</th><th>Well Screen Interval (ft MSL)</th><th>Well Designation[1]</th></tr>
<tr><td colspan="6">GMZ Boundary Wells</td></tr>
<tr><td>G021</td><td>C-11</td><td>49.750</td><td>382.27</td><td>417.27-382.27</td><td>UMA C</td></tr>
<tr><td>G067#</td><td>G-27</td><td>49.00</td><td>386.28</td><td>406.280-386.28</td><td>UMA H</td></tr>
<tr><td>G085</td><td>G-26R</td><td>54.15</td><td>388.59</td><td>408.294-388.94</td><td>UMA H</td></tr>
<tr><td colspan="6">Observation Monitoring Wells</td></tr>
<tr><td>G87L</td><td>H-7</td><td>51.50</td><td>3776.68</td><td>402.68-382.68</td><td>UMA C</td></tr>
<tr><td>G301</td><td>RP-1</td><td>49.00</td><td>3778.38</td><td>388.38-378.38</td><td>UMA H</td></tr>
<tr><td colspan="6">LNAPL Monitoring Network (6)</td></tr>
<tr><td>G515+(9)</td><td>GQ-14</td><td>+</td><td>+</td><td>_</td><td>unknown</td></tr>
<tr><td colspan="6">Demonstration Wells</td></tr>
<tr><td>R034(3B)</td><td>C-24R</td><td>35.24</td><td>393.64</td><td>403.88-393.8886.34</td><td>UMA C</td></tr>
</table>
11 = Per Condition IV.C.1.a, G078, G030, G97L, and G87L require a new or replacement well or well pairs be installed within ninety (90) days to monitor the previously screened interval. Of those wells, only G078 and G030 no longer exists because the wells wereas damaged or plugged.
</td></tr>
</table>

R002032

Page(s)	Comment	Reference / Proposed Revision(s)
	D. GROUNDWATER PROTECTION STANDARD	
III-8	Condition 1, 2nd and 3rd sentences: *Please revise as there is no requirement for analysis of any dissolved hazardous constituents with the exception of biogeochemical analytes to monitor natural attenuation conditions only.*	The following hazardous constituents and their concentration limits comprise the groundwater protection standard for the groundwater monitoring wells found in Conditions III.C.1. ~~Total (unfiltered) values will be used for the comparison with the 35 IAC Part 620, Class I, Groundwater Quality Standards. Dissolved values shall be used for statistical evaluations required in Condition III.H unless otherwise noted.~~

R002033

III-9 and III-10	Condition 1, Hazardous Constituents: *Please revise hazardous constituents list and footnotes to align with the optimized Groundwater Corrective Action Monitoring Program approved by Illinois EPA in a letter dated January 19, 2023 (Log Nos. B-147R-CA-85 and 89).* *bp submitted a Site-Wide Inorganics and Metals (SWIM) Evaluation Report dated January 25, 2022, for both the Riverfront and Main Plant facilities in which it was demonstrated that increases in dissolved-phase inorganics may be due to naturally occurring fluctuations or other external influences; and that these fluctuations may exceed the established Class 1 GQS. The SWIM evaluation determined that arsenic is present in the uppermost aquifer at background concentrations that exceed the Class 1 GQS of 0.01 mg/L. bp proposed that a site-specific groundwater quality standard for arsenic be established at a concentration of 0.036 mg/L. Please revise to include a footnote stating the Concentration Limit for arsenic may be increased to a site-specific groundwater quality standard if approved by Illinois EPA.*	

Hazardous Constituents	Storet No.	Concentration Limits (mg/L)
Antimony	01097	0.006
Arsenic	01002	0.01**
Barium	01007	2.0
~~Beryllium~~	~~01012~~	~~0.004~~
~~Cadmium~~	~~01027~~	~~0.005~~
Chromium	01034	0.1
~~Cobalt~~	~~01037~~	~~1.0~~
Lead	01051	0.0075
~~Mercury~~	~~71900~~	~~0.002~~
Nickel	01067	0.1
Selenium	01147	0.05
~~Vanadium~~	~~01087~~	~~0.049~~
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
~~1,4-Dichlorobenzene~~	~~34571~~	~~0.075~~
~~2-Butanone (MEK)~~	~~81595~~	~~4.2~~
Benzene	34030	0.005
~~Carbon Disulfide~~	~~77041~~	~~0.7~~
~~Chlorobenzene~~	~~34301~~	~~0.1~~
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
~~2,4-Dinitrophenol~~	~~34616~~	~~0.014~~

R002034

III-9 and III-10	*[Continued]*	~~2-Methylphenol (o-cresol)~~	~~77152~~	~~0.35~~
		4-Methylphenol (p-cresol)	77146	0.035
		~~4-Nitrophenol~~	~~34646~~	~~--~~
		~~Anthracene~~	~~34220~~	~~2.1~~
		Benzo(a)anthracene	34526	0.00013
		Benzo(a)pyrene	34247	0.0002
		Benzo(b)fluoranthene	34230	0.00018
		Benzo(k)fluoranthene	34242	0.00017
		Bis(2-ethylhexyl)phthalate	39100	0.006
		~~Butyl benzyl phthalate~~	~~34292~~	~~1.4~~
		Chrysene	34320	0.0015
		Dibenzo(a,h)anthracene	34556	0.0003
		~~Diethyl phthalate~~	~~34336~~	~~5.6~~
		~~Dimethyl phthalate~~	~~34341~~	~~--~~
		~~Di-n-butyl phthalate~~	~~39110~~	~~0.7~~
		~~Di-n-octyl phthalate~~	~~34596~~	~~0.14~~
		~~Fluoranthene~~	~~34376~~	~~0.28~~
		Naphthalene	34696	0.14
		~~Phenanthrene~~	~~34461~~	~~0.21~~
		Phenol	34466	0.035
		~~Pyrene~~	~~34469~~	~~0.1~~
		~~Pyridine~~	~~77045~~	~~0.007~~
		Biogeochemical[1] Analytes	Storet No.	Concentration Limits (mg/L)
		Dissolved iron	N/A	--
		Dissolved sulfate	N/A	--
		Dissolved manganese	N/A	--
		-- Not available N/A = Not applicable 1 = To monitor natural attenuation conditions ** Site-specific concentration limit may be used if approved by the Illinois EPA.		

R002035

Page(s)	Comment	Reference / Proposed Revision(s)
	E. GROUNDWATER CORRECTIVE ACTION PROGRAM	
III-10	Condition 1: *Please correct the references as noted.*	The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.~~D~~C.1 for the hazardous constituents listed in Condition III.~~E~~D.1 above.
III-11	Condition 2.a.i: *Please revise to include GMZ Boundary Well G085 as listed in Condition III.C.1.*	The following groundwater monitoring wells shall define the outermost horizontal extent of the approved GMZ: G005, G006, G008, G021, G023, G04R, G045, G055, G059, G062, R063, G067, G068, G073, G079, G084, G085, G111, G112, G32R, G37, G5B, G35A, G35B, G500, G69R, G74L, G75L, G76L, G91, G92, G93L, H3IB, RG36, R302, G303, G503, G504, G505.
III-11	Condition 2.a.ii, 2nd sentence: *bp does not understand the rationale for this new requirement as it is not necessary to protect human health and the environment. Please clarify this new requirement to better define the vertical extent/boundary of the GMZ.*	The vertical boundaries of the GMZ shall range from the approximate top of the uppermost aquifer (30 feet bgs) to the top of the bedrock surface at the BP Main Plant facility. As required by Condition IV.C.1.b, wells must be proposed to better define the vertical extent.
III-11	Condition 3: *The goal of the remediation program at this site is hydrocarbon remediation, and the language in the current permit (i.e., "hydrocarbon pool") is more appropriate. bp requests the text be revised to replace "hazardous constituents" with "hydrocarbon pool."*	The Groundwater Corrective Action Program shall control the horizontal and vertical flow in the vertical column of water present in the uppermost aquifer beneath the facility and monitor the position and rate of migration of the hydrocarbon pool~~hazardous constituents~~ released to groundwater as follows:

R002036

Page(s)	Comment	Reference / Proposed Revision(s)
III-12 and III-13	Condition 11: *The property owner has no contractual obligation to allow bp access to the property. bp requests this requirement be removed from the permit.*	The Permittee must continue to pursue access to the off-site property where former wells G060 and G061 are located for the purposes of properly abandoning these wells. Once access to the property is obtained, the facility must submit certification that plugging and abandonment of the well(s) was carried out in accordance with the approved procedures to Illinois EPA and the appropriate State Agencies in accordance with Condition III.C.6. Until the wells are abandoned, the status and details of any efforts must be reported in the reports required by Condition III.1.2.
III-13	Condition 12.b: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.*	If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.
III-13	Condition 12.c.ii: *Please revise to include the Demonstration Wells in the vicinity of Land Reuse Area 9 as referenced in Section III.E.12.a.*	Perform a "Resampling Event" for the Sentry Observation Monitoring Wells and/or Demonstration Wells within thirty (30) days of the date the determination is made.
III-14	Conditions 12.e.ii.1 and 2: *Please revise for clarity and to remove redundancy between these two conditions.*	1. For the Southeast portion of the GMZ, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine (9) monitoring wells in order to develop a groundwater flow gradient. ~~F~~for the southeast portion of the GMZ: wells G301, G305, R042, R083, G501, G502, G005, G92, and G112. ~~For the vicinity of Land Reuse Area 9: wells R032, R034, R035, and G304.~~ 2. For the vicinity of Land Reuse Area 9, the groundwater gauging ~~and monitoring~~ performed for Contingency Monitoring shall use at a minimum the following four (4) monitoring wells in order to develop a groundwater flow gradient for the vicinity of Land Reuse Area 9 of the GMZ: R032, R034, R035, and G304.

R002037

Page(s)	Comment	Reference / Proposed Revision(s)
III-15	Condition 12.g.v: *Please revise to include the vicinity of Land Reuse Area 9.*	Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner or in the vicinity of Land Reuse Area 9, including but not limited to, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.
III-15	Condition 13: *Please correct the references as noted.*	The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.E~~D~~ of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.L~~M~~.1. A discussion must also be provided in reports required by Condition III.1.6.

R002038

III-15	Condition 14: *bp is currently addressing the indoor inhalation exposure route through the Indoor Inhalation (or vapor intrusion [VI]) Exposure Route Evaluation and Work Plan as summarized in the chronology of correspondence, to date, between bp and Illinois EPA provided as* ***Exhibit A*** *of bp's "Public Notice Comments for Draft Permit" (and documented in Attachment C of this draft Permit).* *Appendix G of the Revised Indoor Inhalation Exposure Route Evaluation and Work Plan dated August 28, 2019, included a site-specific evaluation of the indoor inhalation pathway for the Main Plant GMZ wells using the Johnson & Ettinger calculation (per 35 IAC Part 742) modified for a dirt floor evaluation (using the Little, Daisy, Nazaroff attenuation factor) as recommended by Illinois EPA. The calculations were conducted for six applicable constituents under a residential building scenario using site-specific soil conditions including seasonal high water table depth. This site-specific evaluation documented that groundwater conditions at that time did not represent a risk to potential off-site indoor air receptors. As such, it is proposed to utilize this same site-specific approach during the semi-annual comparison of GMZ (and off-site) well groundwater sampling results to evaluate whether the indoor inhalation exposure pathway remains incomplete and potential off-site receptors remain protected. bp's proposed revisions outline the evaluation methodology and reporting criteria.*	14. Following each s~~S~~emi-annual groundwater sampling event, an evaluations for the indoor inhalation exposure route must be provided for exceedances of 35 IAC Part 620 based on comparison of groundwater sampling results ~~and screening levels identified in Table H of Appendix B in 35 IAC Part 742~~ at the groundwater monitoring wells located at the property boundary and at any off-site locations to site-specific residential screening levels calculated in accordance with the methodology presented in the August 28, 2019, *Revised Indoor Inhalation Exposure Route Evaluation and Work Plan*, Appendix G (Log No. B-147R-CA-96). ~~Screening levels for the current type of property use shall be used.~~ a. ~~Identify any homes or buildings potentially impacted by the exceedance and evaluate, in accordance with 35 IAC Part 742, if the indoor inhalation pathway is complete by conducting site-specific evaluations based on~~ The evaluation will compare current groundwater dissolved phase concentrations against the previously calculated site-specific screening values and must confirm that the most recent water level is not higher than the site-specific seasonal high water table used in the threshold screening level calculation. If the groundwater level is higher, then the screening level calculations must be revised accordingly (and will become the new site-specific screening values)~~; building-specific construction information if known, known occupancy and any other site-specific factors, as appropriate and applicable, at each building~~. b. If the comparison ~~evaluation~~ documents that groundwater dissolved-phase concentrations remain below 35 IAC Part 620 criteria and/or the site-specific screening values and demonstrates that the indoor inhalation pathway is incomplete, the Permittee shall include this comparison~~e demonstration~~ in the semi-annual report required by Condition III.I.2. c. If additional constituents beyond the six chemicals evaluated during the 2019 evaluation are detected above 35 IAC Part 620 criteria, then screening criteria must be developed consistent with the approach utilized in the 2019 evaluation, and these values will become new site-specific screening values (once approved by Illinois EPA). d~~e~~. If the comparison~~evaluation~~ documents groundwater dissolved-phase concentrations exceed the site-specific screening values, indicating

R002039

Page(s)	Comment	Reference / Proposed Revision(s)
III-15	*[Continued]*	~~demonstrates~~ that the indoor inhalation pathway is potentially complete, the Permittee must implement a~~submit the~~ location-specific evaluation of the pathway in accordance with the provisions of 35 IAC Part 742 and submit the results within the next semi-annual report required by Condition III.I.2, following the evaluation~~and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval~~. If the pathway is determined to be complete, the Permittee must propose additional corrective action within that semi-annual report for the Illinois EPA review and approval. ~~d. A new evaluation is required for each sampling to determine whether screening levels are exceeded.~~
I. REPORTING AND RECORDKEEPING		
III-17	Condition 6: *Please correct the references as noted.*	Free product thickness data measured pursuant to Condition III.E.5.C, and reduction of hydrocarbons and refinery product data collected in accordance with Condition II.E~~D~~ of the Corrective Action Section, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2. Reporting information must also be included in Corrective Action Progress Reports required by Condition II.L~~M~~.1.
III-17	Condition 7: *Please revise for clarity. Condition III.E.6 states, "The Permittee shall determine the groundwater flow rate (i.e., seepage velocity in ft/day) and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1."*	The groundwater flow rate and direction, determined pursuant to Condition III.E.6, shall be submitted ~~annually~~ as a part of the first and second semi-annual reports as identified in Condition III.1.2.

R002040

Page(s)	Comment	Reference / Proposed Revision(s)
III-18	Condition 13: *Please clarify the number of copies required. As noted in the proposed revision, bp's preference is to mail one (1) original copy and send electronic copies for all Illinois EPA CCs.*	The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. Only one (1) copy of the LPC 592 must accompany the submittal. However, the Permittee must submit one (1) original paper submittal of each notice or report you submit to the Illinois EPA, and ~~(excluding the groundwater and leachate monitoring results submitted in an electronic format)~~ a minimum of two (2) electronic copies for all additional~~of each notice or report to the~~ Illinois EPA copies (i.e., Permit Section and the regional Field Operation Section). Additional paper copies must be provided upon Illinois EPA request. The form is not to be used for permit modification requests.
III-19	Condition 16.c: *Please revise for clarity and to remove redundancy.*	16. If the Permittee evaluation, when required by Condition III.E.12, determines verification of contaminant control is necessary due to a lack of inward gradient, the Permittee will complete the following reporting and notification requirements in III.E.12: a. Notify the Illinois EPA in writing within seven (7) days of the date the determination resampling is required. b. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring is required. c. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring does not meet the requirements for inward gradient and the permit-defined requirements for VOCs, the Permittee shall take steps to implement additional corrective measures as outlined in Condition III.E.12.g, and: ~~i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.~~ii. Submit a written report to the Illinois EPA within thirty (30) days describing the actions to be taken. iii. Take necessary actions to meet applicable groundwater standards at GMZ Boundary wells.

R002041

Page(s)	Comment	Reference / Proposed Revision(s)
III-19	Condition 17: *Please correct the reference and revise to align with the proposed revisions to Condition III.E.14.*	If the comparison~~indoor inhalation exposure route evaluation~~ required by Condition III.E.14 documents groundwater dissolved-phase concentrations exceed the site-specific screening values, indicating~~demonstrates that~~ the indoor inhalation pathway is potentially complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval.
III-19 and III-20	Condition 18: *Please revise to clarify contaminant control monitoring, notification, and reporting requirements are detailed in Conditions III.E.12 and III.I.16.* *It was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider the proposed revisions to Conditions 18.a-d.*	18. If the Permittee determines that groundwater flow is not being adequately controlled, except as required by Conditions III.E.12 and III.I.16 regarding contaminant control in the Southeast portion of the GMZ and/or in the vicinity of Land Reuse Area 9 (western portion of the GMZ),~~and/or the contaminant control evaluations indicate contaminants are migrating beyond the GMZ boundaries,~~ the Permittee shall: ~~a. Notify the Illinois EPA in writing within seven (7) days of the date that this determination is made.~~ a~~b~~. Take actions as necessary to regain the control of groundwater flow as required by Condition III.E.3. b~~c~~. Include a summary of ~~Submit a written report to the Illinois EPA within thirty (30) days describing~~ the actions taken to regain control of groundwater flow and ~~. In addition, the report must contain~~ provide information which demonstrates that groundwater flow is being adequately controlled in the semi-annual report required by Condition III.I.2. c~~d~~. Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

R002042

Page(s)	Comment	Reference / Proposed Revision(s)
	J. REQUEST FOR PERMIT MODIFICATION	
III-20	Condition 1: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.
IV. SPECIAL CONDITIONS		
	C. COMPLIANCE SCHEDULE	
IV-1	Condition 1.b: *Please correct the reference as noted. This requirement does not enhance the protection of human health and the environment. bp requests this requirement be removed from the permit.*	Within ninety (90) days of the effective date of this permit, propose monitoring wells with screens positioned to adequately define the vertical boundary of the GMZ in Condition III.E.2.a.
IV-1	Condition 2, 1st sentence: *It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.*	The Permittee must prepare and submit an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required in accordance with 35 IAC 724.201. This cost estimate must include a minimum of 10% contingency for all items necessary to complete corrective action.

R002043

Page(s)	Comment	Reference / Proposed Revision(s)
V. STANDARD CONDITIONS		
	GENERAL REQUIREMENTS	
V-2 and V-3	Condition 13.a, 2nd sentence: *bp is not required to have a "waste analysis plan" for this facility as the facility does not accept outside waste and 35 IAC 727 requirements are not applicable to this permit. As this is a Standard Condition, please consider the proposed note to be added for clarification or address the non-applicability of the requirement elsewhere in the permit. Please see comment and proposed revisions to Condition I.C.1.*	Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from 35 IAC 721, Appendix A. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan. NOTE: On the effective date of the permit, this requirement is not applicable because the Permittee does not accept waste. Illinois EPA can revise or modify the applicability of this requirement by a Permit modification or written notification to the Permittee.
V-5	Condition 21: *Please correct the references as noted.*	OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 14~~16~~, 15~~19~~ and ~~20~~16, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g)).

R002044

Page(s)	Comment	Reference / Proposed Revision(s)
	GENERAL FACILITY STANDARDS	
V-6	Conditions 27 – 30: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart B (General Facility Standards). Please see comment and proposed revisions to Condition I.C.1.*	27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 IAC Part 722. 28. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c). 29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d). 30. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 IAC 722.117(a)(8).

R002045

Page(s)	Comment	Reference / Proposed Revision(s)
	PREPAREDNESS AND PREVENTION	
V-6 and V-7	Conditions 31 – 36: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart C (Preparedness and Prevention). Please see comment and proposed revisions to Condition I.C.1.*	31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131) 32. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132. 33. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in the contingency plan and this permit as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133) 34. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134. 35. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements. 36. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

R002046

Page(s)	Comment	Reference / Proposed Revision(s)
	POST-CLOSURE	
V-7 and V-8	Conditions 38 – 42: *Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit, including 35 IAC 724, Subpart G (Closure and Post-Closure Care) and Subpart H (Financial Requirements). Please see comment and proposed revisions to Condition I.C.1.*	38. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan. 39. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans, or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d). 40. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be: a. Adjusted for inflation either sixty (60) days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within thirty (30) days after close of the firm's fiscal year. b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure. c. Kept on record at the facility and updated. (35 IAC 724.244). d. Maintained at the value approved by the Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification. 41. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by Standard Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245. Financial assurance documents submitted to the Illinois EPA should be directed to the following address:

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<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>V-7
and
V-8</td><td>[Continued]</td><td>Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East P.O. Box 19276
Springfield, IL 62794-9276

42. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.</td></tr>
<tr><td colspan="3">VI. REPORTING AND NOTIFICATION REQUIREMENTS</td></tr>
<tr><td>VI-1</td><td>Condition II.M.2, Action:

Please revise to clarify that cost estimates adjusted only for annual inflation are not required to be submitted to Illinois EPA.</td><td>Annual Cost Estimate for Corrective Action <u>(excluding cost estimates adjusted for annual inflation only)</u></td></tr>
<tr><td>VI-1</td><td>Conditions III.C.3, III.C.5, III.C.2:

Please correct the Condition references as noted.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>C.<u>4</u>~~3~~</td><td>Notification that well has been damaged or its structural integrity compromised.</td><td>Within 30 days of identification</td></tr>
<tr><td>C.<u>6</u>~~5~~</td><td>Boring logs, construction diagrams and datasheets from installation and development of new/replaced well.</td><td>Within 30 days after well□installed</td></tr>
<tr><td colspan="3">C.<u>1</u>~~2~~ General schedule for collection and reporting of groundwater data:</td></tr>
</table>
</td></tr>
<tr><td>VI-2</td><td>Condition III.I.15, Due Date:

Please revise to "semi-annually" to align with Condition III.I.7. Note, bp has proposed a revision to Condition III.1.7 as well for better clarification.</td><td><u>Semi-annually</u>~~By August 1 of each year~~</td></tr>
</table>

R002048

<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>VI-2</td><td>Conditions III.I.18.a-c:

As noted above under Condition III.I.18, it was bp's understanding that the 7-day notification and subsequent 30-day report requirements would be removed in lieu of summarizing actions to regain control of groundwater flow and demonstrating that groundwater flow is being adequately controlled in the semi-annual reports required by Condition III.I.2. Please consider removing the associated Actions under Conditions I.18.a and I.18.b from this table.

Please correct the Condition reference for Condition III.1.18.c as noted.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>~~I.18.a~~</td><td>~~Notify the Illinois EPA in writing that groundwater flow is not being adequately controlled.~~</td><td>~~Within 7 days of the date the determination is made~~</td></tr>
<tr><td>~~I.18.b~~</td><td>~~Submit a report to Illinois EPA describing the actions taken to regain control of groundwater flow.~~</td><td>~~Within 30 days of the date the determination is made~~</td></tr>
<tr><td>I.18.<u>d</u>~~e~~</td><td>Submit a request for permit modification to Illinois EPA describing any changes to the corrective action program to regain control of groundwater flow.</td><td></td></tr>
</table>
</td></tr>
<tr><td>VI-3</td><td>Condition J.1, Due Date:

It is bp's understanding that 35 IAC 724.200 is applicable to the Main Plant facility rather than 35 IAC 724.201 which is applicable to permit applicants for a hazardous waste treatment, storage, or disposal (TSD) facility. bp is not an applicant for a TSD permit. bp requests that Illinois EPA review and correct the citation as appropriate.</td><td>Within 90 days of determination existing program does not meet the requirements of 35 IAC 724.201</td></tr>
</table>

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<table>
<tr><th>Page(s)</th><th>Comment</th><th>Reference / Proposed Revision(s)</th></tr>
<tr><td>VI-3 and VI-4</td><td>Conditions V.34, V.35.a and b, V.36, and V.37:
Please correct the references as noted although these requirements are not applicable to this permit as there are no regulated HWMUs operating or requiring closure/post-closure care under this permit at this facility.</td><td>
<table>
<tr><th>Condition</th><th>Action</th><th>Due Date</th></tr>
<tr><td>~~35~~40.a</td><td>Adjust post-closure cost estimates for inflation.</td><td>Within 60 days before anniversary date, or within 30 days after close of the firm's fiscal year.</td></tr>
<tr><td>~~35~~40.b</td><td>Revision post-closure cost estimates.</td><td>As needed, within 90 days of discovery of revision.</td></tr>
<tr><td>41~~36~~</td><td>Change in financial assurance mechanism for post-closure.</td><td>As needed</td></tr>
<tr><td>42~~37~~</td><td>Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.</td><td>Within 10 days after commencement of proceeding.</td></tr>
</table>
</td></tr>
<tr><td colspan="3">ATTACHMENTS</td></tr>
<tr><td>A</td><td>IDENTIFICATION OF APPROVED PERMIT APPLICATION
Please revise bp document dates as noted.</td><td>1. RCRA Post-Closure Renewal Application (Log No. B-147R2) dated October 8, 2020.
2. Additional Information for B-147R2- Replacement Pages submitted 1) Condition C.8.1.5-Page 13 and 2) Exhibit C-l, Table 1- Page 4, dated ~~April 28~~May 10, 2022.
3. Time extension request for submittal of a response to the IEPA RCRA Permit Renewal Application NOD letter, dated July ~~5~~3, 2024.
4. "Response to Illinois EPA Comments dated July 18, 2024" dated August 1, 2024.
5. Additional Information for B-147R2. Replacement pages, for Section C, dated August 29, 2024.</td></tr>
</table>

R002050

ADMINISTRATIVE RECORD
for
BP Products North American Inc./Main Plant – Madison County
ILR980700967
Log No. B-147R2

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- Review Notes
  - Omar Faruk
  - Takako Halteman
- Amy Butler Review Notes
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- BP Main Plant's renewal permit application dated August 1, 2024 (with updates and revisions)

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- Outtakes from August 1, 2024 revisions
- Outtakes from October 8, 2020
- October 8, 2020 renewal application (replaced by 8/1/24 application)

Permit Draft

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

217/524-3301

Certified Mail
Return Receipt Requested

SEP 25 2024

9589 0710 5270 0389 7094 92

BP Products North America, Inc.
Attention: Ms. Michelle Knapp
Liability Manager
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191150001 -- Madison County
BP Products North American Inc./Main Plant
ILD980700967
Log No. B-147R2
RCRA Administrative Record – 24D
Permit Draft

Dear Ms. Knapp:

Attached is a draft renewed Resource Conservation and Recovery Act (RCRA) corrective action permit (draft renewed RCRA permit) and fact sheet for the above-referenced facility. The draft renewed RCRA permit is based on the administrative record contained in the Illinois EPA's files. The contents of the administrative record are described in Title 35 Illinois Administrative Code (IAC) Section 705.144.

Under the provisions of 35 IAC 705.141(d), the draft renewed RCRA permit and administrative record must be publicly noticed and made available for public review and comment. The Illinois EPA must also provide an opportunity for a public hearing. Copies of the draft renewed RCRA permit, fact sheet, and renewal application are available for review at the Wood River Public Library, 326 E. Ferguson Avenue, Wood River, Illinois and copies of the draft renewed RCRA permit and fact sheet are available on the Illinois EPA website. The Illinois EPA has not scheduled a public hearing at the current time. However, any interested party may request a public hearing. The public comment period will close on November 14, 2024.

During the comment period, the applicant or any interested party may submit comments to the Illinois EPA on the draft renewed RCRA permit. At the close of the comment period, the Illinois EPA will prepare a response to significant comments. The physical address of the Illinois EPA is scheduled to change in the coming months, but the Post Office Box will remain the same. Any comments on the draft renewed RCRA permit should include the Illinois EPA Post Office Box and may be submitted to:

Sarah Brubaker, Public Involvement Coordinator (#5)
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
Sarah.Brubaker@illinois.gov

The Illinois EPA will issue a final renewed RCRA permit after the close of the public comment period unless the Illinois EPA decides to reverse the tentative decision. The appeal process and limitations are addressed in 35 IAC 705.212.

If you have any questions regarding the groundwater monitoring aspects of this draft renewed RCRA permit, please contact Amy Butler, P.G. at 217/558-4716. If you have questions regarding the other aspects of this permit, please contact Omar Faruk at 217/557-9764.

Sincerely,

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

JLR:OF:1191150001-RCRA-B147R2-Draft.docx
OF TNH AMB
Attachment: Fact Sheet
Draft Renewed RCRA Corrective Action Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Michelle Knapp, BP Products North America, Inc
Michael Hoffman, WSP USA Environment & Infrastructure, Inc
Starlet S. Wright, Sovereign Consulting, Inc.

FACT SHEET
for
DRAFT RENEWED RCRA CORRECTIVE ACTION PERMIT
BP Products North American Inc./Main Plant
Madison, Illinois
STATE ID NO. 1191150001
FEDERAL ID NO. ILD980700967
RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

This fact sheet has been prepared pursuant to the requirements of Title 35 Illinois Administrative Code (IAC) 705.143. The fact sheet is intended to be a brief summary of the principal facts and significant factual, legal, methodological, and policy questions considered in preparing a draft renewed Resource Conservation and Recovery Act (RCRA) corrective action permit (draft renewed RCRA permit). This draft renewed RCRA permit requires BP Main Plant (also referred to as the facility) to continue to provide corrective action for twenty-one (21) solid waste management units (SWMUs) and eight (8) Product Release Sites (PRSs) at this site. The draft renewed RCRA permit also redefines the permitted facility boundary subject to this RCRA permit. Pursuant to 35 IAC 705.143(a), this fact sheet is sent to the applicant and to any other person who requests it.

I. INTRODUCTION

The draft renewed RCRA permit for BP Main Plant contains all of the standard conditions required by 35 IAC Parts 702, 703 and 724; and the applicable conditions of 35 IAC 724.201 and Section 3004(u) of RCRA for the completion of corrective action activities at the subject facility.

The BP Main Plant is an existing facility that has been under a RCRA permit (Log No. B-147) since first issued on September 30, 1993. A renewed RCRA permit was issued on March 4, 2011 (Log No. B-147R) and most recently was modified on May 29, 2018 (B-147R-M-17 and M-18). The March 4, 2011 renewed RCRA permit approved closure by removal for the former regulated units (South Flare Pit and North Cell of Spray Pond 1); therefore, the renewed RCRA permit was issued as a corrective action permit and post-closure care was no longer required. Currently there are no hazardous waste management units being operated or under post-closure at this facility. This draft renewed RCRA permit (Log No. B-147R2) contains requirements similar to those set forth in the original permit and previous renewed permit, updated as appropriate to reflect the current status of the facility and the applicable regulations.

II. DESCRIPTION OF FACILITY

1. General

The BP Main Plant and Riverfront facilities were owned by Amoco Oil Company until the company merged with BP in 1999. Amoco operated an oil refinery at the Main Plant from 1908 to 1981 and Amoco Petroleum Additives Company operated in

a portion of the Main Plant from 1957 to 1996. BP operated a storage and distribution facility at the Main Plant Property for gasoline and petroleum distillates until 2016.

BP has completed the soil-portion of corrective action at two areas in the northeast corner of the site, and, with a concurrence from the Illinois EPA, donated the following two (2) parcels to the City of Wood River: (1) a 9.56-acre parcel, which extends from the ground surface to a horizontal plane approximately 23 feet below ground surface (ft-bgs) at elevation of 418 feet above mean sea level (ft above MSL); and (2) a 7.5-acre parcel, which extends from the ground surface to a horizontal plane approximately 15 ft-bgs at elevation of 428 ft above MSL. Both subsurface areas below 15 and 23 ft-bgs will remain under BP's ownership and are included within the permitted facility boundary.

In 2016, Kinder Morgan Phoenix Holdings, LLC (KMPH) purchased an approximate 118.25-acre three-dimensional parcel above elevation 408 ft above MSL of the BP Main Plant for the purpose of operating a storage and distribution facility for gasoline and petroleum distillates. This parcel of the BP Main Plant, now under the ownership of KMPH, has already been issued a separate RCRA Corrective Action permit (Log No. B-214 under the Illinois EPA site number: 1190505061)).

While both the BP Main Plant and Riverfront facilities are owned and operated by BP, each facility has been issued a separate RCRA Permit under a separate site identification number. The BP Main Plant is being remediated and redeveloped for industrial and commercial use. It has been divided into nineteen (19) Land Reuse Areas which will be investigated, remediated, reported on, and redeveloped on an Area-by-Area basis.

2. Site Description and Location

The BP Main Plant Property is located at Township 5 North, Range 9 West of the Third Principal Meridian, where it occupies all or parts of Sections 27, 28, 34, and the northeast corner of Section 33. The mailing address of the BP Main Plant Property is:

BP Products North America Inc./Main Plant
301 Evans Avenue, Post Office Box 167
Wood River, Illinois 62095

Most of the BP Main Plant Property (approximately the northern-most 80 percent) is in the City of Wood River. The remainder is located within the Village of Hartford. A site location map is provided as Attachment 1 to this fact sheet.

III. HAZARDOUS WASTE MANAGEMENT ACTIVITIES

There are currently no hazardous waste management units (HWMUs) being operated or

under post-closure care at the BP Main Plant. Two HWMUs at the BP Main Plant, the North Cell of Spray Pond 1 (NC-SP1), a surface impoundment that received reactive sulfide material (U189); and the South Flare Pit (SFP), the location of a former underground storage tank that contained various non-hazardous wastes, as well as wastes bearing hazardous waste characteristics (D001, D002, D003, D008, U189, and U122) have been certified as closed by removal.

In the late 1990s, and 2000s, BP conducted further investigation and remediation of the NC-SP1 and SFP HWMUs. Closure by removal reports were submitted for NC-SP1 in November 2002, and for the SFP in April 2005. A letter from the Illinois EPA dated January 7, 2008 granted approval for closure by removal of the NC-SP1 pending a Class 3 permit modification request to formally remove the unit from the Part B post-closure permit. This letter also granted approval for the soil-portion of the closure by removal determination for the SFP and requested further work on the groundwater portion for this unit. Subsequently, BP conducted this additional work, and based upon the Illinois EPA's review of the results of this work, the SFP was approved for closure by removal, subject to certain conditions.

IV. CORRECTIVE ACTION ACTIVITIES

A. Solid Waste Management Units (SWMUs)

35 IAC 724.201 and the original and current RCRA permit for this facility requires corrective action, as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous constituents from any SWMUs and areas of concern at this facility.

The Illinois EPA issued a RCRA permit (Log No. B-147) on September 30, 1993 to Amoco Oil Company (now BP Main Plant) in Wood River, Illinois, which included, among other things, requirements to conduct corrective action on twenty-one (21) SWMUs and nine (9) PRSs. On, June 21, 2002, the Illinois EPA approved a plan to expand the scope of the corrective action program to include all recognized environmental conditions (RECs) at the facility. To accomplish this, the facility was divided into nineteen (19) Land Reuse Areas so that corrective action, and potential redevelopment could be addressed on an Area-by-Area basis. As the approximate 118.25-acre KMPH parcel (at and above 408 ft above MSL), which contained one of the PRSs (PRS 7), was removed from the facility subject to this permit, the number of PRSs requiring corrective action under this permit is now eight (8), while groundwater throughout the original permitted boundaries of the facility is still subject to corrective action. The requirements to addresses corrective action at these areas are included in Section II of this draft renewed RCRA permit.

B. Groundwater Corrective Action

Section II of this draft renewed RCRA permit also identifies groundwater corrective action requirements that must be completed as outlined in Section III. Hazardous constituents associated with historical activities at BP Main Plant have been detected

in the groundwater across the site in exceedance of the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this draft renewed RCRA permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

The major components of the Groundwater Corrective Action Program in Section III include: (1) a Groundwater Management Zone (GMZ); (2) semi-annual groundwater monitoring through a network of wells installed both on-site and off-site; (3) removal and treatment of contaminated groundwater through hydraulic recovery and bioremediation systems; (4) control of the contaminated groundwater within the uppermost aquifer through a network of pumping wells (Cone of Depression (COD) wells); and (5) treatment and reduction of free phase and residual light nonaqueous phase liquid (LNAPL) via the bioremediation treatment systems. Groundwater is routinely sampled semi-annually for refinery-related constituents based on historical activities at the site, and results are reported semi-annually.

There are shallow fine-grained materials overlying much of the uppermost aquifer at this facility. The uppermost aquifer is a sand and gravel aquifer located approximately 30 ft-bgs and extending to a depth of about 101 to 113 ft-bgs to the top of the bedrock surface. This aquifer is commonly referred to as the "American Bottoms." The groundwater of the uppermost aquifer is classified as a Class I groundwater.

a. Parameters

Parameters monitored at the site and the respective concentration limits to be met are listed below. The following hazardous constituents and their concentration limits comprise the groundwater protection standards:

Hazardous Constituents	**Storet No.**	**Concentration Limits (mg/L)**
Metals		
Antimony	01097	0.006
Arsenic	01002	0.010
Barium	01007	2.0
Beryllium	01012	0.004
Cadmium	01027	0.005
Chromium	01034	0.1
Cobalt	01037	1.0
Lead	01051	0.0075
Mercury	71900	0.002
Nickel	01067	0.1
Selenium	01147	0.05
Vanadium	01087	0.049

Hazardous Constituents	Storet No.	Concentration Limits (mg/L)
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
1,4-Dichlorobenzene	34571	0.075
2-Butanone (MEK)	81595	4.2
Benzene	34030	0.005
Carbon Disulfide	77041	0.7
Chlorobenzene	34301	0.1
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
2,4-Dinitrophenol	34616	0.014
2-Methylphenol (o-cresol)	77152	0.35
4-Methylphenol (p-cresol)	77146	0.035
4-Nitrophenol	34646	--
Anthracene	34220	2.1
Benzo(a)anthracene	34526	0.00013
Benzo(a)pyrene	34247	0.0002
Benzo(b)fluoranthene	34230	0.00018
Benzo(k)fluoranthene	34242	0.00017
Bis(2-ethylhexyl) phthalate	39100	0.006
Butyl benzyl phthalate	34292	1.4
Chrysene	34320	0.0015
Dibenzo(a,h)anthracene	34556	0.0003
Diethyl phthalate	34336	5.6
Dimethyl phthalate	34341	--
Di-n-butyl phthalate	39110	0.7
Di-n-octyl phthalate	34596	0.14
Fluoranthene	34376	0.28
Naphthalene	34696	0.14
Phenanthrene	34461	0.21
Phenol	34466	0.1
Pyrene	34469	0.21
Pyridine	77045	0.007

-- Not available

C. Standard Permit Conditions

Section V of the draft renewed RCRA permit contains standard conditions that are regulatory requirements of 35 IAC Parts 702, 703 and 724. The standard conditions are of a general nature and are applicable to all hazardous waste management facilities regulated pursuant to an Illinois EPA RCRA permit. The standard conditions include the effectiveness of the permit, permit actions, permit severability, permit expiration, monitoring, retention of records, permit transfer, and compliance schedules.

V. CONSIDERED PERMIT ACTIONS OTHER THAN RCRA

A. Air

The air emissions from this site are regulated under RCRA, the Clean Air Act (CAA), the Illinois Environmental Protection Act (Act) and State regulations at Title 35: Environmental Protection, Subtitle B: Air Pollution. Under these regulations, it is required to obtain a permit to install or operate any process which is, or may be, a source of air pollutants. The only air emission source currently present at the facility is the groundwater remediation and treatment system. This system operates under a permit from Illinois EPA's Bureau of Air (Title V Air Permit No. 95060048).

B. Water

Discharge of any waste from a hazardous waste management facility into the waters of the State is required to have a National Pollutant Discharge Elimination System (NPDES) permit, issued by the Illinois EPA under Section 39(b) of the Act. The groundwater remediation and treatment system at the facility has a permit from Illinois EPA's Bureau of Water (Permit No. 2020-EP-64994).

VI. PROCEDURES FOR REACHING A FINAL DECISION

Pursuant to 35 IAC 705.162(a)(2), the public is given at least forty-five (45) days to review the renewal application and comment on the draft renewed RCRA permit conditions prior to Illinois EPA taking any final permitting action on the renewal application for this draft renewed RCRA permit. The comment period will begin on September 30, 2024, the date of publication of the public notice in a major local newspaper of general circulation. The comment period will end on November 14, 2024.

Copies of the draft renewed RCRA permit, fact sheet, and renewal application, are available for review at:

Wood River Public Library
326 E. Ferguson Avenue
Wood River, Illinois 62095

Copies of the draft renewed RCRA permit and fact sheet are available on the Illinois EPA website.

The administrative record contains the renewal application, draft renewed RCRA permit, fact sheet, and other supporting documents and correspondence submitted to the Illinois EPA. The administrative record can be made available for public inspection by appointment only at the Illinois EPA's Springfield headquarters from 9:00 a.m. to 5:00 p.m., Monday through Friday. Inspection of the administrative record must be scheduled in advance by contacting Sarah Brubaker, Illinois EPA Public Involvement Coordinator, at the address listed below. The physical address of Illinois EPA is scheduled to change in the coming months, but the Post Office Box will remain the same. Any comments on the draft renewed RCRA permit should include the Illinois EPA Post Office Box.

In response to requests received during the comment period or at the discretion of the Illinois EPA, a public hearing may be held to clarify one or more issues concerning the renewal application and draft renewed RCRA permit. A request for a public hearing must be submitted in writing and shall state the nature of the issues proposed to be raised at the hearing. Public notice of a public hearing will be issued at least forty-five (45) days before the hearing date.

For further information regarding the permit process, to submit written comments on the draft renewed RCRA permit, or to request a public hearing, please contact:

Sarah Brubaker, Public Involvement Coordinator (#5)
Illinois Environmental Protection Agency
1021 N. Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
Sarah.Brubaker@illinois.gov

When the Illinois EPA makes its final permit decision, notice will be given to the applicant and each person who has submitted written comments or requested notice of the final permit decision. The permit will become effective thirty-five (35) days after service of notice of the decision or at a later date if stated in the permit unless the decision is appealed.

Attachment 1 - Site Location Map
Attachment 2 - Site Layout Map

Fact Sheet

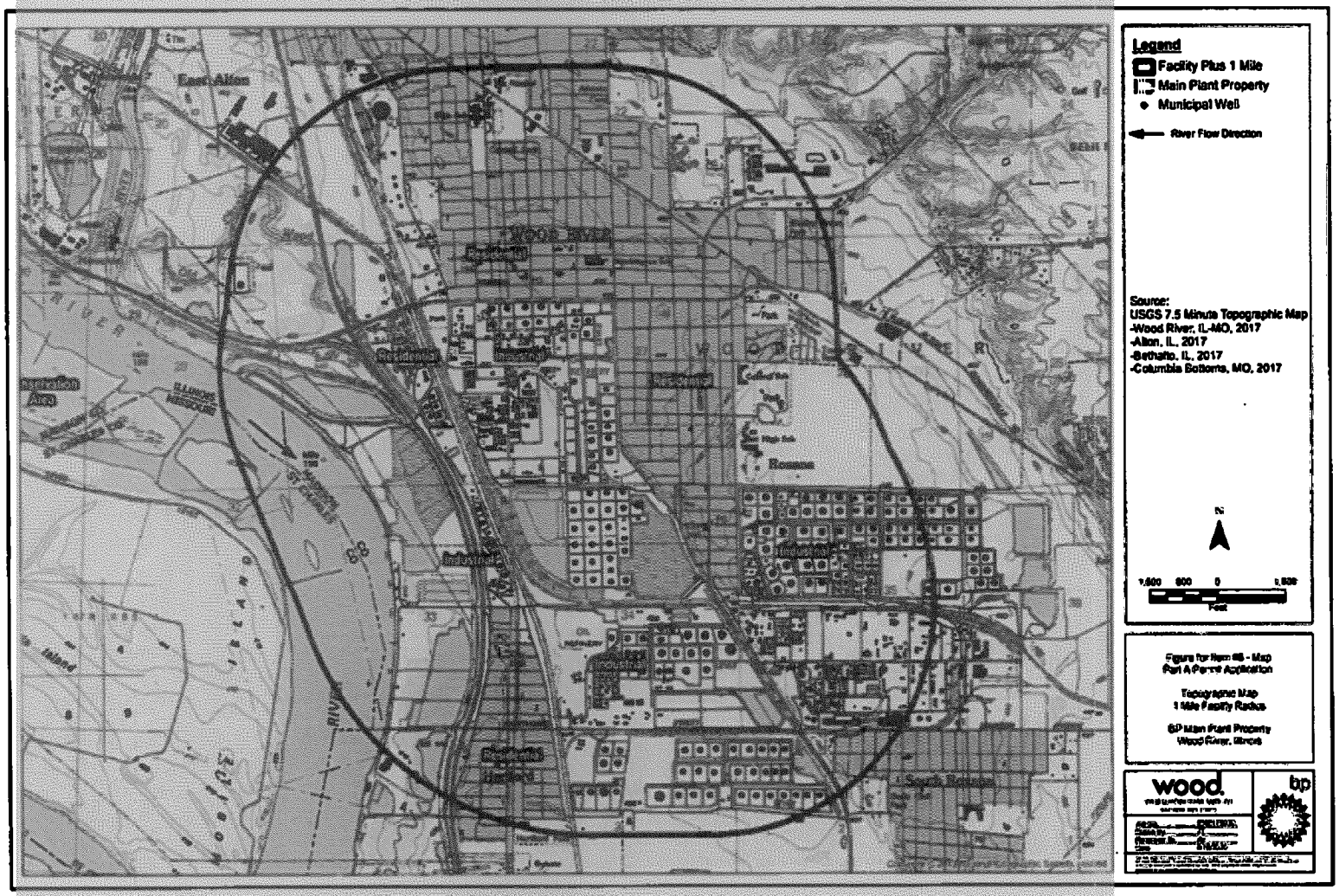
Draft Renewed RCRA Corrective Action Permit

Log No. B-147R2

ATTACHMENT 1

Site Location Map

R002063



East Alton
WOOD RIVER
Roxana
South Roxana
Legend
Facility Plus 1 Mile
Main Plant Property
Municipal Well
River Flow Direction
Source:
USGS 7.5 Minute Topographic Map
-Wood River, IL-MO, 2017
-Alton, IL, 2017
-Bethalto, IL, 2017
-Columbia Bottoms, MO, 2017
N
1,500 800 0 1,500
Feet
Figure for Item #8 - Map
Part A Permit Application
Topographic Map
1 Mile Facility Radius
BP Main Plant Property
Wood River, Illinois
wood.
bp

Fact Sheet

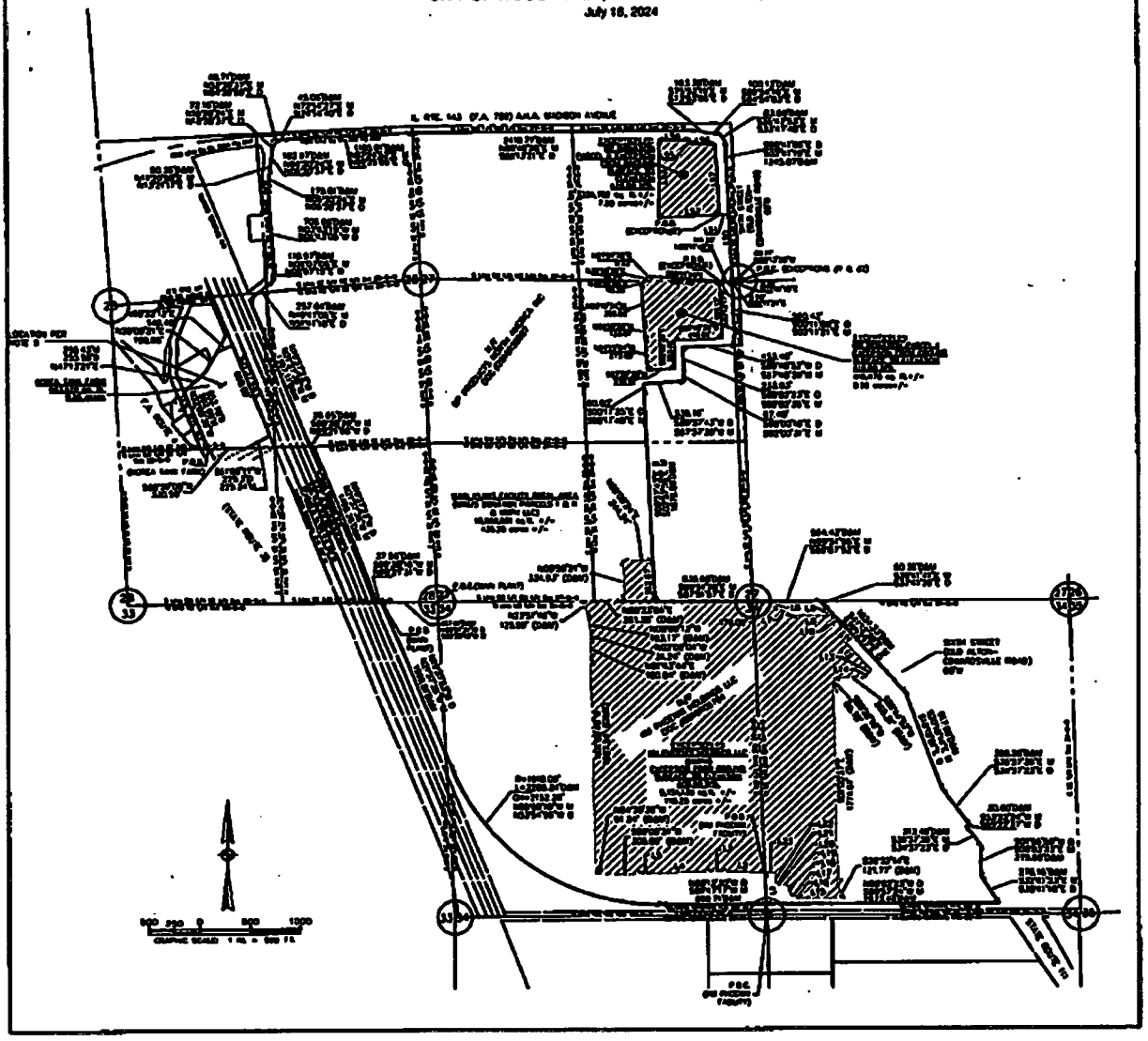
Draft Renewed RCRA Corrective Action Permit

Log No. B-147R2

ATTACHMENT 2

Site Layout Map

EXHIBIT: B.P. AMOCO MAIN PLANT AND [illegible]EA TANK FARM WITH
DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION
BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS
July 18, 2024



ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JAMES JENNINGS, ACTING DIRECTOR

RCRA CORRECTIVE ACTION PERMIT

1191150001 -- Madison County
BP Products North America, Inc./Main Plant
ILD 980700967
Log No. B-147R2
RCRA Administrative Record

Issue Date: DRAFT
Effective Date: DRAFT
Expiration Date: DRAFT

PERMITTEE
BP Products North America, Inc.
Attention: Ms. Michelle Knapp
301 Evans Avenue, P.O. Box 167
Wood River, Illinois 62095

A Renewed Resource Conservation and Recovery Act (RCRA) permit for corrective action is hereby issued to BP Products North America Inc. (BP) as Owner and Operator and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code Subtitle G (35 IAC).

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires BP to conduct the following hazardous waste activities in accordance with the approved permit application and the conditions in this permit:

Corrective Action: Twenty-one (21) Solid Waste Management Units (SWMUs) and eight (8) Product Relcase Sites (PRSs) in nineteen (19) Land Reuse Areas.
Groundwater Monitoring: Corrective action for the SWMUs and PRSs in Land Reuse Areas.

This RCRA permit consists of the conditions contained herein and those in Sections and Attachments in this permit. The Permittee must comply with all terms and conditions of this permit and the applicable regulations contained in 35 IAC Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this RCRA permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment A of this permit, and any subsequent amendments. Any inaccuracies found in the information provided in the approved permit application may be grounds for the termination or modification of this permit (see 35 IAC 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

DRAFT

Joshua L. Rhoades, P.G.
Permit Section Manager
Bureau of Land

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RCRA Corrective Action Permit

BP Products North America -- Main Plant Facility

Wood River, Illinois

Illinois EPA No. 1191150001

USEPA No: ILD980700967

RCRA Corrective Action Permit
BP Products North America/Main Plant

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SECTION I: GENERAL FACILITY DESCRIPTION

A. OWNER AND OPERATOR

The facility is owned and operated by BP Products, North America Inc., hereinafter referred to as the "Permittee" (35 IAC 702.121, 702.123 and 703.181).

BP Products North America, Inc.
301 Evans Avenue
Wood River, Illinois 62095

Facility Contact:
Michelle Knapp
Liability Manager
Remediation Management Services Company
An Affiliate of BP Products North America Inc.
847-346-7112
michelle.knapp@BP.com

B. LOCATION

1. Location of the facility:

   The BP Products North America, Inc. (formerly Amoco) Main Plant facility is located at 301 Evans Avenue, Wood River, Madison County, Illinois.

2. Definition of facility covered by this Permit:

   a. The boundary of the facility subject to this permit has been modified to reflect the previous corrective action and permit decisions made under the previous permit (Log No. B-147R). The original permitted facility (approximately 570 acres) was previously parceled to remove three specific portions of land, by parceling horizontally and vertically, as described below:

      1) A 9.56-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 418 feet above mean sea level (ft above MSL); this plane is located approximately 23 feet below ground surface (ft-bgs). The Property Index Number (PIN) for this parcel is 19-2-08-27-14-301-003. The PIN for the parcel directly beneath the 9.56-acre donated parcel is 19-2-08-27-301-004, which is still owned by the Permittee and included in the permitted facility boundary.

      2) A 7.5-acre donated parcel which extends from the ground surface vertically downward to a subsurface horizontal plane at an elevation of 428 ft above MSL; this plane is located approximately 15 ft-bgs. The PIN for this parcel is 19-2-08-27-10-101-002. The PIN for the parcel directly beneath the

parcel is 19-2-08-27-10-101-003, which is still owned by the Permittee and included in the permitted facility boundary.

3) An approximate 118.25-acre parcel purchased by Kinder Morgan Phoenix Holdings LLC (KMPH) which only extends from ground surface vertically downward to a subsurface horizontal plane at an elevation of 408 ft above MSL, which is located approximately 25 ft-bgs. The Property Index Numbers (PINs) for the 118.25-acre KMPH parcel are:

19-1-08-27-18-301-001.001
19-1-08-34-00-000-001.004
19-1-08-34-00-000-001.005
19-1-08-34-00-000-001.006
19-1-08-34-00-000-001.007

Note that the parcel of land which lies directly beneath each of the KMPH parcels is owned by the Permittee and is a part of the permitted facility.

b. The facility which is the subject of this permit, located between the ground surface and an elevation of 428 ft above MSL, is approximately 434.69 acres in size. This is a reduction of approximately 135.31 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) through (3).

c. The facility which is the subject of this permit, located between 418 ft above MSL and 428 ft above MSL, is approximately 442.19 acres in size. This is a reduction of approximately 7.5 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (2).

d. The facility which is the subject of this permit, located between 408 ft above MSL and 418 ft above MSL, is approximately 451.75 acres in size. This is a reduction of approximately 17.06 acres from the original BP Main Plant to remove the parcels described in Conditions I.B.2.a (1) and (2).

e. The facility which is the subject of this permit, located between 408 ft above MSL and below, is approximately 570 acres in size. This is identical to the original BP Main Plant boundary.

3. Facility Maps:

The general location of the facility is shown on Figure B-1, Attachment B of this permit. The location of the solid waste management units (SWMUs), product release sites (PRSs) and Land Reuse Areas are shown on Figure B-2, Attachment B of this permit. The facility layout map is shown on Figure B-3, Attachment B of this permit.

C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

1. There are no regulated hazardous waste management units (HWMUs) operating or requiring closure/post-closure care under this permit at this facility. Because no HWMUs remain at the site, several portions of 35 IAC Part 724 are not applicable to this permit. This includes the requirements for personnel training (35 IAC 724, Subpart B), preparedness and prevention (35 IAC 724, Subpart C) and contingency plan and emergency procedures (35 IAC 724, Subpart D). However, please note that through the application of other laws, regulations, and permit conditions, some of the concepts covered by these regulations may still apply to corrective action activities conducted at the site.

2. The Permittee currently proposes no corrective action activities that would subject the facility to a RCRA Remedial Action Plan Permit (RAPP). If plans change in the future such that one or more corrective action activities would subject the facility to a RCRA RAPP, the Permittee must submit a modification request to incorporate requirements for a RAPP into this permit in addition to the plans submitted as a part of a normal corrective action document, as well as certification in accordance with Section 39(i) of the Illinois Environmental Protection Act.

3. Requirements for HWMUs: NC-SP1 and SFP

   a. At the North Cell of Spray Pond 1 (NC-SP1) the closure-by-removal requirements of 35 IAC 703.159 have been met. This determination was made in the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) and was based upon the review of the October 17, 2007 "Supplemental Soil Investigation Report for the North Cell of Spray Pond 1" and the Illinois EPA's May 29, 2007 (Log No. B-147-M-7) letter to BP. This letter also required a Class 3 modification of the permit requesting that the NC-SP1 be removed as a regulated unit subject to the requirements of the permit. With the approval of this permit, this requirement has been considered to be met and accordingly, no further action is necessary for the NC-SP1.

   b. At the South Flare Pit (SFP), Condition 2 of the Illinois EPA's January 7, 2008 letter (Log No. B-147-CA-70) stated that the review of soil data contained in the October 17, 2007 "Supplemental Soil Investigation Report" determined that the closure-by-removal demonstration had been met for soil and no further action was needed for soil:

      (1) With the implementation of a Health and Safety Plan for Construction Workers in the area of the SFP shown within the hyphenated line by Attachment 1 of the January 7, 2008 letter;

      (2) With the eventual implementation of an Environmental Land use Control (ELUC) as required by Attachment C of the Illinois EPA's May 29, 2007 letter and the conditions set forth in the January 7, 2008 letter;

(3) Provided that groundwater issues for the SFP are addressed as outlined by Items 1 through 4 in Attachment C of the Illinois EPA's May 29, 2007 letter (Log No. B- 147-M-7 and B-147-M-1).

Condition II.F of this permit addresses the requirements of Conditions I.C.3.b (1) and (2) above, the remaining corrective action activities that need to be completed at the SFP. An ELUC must be established in accordance with the Conditions II.F of this permit renewal before a No Further Action (NFA) can be issued for the SFP. Condition II.C.5 below (Groundwater Requirements for the SFP) addresses the requirements associated with Item 3 above.

4. Groundwater Requirements for the SFP

a. The Illinois EPA approved the March 18, 2010 submittal for the SFP demonstration to exclude the groundwater ingestion exposure route for perched groundwater (locally encountered groundwater in surficial fill and fine-grained native materials (Cahokia Clay facies) at the former SFP area.

(1) As a result of the perched groundwater route being excluded, the Groundwater Detection Monitoring Program was removed with the issuance of the renewed RCRA Permit (Log No. B-147R).

(2) The facility must satisfy the requirement of Condition II.F.2 of this permit.

(3) The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

SECTION II: CORRECTIVE ACTION

A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 IAC 724.201, the Permittee shall institute such corrective action as necessary to protect human health and the environment from all releases of hazardous wastes or hazardous waste constituents, listed in 35 IAC 721, Appendix H, from any Solid Waste Management Unit (SWMU) at the BP Main Plant in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.

2. The original permit issued by the Illinois EPA for this facility on September 30, 1993 required that the facility conduct corrective action at twenty-one (21) SWMUs and nine (9) product release sites (PRSs) (locations where product was known to have been released or where product could have potentially been released). On June 21, 2002, the Illinois EPA approved a plan to expand the scope of this corrective action program to include all recognized environmental conditions (RECs) at the facility. To accomplish this, the facility was broken up into nineteen (19) investigation areas (Land Reuse Areas) so that corrective action at the facility could be addressed on an Area-by-Area basis.

3. One of the Land Reuse Areas (Area 18) contains two units that were identified and regulated as hazardous waste management units (HWMUs) in the permit issued to this facility on September 30, 1993. The facility has since accomplished closure by removal for these two units (referred to as the North Cell Spray Pond 1 (NC-SP1) and the South Flare Pit (SFP)). This section summarizes the status of these units relative to RCRA closure, RCRA post-closure and RCRA corrective action (it must be noted that HWMUs are a subset of SWMUs).

4. The facility has completed a substantial amount of corrective action efforts to date at this facility. This permit summarizes these efforts and describes the corrective action efforts which must still be completed at this facility to ensure the requirements of Section 3004(u) and (v) of RCRA and 35 IAC 724.201 are met.

5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility or any SWMUs found during the course of facility operations in the future.

6. As 35 IAC Part 742 was amended to include indoor inhalation exposure route, all SWMUs which obtained no further action for corrective action as listed in Condition II.B.1 must be re-evaluated for the indoor inhalation pathway and meet all updated remediation standards to meet the requirements of 35 IAC Part 742.

7. The Permittee must develop and implement a Corrective Measures Program (CMP), as necessary, to protect human health and the environment from any SWMUs and Areas of Concern (AOCs) at the facility.

8. The Permittee must carry out interim measures in accordance with the terms, conditions, and requirements of this permit to address existing contamination at the facility until such time as a final corrective measure can be developed and implemented.

9. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs and AOCs; and/or (2) future releases for existing SWMUs at the facility.

10. Investigation and remediation efforts carried out as part of the corrective action program implemented in accordance with this permit must meet the requirements of: (1) this permit, and the regulations cited herein; (2) the Illinois EPA and the USEPA guidance documents regarding such efforts; and (3) the Illinois EPA letters regarding such activities.

11. Unless there is a desire to modify specific requirements set forth in this Section, information submitted to Illinois EPA regarding the corrective action requirements set forth in this Section is not a request to modify this permit nor subject to the requirements of 35 IAC 703 Subpart G.

12. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act (Act).

13. All documents submitted to the Illinois EPA regarding corrective action efforts must be accompanied by a completed RCRA Corrective Action Certification Form (LPC 632). This form can be found on the Illinois EPA website.

14. The Illinois EPA may modify this Section when it determines good cause exists for modification of a compliance schedule, such as an act of nature, strike, flood or materials shortage or other Force Majeure or events over which the Permittee has no control and for which there is no reasonably available remedy.

15. Based on the results of the investigative efforts as required in corrective action, the Illinois EPA reserves the right to withdraw any "No Further Action" (NFA) determinations.

16. The Permittee shall incorporate, as necessary, climate change adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding integrating climate change adaptation considerations into the RCRA corrective action process.

B. CORRECTIVE ACTION REQUIREMENTS

A plan to conduct a Phase I RCRA Facility Investigation (RFI) of the twenty-one (21) SWMUs and nine (9) product release sites (PRSs) of concern as identified in the 1993 permit and listed below was approved by Illinois EPA on September 7, 1994; a report documenting the results of this investigation was approved by Illinois EPA on June 5, 2001. In 2016, as the approximate 118.25-acre KMPH parcel at and above 408 feet above mean sea level (ft above MSL), which contained of one of the PRSs (PRS 7), was removed from the facility subject to this permit, the number of PRSs requiring corrective action under this permit is now eight (8), while groundwater throughout the original permitted boundaries of the facility is still subject to corrective action. The requirements to addresses corrective action at these areas are included in Section II of this permit.

SWMU #	SMMU Description
8	Three Leaded Tank Bottom Disposal Area
9	Northeast Sand Pits
12	Southeast Disposal Area
13	API Separator Sludge Landform
14	North Cell/Spray Pond 1
15	Spray Ponds Other Than North Cell/Spray Pond 1
16	Old API Separator
17	Additive Waste Pit
18	DAP Spent Filter Cake Storage Area
21	Former APAC Waste Transfer Area
22	New APAC Waste Transfer Area
23	MAP Spent Filter Cake Storage Area
24	APAC Slop Oil Tank 70
25	APAC Slop Oil Tank 176
26	APAC Slop Oil Tanks 189, 190, 845, and 846
27	APAC Slop Oil Tank 277 Area
30	Korea Tank Form Disposal Area
31	Waste Phenol Accumulation Area
33	South Flare Pit
34	Amoco's Sewer System
36	Liquid Waste Collection Bin

PRS #	PRS Description
1	Former Tank 228 Dike Area
2	Former Tank 256 Dike Area
3	Waste Oil Leak Area
4	Hydrocarbons on Water Table
5	North Tank Farm
6	East Tank Farm
8	Korea Tank Farm
9	Gasoline Piping Manifold

1. A Phase II RFI workplan for the SWMUs and PRSs mentioned above was approved by Illinois EPA on February 5, 2002 that was subsequently modified on June 21, 2002. The February 5, 2002 approval letter expanded the scope of corrective action at this facility to all recognized environmental conditions (not just the SWMUs and PRSs identified in the original 1993 permit) and divided the facility into nineteen (19) Land Reuse Areas for remediation and potential redevelopment. A map of the BP Main Plant Land Reuse Areas is presented in Attachment A-1 to this section; these areas are also identified as follows:

Land Reuse Area No.	Name
Area 1	Northwest Corner
Area 2	Northeast Corner
Area 3	North Central Area
Area 4	Former Rail Yard
Area 5	South Central Area
Area 6	Former APAC Area
Area 7	Former Alkyl Plant
Area 8	North Tank Farm
Area 9	Korea Tank Farm
Area 10	East Tank Farm
Area 11	Spray Pond Area (Ponds 1 & 2 and Intake Channel Areas)
Area 12	South Tank Farm
Area 13	Wildlife Enhancement Area
Area 14	Southeast Corner
Area 15	Administration Building
Area 16	Marketing Operations Area
Area 17	Liquid Propane Gas (LPG) Caverns
Area 18	North Cell Spray Pond 1 and South Flare Pit
Area 19	Spray Pond 3

2. Condition II.C.1 below includes the facility's corrective action efforts that have been completed, updated to June 2024. Condition II.D below includes the required corrective action that still must be completed at the facility.

3. All investigation efforts conducted at each Land Reuse Area must be sufficient as to thoroughly characterize contamination associated with all the identified recognized environmental conditions present in the area. The Land Reuse Area investigations will focus on soil and perched groundwater.

4. Conduct additional investigation and remediation, as necessary, to address any on-site and/or off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility.

5. All plans and reports associated with all aspects of corrective action at this facility should be submitted to the Illinois EPA for review and approval before implemented. A summary of the plans/reports submitted to date regarding corrective action at this facility, organized by the Illinois EPA log number (and thus the chronologic order in

which the plans/reports were submitted) is provided in Attachment C; this attachment also identifies the Illinois EPA's final action on each submittal.

6. The requirements of 35 IAC Parts 620 and 742 must be met, when applicable, in establishing remediation objectives for corrective action. In addition, all corrective action efforts must meet the requirements of 35 IAC 724.201.

7. Components of the corrective action program must include:

   a. Continued groundwater monitoring and corrective action program in accordance with the conditions in Section III of this permit.

   b. Continued operation of the bioremediation systems and remediation of hydrocarbon in accordance with Condition II.E and as approved in Illinois EPA letters.

   c. Continued submittal of Corrective Action Progress Reports in accordance with Condition II.L.1 of this permit.

   d. Continued implementation of ELUC – Condition II.C of this permit.

8. The Permittee plans to complete corrective action for the soil and perched groundwater at the facility through the land reuse investigation remediation process. The goal in following this process is to obtain a NFA determination for a given Land Reuse Area by addressing recognized environmental conditions in that area. If the Permittee determines that redevelopment is not likely to occur in a given area, the Permittee will follow the corrective action process only for the SWMUs and PRSs in that area. If the potential for redevelopment of the Land Reuse Area becomes viable in the future, the Permittee would pursue an NFA determination for the entire area (including RECs) at that time. The general process for investigation and remediation of each Land Reuse Area is as follows:

   a. Current conditions will be established for the parcel/area.

   b. An Investigation Workplan incorporating the current conditions will be developed and submitted to the Illinois EPA for review and approval to investigate data gaps required to properly characterize the area (this submittal is referred to as the Current Conditions Report/Investigation Workplan).

   c. The investigation, focused on obtaining soil and any perched groundwater data, will be completed. It must be noted that the groundwater within the uppermost aquifer beneath the facility is being addressed by the requirements of Section III of this permit.

   d. The results of the investigation will be analyzed; as well as all other data remediation objectives will be developed in accordance with 35 IAC Part 742; a comparison will be made between the data to the developed remediation

objectives; and a determination will be made regarding the need for any remedial activities (including the establishment of engineered barriers and institutional controls).

e. A report documenting the results of the efforts described in Conditions II.B.9.c and d above will be submitted to the Illinois EPA for review and approval (this report is referred to as the Investigation Report). This report will also identify any required remedial activities (including establishment of any required engineered barriers and/or institutional controls) needed to achieve the proposed remediation objectives.

f. Based upon review of the Investigation Report, the Illinois EPA will either:

(1) require that additional investigative efforts be conducted;

(2) issue a draft NFA letter for soil and perched groundwater (if applicable). This draft NFA will identify any required remedial activities (including establishment of an engineered barrier or institutional control) that must be completed before a final NFA letter can be issued. As necessary, the Permittee will conduct the required remedial activities and submit a report to the Illinois EPA for review and approval documenting the results of these activities. Additional work must be conducted by the Permittee as necessary in accordance with plans and reports approved by the Illinois EPA, until the Illinois EPA determines that a final NFA letter can be issued.

(3) issue a final NFA letter for soil and perched groundwater (if applicable); or

(4) require some combination of the above efforts.

g. Any engineered barriers and/or institutional controls required in the development of remediation objectives must be established before a final NFA letter can be issued. Plans for establishing the required engineered barrier, if necessary, and associated institutional control(s) required must be submitted to the Illinois EPA for review and approval as well as reports documenting completion of these efforts. Any other proposed remedial efforts to achieve the established remediation objectives must also be completed before a final NFA letter can be issued.

h. Development of the area may proceed so as long as such activities are conducted, meeting all the requirements and conditions of the NFA letter and any applicable conditions of this permit.

C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED

1. The status of investigations and corrective action for each Land Reuse Area as of September 2024, is presented on the table below.

Notes: CCR/IW = Current Conditions Report/Investigation Work Plan
Inv Report = Investigation Report
ELUC = Environmental Land Use Control
APAC = Amoco Petroleum Additives Company
NFA = No further Action
IEPA = Illinois EPA

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 1-Northwest Corner	PRS 5 – North Tank Farm	NFA for soils approved December 5, 2001. Recorded ELUC approved March 25, 2005.	Comply with conditions of NFA and ELUC.
Area 2-Northeast Corner	PRS 1 – Former Tank 228 Dike Area PRS 5 – North Tank Farm PRS 6 – East Tank Farm SWMU 9 – Northeast Sand Pit	NFA for soils approved August 13, 2002. Recorded ELUC approved March 29, 2005. Revised recorded ELUC approved February 27, 2012. A revised recorded ELUC approved August 9, 2017.	Comply with conditions of NFA and ELUC. The Permittee retains ownership and responsibility for RCRA corrective action activities associated groundwater in the vicinity of two parcels removed from the facility as described in Conditions II.C.5 (a) and (b) below.
Area 3-North Central Area	SWMU 24 – APAC Slop Oil Tank 70 SWMU 26 – APAC Slop Oil Tanks 189, 190, 845, 846	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised Inv. Report submitted May 8, 2012. IEPA requested that the Permittee withdraw the 2012 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 4-Former Rail Yard	SWMU 13 – Separator Sludge Landfarm SWMU 21 – Former APAC Waste Transfer Area	NFA for soils approved August 22, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC. * See Notes below.
Area 5-South Central Area	SWMU 27 – APAC Slop Oil Tank 177 Area PRS 3 – Waste Oil Leak Area	CCR/IW approved September 27, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA February 12, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 6-Former APAC Area	SWMU 17 - Additives Waste Pit SWMU 18 - Detergent Additives Plant (DAP) Spent Filter Cake Storage Area SWMU 22 – New APAC Waste Transfer Area SWMU 23 – Multipurpose Additives Plant (MAP) Spent Filter Cake Storage Area SWMU 31 – Waste Phenol Accumulation Area SWMU 36 – Liquid Waste Collection Bin	CCR/IW approved September 5, 2002. Inv. Report submitted December 22, 2006; revised report received by IEPA March 16, 2012. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 7-Former Alkyl Plant	PRS 5 – North Tank Farm	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008 to IEPA. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 8-North Tank Farm	PRS 2 – Former Tank 246 Dike Area PRS 5 – North Tank Farm SWMU 8 – Bottom Disposal Areas SWMU 25 – APAC Slop Oil Tank 189	CCR/IW approved August 7, 2003. Inv. Report submitted June 2, 2008. IEPA requested that the Permittee withdraw the 2011 Inv Report in a letter dated May 30, 2019. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 9-Korea Tank Farm	SWMU 30 – Korea Tank Farm Disposal Area PRS 8 – Korea Tank Farm	CCR/IW approved September 9, 2002. Inv. Report submitted May 9, 2008; revised report received by IEPA on December 15, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.
Area 10-East Tank Farm	PRS 6 – East Tank Farm	CCR approved June 4, 2003. Inv. Report submitted March 21, 2008; revised Inv. Report received by IEPA on May 5, 2011. IEPA requested that the Permittee withdraw the 2011 Inv. Report in a letter dated May 30, 2019. Revised Inv. Report submitted December 20, 2019, superseding 2011 Inv. Report.	Revised Inv. Report pending IEPA review. * See Notes below.
Area 11-Spray Pond Area (Ponds 1 and 2	SWMU 15 – Spray Ponds Other than	RFI Phase I report for SWMUs in this area approved June 5, 2001.	The Permittee implementing approved CCR/IW.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
and Intake Channel Areas)	NC-SP1 / Spray Pond 1	CCR/IW approved by IEPA January 24, 2012.	* See Notes below.
Area 12-South Tank Farm	PRS 7 – South Tank Farm SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in this area approved June 5, 2001. IEPA notified of the Ownership Transfer of the Permittee to Kinder Morgan Phoenix Holdings LLC (KMPH) on November 2, 2015.	KMPH is responsible for RCRA corrective action activities at and above elevation 408 ft above MSL in Area 12. The Permittee retains ownership and responsibility for RCRA corrective action activities below elevation 408 ft above MSL.
Area 13-Wildlife Enhancement Area	SWMU 12 – Southeast Disposal Area	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved by IEPA on October 26,2011. Further revised Investigation Report submitted March 12, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 14-Southeast Corner	None	RFI Phase I report for SWMUs in area approved June 5, 2001. CCR/IW approved July 12, 2012. Environmental data collected in 2017-2019 submitted March 8, 2024.	March 2024 submittal under IEPA review.
Area 15-Administration Building	None	NFA for soils approved November 19, 2003. Recorded ELUC approved September 29, 2005.	Comply with conditions of NFA and ELUC.
Area 16-Marketing Operations Area	SWMU 16 – Old American Petroleum Institute (API) Separator SWMU 34 – Amoco's Sewer System	CCR/IW approved May 5, 2009. Inv. Report submitted December 23, 2014 and received by IEPA on December 24, 2014. IEPA requested a revised Inv. Report in a letter dated June 14, 2016. Additional environmental data collected in 2018-2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA.

Land Reuse Area	SWMUs/PRSs contained in Areas	Accomplishments as of Date	Current Status
Area 17-LPG Caverns	None	CCR/IW approved May 5, 2009. Inv. Report submitted October 22, 2012. IEPA requested that the Permittee withdraw the 2012 Inv. Report in a letter dated May 30, 2019. Additional environmental data collected in 2019 submitted March 8, 2024.	The Permittee to submit revised Inv. Report pending further discussion with IEPA. * See Notes below.
Area 18-North Cell Spray Pond 1 (NC-SP1) and South Flare Pit (SFP)	SWMU 14 – NC-SP1 SWMU 33 – SFP	On January 7, 2008, Illinois EPA approved closure by removal demonstration for the NC-SP1. IEPA has determined that the facility has satisfied the groundwater requirements of IEPA's May 29, 2007 and September 9, 2008 letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. A closure by removal demonstration for the soils at the SFP was approved by IEPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the unit. Recorded ELUC approved July 18, 2016.	NFA at NC-SP1. Regarding the SFP. The Permittee must continue to address groundwater of the uppermost aquifer in accordance with the RCRA Permit. The Permittee must also comply with conditions of the ELUC.
Area 19 Spray Pond 3	SWMU 15 – Spray Ponds Other than NC-SP1 / Spray Pond 1	IEPA approved Inv. Report on December 6, 2007; IEPA revised this letter on April 13, 2009. This letter determined that no further action required in area provided certain requirements are met and certain restrictions are placed on future activities in the area.	The Permittee must carry out requirements set forth in IEPA's April 13, 2009 letter. * See Notes below.

*Notes: In accordance with the KMPH RCRA Permit issued March 4, 2024, small portions of the following Land Reuse Areas were included in the transfer of ownership to KMPH: 4, 5, 10, 11, 13, 17

and 19. The Permittee retains ownership and responsibility for RCRA corrective action activities at and below elevation 408 ft above MSL.

2. As provided by 35 IAC 742.1000(a), an institutional control satisfactory to the Illinois EPA must be established for property or media that have been remediated to any acceptable standard identified in 35 IAC Part 742 other than those for a residential use. As of September 2024, the Permittee has completed the required environmental investigation and remedial activities associated with the corrective action for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 identified in Condition II.C.3. As discussed in Condition II.C.3, No Further Action (NFA) determinations for soil and perched groundwater at Land Reuse Areas 1, 2, 4, and 15 have been made by Illinois EPA..

3. As of September 2024, the Permittee has obtained NFA for the specific media at the following parcels and SWMUs:

Land Reuse Area/ SWMUs Present in Area	**NFA and Media**
Area 1	NFA letter for soil and groundwater ingestion route for perched-groundwater only was issued on December 5, 2001 (Log No. B-147-CA-11). ELUC was established for Area 1 (see Conditions II.C.4 and 6 below).
Area 2	NFA letter for soil only was issued on August 13, 2002 (Log No. B-147-CA-14). ELUC was established for Area 2 (see Conditions II.C.4 and 6 below). No perched groundwater was encountered during the investigation.
Area 4	NFA letter for soil only was issued on August 22, 2003 (Log No. B-147-CA-30). Exclusion of groundwater ingestion exposure route for perched-groundwater in this parcel was approved on August 22, 2003 (B-147-CA-30). ELUC was established for Area 4 (Conditions II.C.4 and 6 below).
Area 15	NFA letter for soil only was issued on November 19, 2003 (Log No. B-147-CA-31,36 & 37). ELUC was established for Area 15 (see Conditions II.C.4 and 6 below).

4. As of September 2024, the following Environmental Land Use Control (ELUC) has been established following the NFA determinations by Illinois EPA and recorded with the Madison County Recorder's Office as shown in the table below.

ELUC Recorded as Part of RFI for BP Main Plant

Area Name	Size (Acres)	Parcel ID for Site	Date of NFA Letter	County Recorder's No. /Date Recorded	PIN/TAX ID
Area 1	6.3	Northwest Parcel	December 5, 2001	2003R05241/ January 23, 2003	19-1-08-28-12-201-001.001
Area 2	43	Police Station Donation Parcel & BP retained Parcel	August 13, 2002	2003R08605/ February 5, 2003	19-2-08-27-14-301-003;19-2-08-27-301-004; 19-2-08-27-10-101-002; 19-2-08-27-10-101-003.
Area 4	29.44	Former Rail Yard	August 22, 2003	2005R38583/ July 13, 2005	19-1-08-28-00-000-010; 19-1-08-33-00-000-013;19-1-08-34-00-000-001; 19-1-08-34-00-000-001.001
Area 15	11.73	Administration Building Parcel	November 19, 2003	2004R59615/ October 1, 2004	19-1-08-28-00-000-010.001

5. Three parcels have been removed from the original definition of the facility that are subject to corrective action under this permit as described below:

a. BP donated a 9.56-acre parcel in Area 2 to the City of Wood River. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 23 ft-bgs at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-14-301-003. BP retained ownership of that portion of the 9.56- acre parcel which extends below a horizontal plane at an elevation of 418 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-301-004.

(1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on February 5, 2003, one for the parcel being donated to the City of Wood River and one for that portion of Area 2 being retained by BP.

(2) The Illinois EPA approved a draft ELUC for the 9.56-acre donation parcel on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. R2011R45888. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R0865 filed with the Madison County Recorder on February 5, 2003.

(3) The Illinois EPA approved a draft ELUC for the remainder of Area 2

being retained by BP on November 3, 2011 (Log No. B-147R-CA-12) and this document was filed with the Madison County Recorder's office on December 7, 2011 as Document No. 2011R45887. This ELUC contained the same restrictions on this parcel as was in the original ELUC for Area 2 (Document No. 2003R08605 filed with the Madison County Recorder on February 5, 2003) and superseded the original ELUC for Area 2.

(4) The Illinois EPA issued a modified permit for this facility on December 21, 2012 which allowed the 9.56-acre donation parcel (Parcel Index No. 19-2-08-27-14-301-003) to be removed from the defined facility covered by this permit. The basis for this modification was that: (1) a NFA was issued for soils in Area 2 by Illinois EPA on August 3, 2002 (which would include the 9.56-acre donation parcel), subject to certain restrictions being in place on future activities in Area 2; and (2) an ELUC specific to this parcel was in place which restricted future activities in the donation parcel as required by the NFA Letter for Area 2.

b. BP donated a 7.5-acre parcel within Area 2 to the City of Wood River for the construction of a new police station. This parcel received a NFA for soils only and extends from the ground surface to a horizontal plane approximately 15 ft-bgs at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this parcel of land is 19-2-08-27-10-101-002. BP is retaining ownership of that portion of the 7.5-acre parcel which extends below a horizontal plane at an elevation of 428 ft above MSL. The Parcel Index No. assigned to this latter parcel of land is 19-2-08-27-10-101-003.

(1) As a result of this action, BP established two new ELUCs to supersede the one filed for Area 2 on December 7, 2011, one for the parcel being donated to the City and one for that portion of Area 2 being retained by BP.

(2) Due to the amendments made in 35 IAC Part 742 associated with indoor air inhalation exposure route these requirements must be addressed. Thus, BP must conduct an investigation to demonstrate that the soils present in this second donation parcel met remediation objectives for the indoor air inhalation exposure route before it was removed from the defined facility covered by this RCRA permit in accordance with plans approved by Illinois EPA.

(3) The Illinois EPA issued a NFA letter on August 22, 2016 regarding the indoor air inhalation exposure route for the second donation parcel. This NFA determination was based in part on the establishment of an ELUC which would place certain restrictions on future activities within this parcel.

(4) The Illinois approved a draft ELUC for the 7.5-acre donation parcel on May 4, 2017 (Log No. B-147R-CA-78) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. 201718528. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above in addition to restrictions required by Illinois EPA's August 22, 2016 letter discussed in Condition II.C.5.b (3) above.

(5) The Illinois EPA approved a draft ELUC for the remainder of Area 2 being retained by BP on May 4, 2017 (Log No. B-147R-CA-77) and this document was filed with the Madison County Recorder's office on June 5, 2017 as Document No. R201718529. This ELUC contained the same restrictions on this parcel as was in the revised ELUC for Area 2 as identified in Condition II.C.5.a (3) above and also superseded this latter ELUC.

(6) This modified permit (Log No. B-147R-M-16 and any future modifications) allows the subject 7.5-acre donation parcel (Parcel Index No. 19-2-08-27-104-101-002) to be removed from the defined facility covered by this RCRA permit. The basis for this modification is that: (1) NFA Letters were issued for soils in this parcel by Illinois EPA on August 13, 2002 and August 22, 2016, subject to certain restrictions being in place on future activities in the parcel; and (2) an ELUC specific to this parcel is in place which restricted future activities in the donation parcel as required by these NFA letters.

c. An approximate 118.25-acre three-dimensional parcel at elevation of 408 ft above MSL is not part of the facility. This parcel has already been issued a RCRA Corrective Action Permit (Log No. B-214) to KM Phoenix Holdings LLC (KMPH). The area below elevation of 408 ft above MSL remains part of the facility and is subject to BP Main Plant's RCRA permit.

(1) KMPH is responsible for RCRA Corrective action activities at and above elevation of 408 ft above MSL at the former BP Wood River Terminal (South Tank Farm), Land Reuse Area 12, and those portions of the following areas that were included in the purchase: 4, 5, 10, 11, 13, 17 and 19.

(2) The Permittee retains ownership and responsibility for RCRA Corrective Action activities below elevation of 408 ft-MSL.

(3) The Permittee and KMPH recognize that the post-closure conditions, operations or other activities at the property acquired by KMPH or its successor could impact property owned and/or operated by BP or its successors. The parties also acknowledge that post-closure conditions, operations, and activates at the property retained by the BP, or its

successors could impact property owned and/or operated by KMPH or its successors.

(4) In the event that post-closure activities at the property acquired by KMPH impact (if determined to be the result of KMPH's activities) the underlying and/or adjacent property owned by the Permittee, KMPH will be responsible for the environmental impacts and corrective action activities that result.

(5) In the event that post-closure activities at the property retained by the Permittee impact the overlying and/or adjacent property owned by KMPH, the Permittee will be responsible (if determined to be the result of the Permittee's activities) for the environmental impacts and corrective action activities that result.

6. In general, the ELUCs identified place the following restriction on Land Reuse Areas 1, 2, 4 and 15:

a. No groundwater beneath the areas, including perched groundwater, may be used as a potable supply of water.

b. Contaminated groundwater and/or soil that is removed, excavated, or disturbed from the areas must be handled in accordance with all applicable laws and regulations.

c. The areas may not be used for residential purposes and may only be used solely and exclusively as "industrial/commercial property" as that term is defined in 35 IAC Part 742.

d. Excavation and subsurface construction work in the Land Reuse Areas must be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soil and impacted perched groundwater in the area. All construction workers shall be equipped with appropriate personal protective equipment as required and specified in the site health and safety plan.

e. The soil within each area is to remain in place, except where necessary to remove it for construction purposes.

f. A detailed process must be followed in the management on any soil excavated during construction/demolition/excavation efforts in the areas. This process allows the excavated soil to be placed elsewhere at the BP facility provided certain requirements are met.

g. Requires maintenance of engineered barriers over certain portions of each area as follows:

Land Reuse Areas	Number of Subareas Requiring an Engineered Barrier
Area 1	2
Area 2	2
Area 4	3
Area 15	4

h. Prior to commencement of any future excavation and/or construction in or near the sub-areas covered by an engineered barrier, a safety plan for that sub-area is required that is consistent with NIOSH Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities; OSHA regulations, particularly in 29 CFR 1910 and 1926; state and local regulations, and other USEPA guidance as available. At a minimum, the plan should address possible worker exposure to contaminated soil which may be present in the sub-area. Any contaminated soil removed, or excavated from, or disturbed in the sub-areas where any engineered barrier is present must be handled in accordance with all applicable laws and regulations.

i. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA's NFA determination in accordance with the program under which the determination was made. The failure to comply with the limitations or requirements of an ELUC may also be grounds for an enforcement action pursuant to Title VIII of the Act.

j. The limitations or requirements of an ELUC apply in perpetuity or until:

(1) The Illinois EPA issues a new NFA determination approving modification or removal of the limitation/requirement; and

(2) A release or modification of the land use limitation is filed on the chain of title for the property that is the subject of the ELUC.

k. At no time shall this site be used in a manner inconsistent with the land use limitations established in an approved ELUC, unless: (1) attainment of objectives appropriate for the new land use is achieved; and (2) a new NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 IAC Part 742.

(1) Requests to release or modify an ELUC must be formally requested in writing from Illinois EPA as a: (1) request to amend the certification of closure; or (2) a permit modification request. Sufficient information must be provided in these requests to demonstrate that the requested change meets all the requirements of 35 IAC Part 742.

(2) Any final approval by Illinois EPA of a request to release or modify an ELUC must be filed with the chain of title for the subject facility.

D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

1. The Permittee must meet the applicable indoor inhalation remediation objectives both on-site and the impacted off-site properties in accordance with 35 IAC Part 742.

   a. The Permittee must continue to address the primary objectives set forth in these documents entitled, "Revised Indoor Inhalation Exposure Route Evaluation and Work Plan" dated August 28, 2019 (Log No. B-147R-CA-96) and received by Illinois EPA on August 29, 2019; "Action Plan For Potential Man-Made Pathway Evaluation" dated November 25, 2019 (Log No. B-147R-CA-98) and received by Illinois EPA on November 26, 2019; "Soil Gas Pathway Evaluation Report" dated June 7, 2021 (Log No. B-147R-CA-111) and received by Illinois EPA on June 8, 2021; "Additional Info to the Revised Indoor Inhalation Exposure Route Eval And Work Plan Dated August 29, 2019 To Provide An Update on Changed Site Conditions" dated April 12,2024 (Log No. B-147R-CA-126) and received by Illinois EPA on April 16, 2024. Note, these documents are currently under review by the Illinois EPA.

   b. Additional evaluation for the indoor inhalation exposure route requirements must be met for all SWMUs and PRSs listed in Condition IV.B.1.

2. The Permittee is required to continue addressing the key objectives in these documents entitled, "Main Plant Area 10 Comprehensive Land Reuse Investigation Report" dated December 20, 2019 (Log No. B-147R-CA-99) and received by Illinois EPA on December 30, 2019; "Main Plant Land Reuse Investigation Data Submittal of General Background, Sampling Methods, Analytical Procedures, and Analytical Results for Areas" dated March 8, 2024 (Log No. B-147R-CA-125) and received by March 12, 2024. Note, these documents are currently under review by the Illinois EPA.

3. Additional corrective action activities must be carried out and additional information must be submitted to Illinois EPA, as necessary, to ensure all SWMUs and PRSs are properly remediated.

4. The requirements in Condition II.E and Section III of this permit must be met to address remediation of groundwater and hydrocarbon and refinery products.

E. REMEDIATION OF HYDROCARBON AND REFINERY PRODUCTS

Implementation of the bioremediation systems for impacted groundwater, treatment and reduction of free phase and residual product, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

1. Prior to the issuance of the permit issued May 29, 2018 (Log No. B-147R-M-17 and M-18), the Permittee had operated a Hydrocarbon Recovery System (HRS) to remove refinery product from above the water table. The HRS at the Former Wood River Main Plant was commissioned as an interim remedial measure (IRM) in 1993 to hydraulically recover subsurface mobile light non-aqueous phase liquids (LNAPL) from above the

water table. The original system included twenty-one (21) HRS extraction wells. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS extraction wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness.

2. During 2016 and 2017, in an effort to provide an interim measure and to conduct an evaluation of bioremediation technologies, the Permittee proposed to replace the above-mentioned original HRS with alternative remedial system(s). The Permittee installed and started to operate the following three different hydrocarbon bioremediation systems in the northern and central part of the BP Main Plant on a pilot scale:

   a. Biovent System (in the mid-section of Area 3); the Biovent System is designed to inject air into the vadose zone to provide oxygen and enhance in-situ aerobic bioremediation of hydrocarbons and refinery product at and above the water table as detailed in Attachment E;

   b. Biosparge System (mainly in the eastern portion of Land Reuse Area 5 extending to portions of Land Reuse Areas 6 and 10); the Biosparge System is designed to inject air below the water table to provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in groundwater and the smear zone, as well as allow for biodegradation of volatilized hydrocarbons and residual product as it contributes to dissolved phase impacts in the vadose zone as detailed in Attachment E;

   c. Air Sparge/Soil Vapor Extraction (AS/SVE) (in the northeastern corner of Area 8); Air Sparging is designed to inject air below the water table to volatilize hydrocarbons from groundwater and the smear zone and provide oxygen for enhancing aerobic bioremediation of hydrocarbons and refinery product in the saturated zone. Soil Vapor Extraction is designed to recover volatilized hydrocarbons as necessary for ex-situ treatment, and to promote the flow of atmospheric air into the vadose zone to enhance aerobic bioremediation above the water table. This system is detailed in Attachment E;

   The locations of the three pilot remediation systems within the facility are shown in Figure E-1 of Attachment E.

3. The facility shut down the above-mentioned HRS in Condition II.E.1 above under the Temporary Authorization issued by Illinois EPA (effective date of December 5, 2017) provided the facility collected data as required, and submitted: (1) a Pilot-Scale Bioremediation System Performance Report for the pilot-scale tests identified in Condition II.E.1 above; and (2) a workplan for developing a site-wide hydrocarbon recovery/remediation system to address the hydrocarbon contamination in the groundwater and the smear zone above the facility's remedial objectives as defined in the workplan and applicable regulations, as approved by Illinois EPA. The workplan was required to provide a conceptual plan to implement the hydrocarbon recovery/remediation systems for the entire facility in the groundwater and smear zone

as well as an outline of the next steps in full-scale implementation of the hydrocarbon remedial systems. A report entitled, "Remedial Action Selection Report and Main Plant Remedy Roadmap" was received January 31, 2022, to meet this requirement. The document is currently under review by the Illinois EPA.

4. The Permittee shall operate, expand and use the pilot-scale Bioremediation Systems and technologies in order to remediate hydrocarbons and refinery product from the smear zone and vadose zone as it contributes to dissolved phase impacts. The number and location of Bioremediation Systems and Bioremediation wells, as detailed in Attachment E, can be modified to maintain or enhance remediation of hydrocarbons and refinery product. As the Permittee has continued to successfully operate these systems, activities associated with these systems shall be summarized in the Corrective Action Progress Reports required by Condition II.L.1.

5. As an interim remedial measure to address recoverable refinery product prior to the implementation of the Main Plant Remediation Plan, the Permittee shall perform interim removal action(s);

   a. Interim Removal Actions Shall occur when the 30-Day Average Mississippi River Stage as Calculated based on the Alton Dam Tailwater River stage is below 410 ft above MSL.

   b. Recoverable refinery product requiring interim removal shall be considered the product from those wells where most recent recoverability testing results indicate a product transmissivity of 2.0 ft^2/day or greater:

      (1) The refinery product recoverability shall be determined through product baildown testing or product skimming testing in accordance with applicable ASTM standards, and the data utilized to calculate product transmissivity using the Bouwer and Rice method (ASTM E2856-13 or most current method);

      (2) Re-evaluation of wells exhibiting most recent transmissivity testing results above 2.0 ft^2/day and thicknesses equal to or greater than 0.5 feet will be conducted a minimum of once per year during seasonal low water table conditions;

      (3) Refinery product exhibiting transmissivity values below 2.0 ft^2/day will be addressed as part of the final remedy;

   c. Interim removal actions must include one of the following (for wells above 2.0 ft^2/day):

      (1) Mobile LNAPL recovery system;

(2) Manual bailing and pumping; or

(3) Expansion of a pilot-scale bioremediation technology (i.e., AS/SVE, bioventing, or biosparging) into the area.

d. Interim remedial performance data will be used to re-evaluate LNAPL transmissivity over time.

F. RCRA CLOSURE, RCRA POST-CLOSURE AND RCRA CORRECTIVE ACTION STATUS OF THE NORTH CELL SPRAY POND 1 AND THE SOUTH FLARE PIT

Summary of completed at

ll Spray Pond 1 (NC-SP1) and South Flare Pit (SFP) were regulated
ıe permit issued to this facility on September 30, 1993. Since that time,
ıroviding post-closure care of these two HWMUs in accordance with the
of that permit. BP began pursuing a closure-by-removal demonstration
1 in 2002 and the SFP in 2005.

egard to the NC-SP1, on January 7, 2008, Illinois EPA approved a closure-by-removal demonstration. Based upon this approval, no further action is necessary at NC-SP1 in regards to RCRA closure, RCRA post-closure or RCRA corrective action.

b. With regard to the SFP:

(1) The Illinois EPA has determined that the facility has satisfied the groundwater requirements of Illinois EPA's May 29, 2007 (Log Nos. B-147-M-7 and M-13) and September 9, 2008 (Log No. PS08-030) letters. Based upon 35 IAC 742.925, the groundwater ingestion route for perched groundwater can be excluded at the SFP area. The facility must continue to address groundwater of the uppermost aquifer in accordance with Section III of this permit.

(2) A closure-by-removal demonstration for the soils at the SFP, was approved by the Illinois EPA on January 7, 2008 subject to the establishment of an ELUC meeting the requirements of 35 IAC Part 742 which places certain restriction on future activities at the HWMU. The requirements regarding the restrictions that must be contained in the ELUC are set forth in Condition II.F.2.

2. The ELUC to be established for the SFP must place the following restrictions, at a
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ding th e property shall
e suppl d groundwater
ved, ex roperty shall be
with al ;

b. The property shall not be used for residential use. The property shall be used solely and exclusively for "industrial/commercial property" use as it is defined in 35 IAC Part 742;

c. Any excavation and subsurface construction work on the property shall be conducted in accordance with a site health and safety plan designed to restrict direct worker exposure to impacted soils and impacted perched groundwater on the property, and all the construction workers shall be equipped with appropriate personal protective equipment as required and specified by the site health and safety plan;

d. The soil within the property shall remain in place, except where necessary to remove it for construction activities;

e. Soil excavated during construction/demolition/excavation activities within the Property shall be evaluated to determine if it is contaminated. This determination shall be made by a visual inspection and by subjecting the soils to field screening tests for volatile organic compounds (VOCs). The soil evaluation and management procedures shall be as follows:

(1) Field Screening. Soil shall be considered "potentially contaminated" if: (1) there is a visual discoloring of the soil indicative of hydrocarbon product; or (2) a field screening test for VOCs detects the presence (i.e., PID readings >100 units) of VOCs in soil;

(2) Laboratory Analysis. Soils exhibiting potential contamination based on visual discoloring or a field screening test for VOCs will must be sampled for benzene, toluene, ethylbenzene, and xylenes (BTEX) and polycyclic aromatic hydrocarbons (PAHs) laboratory analysis, or considered contaminated without analytical testing.

(3) Determination of Non-Contaminated Soils. Soils will be considered non-contaminated if: (1) laboratory analytical data indicates constituents in soil are less than the Illinois EPA approved site-specific industrial/commercial remediation objectives (ROs) developed for the Property; or (2) visual inspection or field screening indicates soils are below the threshold levels given in II.F.2.e.1 above.

(4) Management of Non-Contaminated Soils. Soils that are considered not contaminated, as determined by field screening or laboratory results, may be reused as clean fill in other areas of the former BP Main Plant Facility. Soils may be transported off-site as clean fill if laboratory data indicates constituents are less than TACO residential standards.

(5) Management of Contaminated Soils. If soils are found to be contaminated, they shall be sent off-site for disposal in accordance with 35 IAC Subtitle G: Waste Disposal.

(6) Documentation. All of these activities must be documented in the facility's operating records.

G. LAND REUSE PROCESS FOR AREAS 1 THROUGH 19

The purpose of the Land Reuse process is to allow for a potential redevelopment for each Land Reuse Area when proposed by the Permittee and approved by the Illinois EPA at the facility.

1. A NFA determination may be made for a Land Reuse Area and approved by the Illinois EPA in order to remove the Land Reuse Area from the definition of the facility subject to this permit for redevelopment by following the process described below:

   a. Assess and document the current conditions of the Land Reuse Area in the Current Conditions Report (CCR);

   b. Develop a Land Reuse Work Plan to investigate and address any data gaps necessary for a proper characterization of the Land Reuse Area;

   c. Conduct an investigation to collect soil and perched groundwater data for the Land Reuse Area;

   d. Analyze the collected data and perform a comprehensive risk assessment, as necessary;

   e. Identify the necessary remedial actions and institutional controls and incorporate them into the Land Reuse Investigation Report;

   f. Obtain a conditional NFA determination from the Illinois EPA for soil, perched groundwater and groundwater upon the Illinois EPA review and approval of the Land Reuse Investigation Report;

   g. Submit a draft ELUC for the Illinois EPA's review and approval;

   h. Upon the Illinois EPA's approval of a draft ELUC, record the ELUC on the property deed for the Land Reuse Area and submit a certified copy of the recorded ELUC to the Illinois EPA's review and approval;

   i. Upon the Illinois EPA's approval of a certified ELUC, proceed with the development of the Land Reuse Area, which fully complies with the conditions of the Illinois EPA's approval letters regarding such activities; and

   j. As necessary and applicable, submit final reports and required documentation of construction and any other required information to the Illinois EPA that satisfies conditions of the Illinois EPA approval letters, which may include an addendum to the ELUC and/or NFA letter.

2. The eventual removal of a Land Reuse Area from the terms and conditions of the facility's permit (so that its ownership can be transferred to another entity) will require that:

   a. The Permittee must eventually receive a NFA determination for all Land Reuse Areas from the Illinois EPA for the soils, groundwater, and, as appropriate, perched groundwater and/or surface water within the Area by following the Land Reuse process and at the completion of the corrective action process;

   b. The Permittee either receives a NFA determination for the groundwater in the vicinity of the Land Reuse Area from the Illinois EPA or demonstrates through the Land Reuse process that the contamination remaining at the site will not pose threat to human health and the environment under the appropriate intended use for the area during the Land Reuse Process for the purpose of redevelopment as described in Condition II.G.1 above.

   c. The boundaries of any parcels established in accordance with the process approved by this permit must be defined by a professional land surveyor licensed to practice in the State of Illinois and meet the requirements of all statutes and regulations applicable to such efforts. The boundaries of any new parcel must first be approved by the Illinois EPA before a new PIN is obtained for the parcel. It must be noted that Illinois EPA has already approved the boundaries of nineteen (19) horizontal parcels within the facility.

   d. Each parcel established in accordance with the Land Reuse process approved by this permit must obtain an individual and unique Real Estate Tax Index/PIN from Madison County.

   e. At a minimum, as part of obtaining a NFA determination, an ELUC must be established which allows full access of the property for the Permittee in the future for any refinery product and/or groundwater monitoring or remediation efforts to complete any remaining corrective actions required under this permit within the timeline approved by the Illinois EPA.

3. To modify the definition of the facility covered by the permit, the Permittee will be required to submit a request to modify the permit in accordance with 35 IAC 703, Subpart G. Such a request must be a Class 3 modification request, unless demonstrated otherwise, in accordance with the procedures set forth in 35 IAC 703.283.

4. The Illinois EPA must be able to enforce any efforts necessary to complete corrective action and achieve approved remediation objectives at the subject facility. This may be achieved through institutional controls, ordinances and the facility's permit.

5. As property (or parcels) with new PINs are established, it may be necessary to re-file ELUCs which have already been filed with the Madison County Recorder.

a. This effort is necessary if the new parcel was created from a parcel for which an ELUC was already established.

b. In addition to re-filing the required ELUC on the new parcel, it will be necessary to file documentation on the original parcel indicating that the original ELUC no longer applies to that parcel (it may also be necessary to file a revised ELUC on the original parcel) identifying any restrictions that still apply to that parcel of land.

H. CORRECTIVE MEASURES REQUIREMENTS

1. If it is determined that corrective measures must be taken at a SWMU, then the Permittee must implement a Corrective Measures Program (CMP) for such SWMUs in general accordance with the procedures set forth in Attachment D. The corrective measures implemented by the Permittee must be sufficient to ensure the appropriate requirements of 35 IAC Parts 302, 620, 724, and 742 are met.

2. The types of corrective measures which may be implemented include, but are not limited to:

   a. Removal of the contaminants or the contaminated media so that the remaining media meet remediation objectives developed in accordance with 35 IAC Part 742;

   b. Closing the SWMU as a landfill by establishing a proper final cover over the SWMU and then providing proper long-term monitoring/maintenance/management of: (1) leachate; (2) subsurface gas; (3) final cover system; and (4) groundwater;

   c. Establishing engineered barriers to restrict exposure to the contaminants remaining at the SWMU (necessary to certain remediation objectives developed in accordance with 35 IAC Part 742); and

   d. Establishing institutional controls to restrict activities at the facility, as necessary, to support remediation objectives established in accordance with 35 IAC Part 742.

3. The CMP described in Attachment D consists of five (5) phases:

   a. Phase I--conceptual design of the selected corrective measure.

   b. Phase II--development of the final design plans for the corrective measure, including installation and operation/maintenance plans.

   c. Phase III--actual construction/installation/implementation of the corrective measure.

d. Phase IV--operation/maintenance/monitoring, as necessary, of the corrective measure to ensure it is being properly implemented and is properly protecting human health and the environment.

e. Phase V--demonstration/verification that the corrective measure has been completed and that the established remediation objectives have been achieved.

f. Phases may be combined or skipped, depending on the actual corrective measure selected. The overall CMP implemented at a given SWMU must: (1) be logical in nature: and (2) allow for the Illinois EPA oversight and approval throughout the entire process. As such, it will be necessary for the Permittee to submit workplans and reports regarding all aspects of corrective measures for the Illinois EPA review and approval prior to carrying out any corrective measure activity.

4. A Phase I CMP workplan, or its equivalent, must be submitted to the Illinois EPA within ninety (90) days of the date that the Illinois EPA notifies the Permittee of the need for a CMP.

5. Subsequent CMP related workplans and reports must be submitted to the Illinois EPA for review and approval in accordance with a schedule approved by the Illinois EPA.

6. Once all corrective measures have been completed, a report must be developed documenting all efforts and results associated with the completed measure, including, as appropriate, information demonstrating the approved remediation objectives for the project have been achieved.

I. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s)

1. The Permittee shall notify the Illinois EPA in writing of any newly identified SWMU and/or AOCs discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30) days after discovery. The notification shall provide the following information, as available:

   a. The location of the newly identified SWMU and/or AOC in relation to other SWMUs on a scaled map or drawing;

   b. The type and past and present function of the unit;

   c. The general dimensions, capacities, and structural description of the unit (available drawings and specifications provided);

   d. The period during which the unit was operated;

   e. The specifics on all materials, including but not limited to, wastes and hazardous constituents, that have been or are being managed at the SWMU/AOC, to the extent available; and

f. The results of any relevant available sampling and analysis which may aid in determining whether releases of hazardous wastes or hazardous constituents have occurred or are occurring from the unit.

2. If the submitted information demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the newly identified SWMU/AOC, the Illinois EPA may request in writing, that the Permittee prepare a SWMU Assessment Plan and a proposed schedule of implementation and completion of the Plan for any additional SWMU(s) discovered subsequent to the issuance of this permit. This SWMU Assessment Plan must also propose investigations, including field investigations, if necessary, to determine the release potential to specific environmental media for the newly identified SWMU/AOC. The SWMU Assessment Plan must demonstrate that the sampling and analysis program, if applicable, is capable of yielding representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly identified SWMU/AOC to the environment.

3. Within ninety (90) days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall submit a SWMU Assessment Plan to the Illinois EPA for review and approval.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, conditionally approve, or disapprove the Plan in writing. If the Plan is approved, the Permittee shall begin to implement the Plan within forty-five (45) days of receiving such written notification or according to the terms and schedule established within the Plan and any conditions placed on it. If the Plan is disapproved, the Illinois EPA shall notify the Permittee in writing of the Plan's deficiencies and specify a due date for submittal of a revised plan.

5. The Permittee shall submit a report documenting the results of the approved SWMU Assessment Plan to the Illinois EPA in accordance with the schedule in the approved SWMU Assessment Plan. The SWMU Assessment Report shall describe all results obtained from the implementation of the approved SWMU Assessment Plan.

6. Additional investigation plans and reports must be submitted to and approved by the Illinois EPA, as necessary, to ensure the nature and extent of contamination at the SWMU/AOC is adequately characterized. Once the contamination is characterized, the Permittee shall develop remedial objectives for the SMWU/AOC in accordance with 35 IAC Part 742; such objectives are subject to the Illinois EPA review and approval.

7. The Permittee must implement a CMP, as necessary, to properly address any contamination encountered during the assessment. Guidance regarding the implementation of this program will be provided at the time the Illinois EPA notifies the Permittee of the need for such a program.

8. All efforts carried out at newly identified SWMU/AOCs must meet the requirements of 35 IAC 724.201.

J. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs identified in the RCRA Facility Assessment (RFA) which did not require any corrective action at the time that the RFA or RFI was completed. If the Permittee discovers that a release has occurred from such a SWMU in the future, then the Illinois EPA must be notified of this release within thirty (30) days after its discovery following the procedures set forth in Condition II.I.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in condition II.H. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

K. INTERIM MEASURES/STABILIZATION

The Permittee shall carry out interim measures/stabilization activities to prevent or mitigate the migration of a release of hazardous substances into the environment, and to provide adequate protection to human health and the environment.

1. At any time during the corrective action process, the Permittee may initiate interim measures for the purpose of preventing continuing releases and/or mitigating the results of releases and/or mitigating the migration of hazardous wastes or hazardous constituents. It shall not be necessary to conduct all phases of a RFI or a CMS prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release cleaned up, without additional study and/or without a formal CMS.

2. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA for approval. This information shall include, at a minimum:

   a. Objectives of the interim measures; how the measure is mitigating a potential threat to human health and the environment and/or is consistent with and integrated into any long-term solution at the facility;

   b. Design, construction, and maintenance requirements;

   c. Schedules for design and construction; and

   d. Schedules for progress reports.

3. If the Illinois EPA determines that a release cannot be addressed without additional study and/or a formal CMS, then the Illinois EPA will notify the Permittee that these must be performed. Any proposal made under this provision or any other activity

resulting from such proposal, including the invocation of dispute resolution, shall not affect the schedule for implementation of the other corrective action efforts being carried out at the facility or of any other portion of the permit.

4. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, the Permittee will be notified by way of a permit modification.

5. Consistent with the annual reporting requirements of this permit, the Permittee shall submit a report assessing the effectiveness of any interim measures being carried out in accordance with this permit. Based on a review of this report, the Illinois EPA reserves the right to require additional interim measures be carried out if it is determined that the interim measure is unable to protect human health and the environment. This annual report should at a minimum contain the following information regarding each system which comprises the interim measure:

   a. A discussion of each system's operation during the year. This discussion should address: (1) actual daily, weekly and monthly flow rates through each system; (2) any periods when the systems were not operating; and (3) deviations from the design operating procedures for the system (such as problems with drawing an adequate vacuum, downtime due to equipment failure, etc.);

   b. Results of all monitoring efforts carried out during the year;

   c. A discussion of the effectiveness of the system supported as appropriate with data and calculations; and

   d. Recommended changes, if any, which should be made to the system to improve its effectiveness.

6. The Illinois EPA reserves the right to require the Permittee to remove or treat soil if the Illinois EPA determines that contaminants are present in the soils at levels such that the remediation system is unable to protect human health and the environment. Remediation objectives for corrective measures will be established by the Illinois EPA at a later date.

7. The interim measure approved for a SWMU may not be sufficient to meet the final requirements for corrective action for remediation for the unit. The adequacy of the interim measure will be addressed upon the Illinois EPA review and approval of the RFI reports and the CMP, as required by this permit. As such, the Permittee may be required to expand this interim measure as necessary to address existing or additional contamination detected through RFI investigations.

8. The Illinois EPA reserves the right to require revision and modification of the interim measures implemented by the facility should it be determined by the Illinois EPA through information obtained through facility monitoring that the interim measures

approved by this portion of the permit are ineffective in protecting human health and the environment.

L. REPORTING REQUIREMENTS

1. A Corrective Action Progress Report must be submitted summarizing the corrective action efforts completed during each quarter of the calendar year. This report must also contain a general description of the corrective action efforts to be completed during the next quarter of the calendar year.

   a. The reports should be submitted in accordance with the following schedule:

Reporting Period	Report to be Submitted by the following
January-March	May 1
April-June	August 1
July-September	November 1
October-December	March 1*

   *Included in Annual Report required in Condition II.L.2 below.

   b. Each Corrective Action Progress Report must contain:

      (1) a summary of activities completed at each parcel during the quarter, including information regarding the amount of free product/groundwater/leachate removed on a weekly basis from various units during the quarter;

      (2) a discussion of any problems encountered while conducting corrective action at each parcel during the quarter;

      (3) A summary of the activities anticipated to be carried out during the next quarter.

2. A report must be submitted to Illinois EPA by March 1 of each year which summarizes corrective action program activities completed at the facility during the previous calendar year (i.e., the previous January 1 to December 31). This report must contain a compilation/summary of the information in the quarterly reports for the year, what was completed during the year, and what must still be done in the next year and in the following years.

3. Final reports must be submitted to Illinois EPA for review and approval when corrective action is complete for a given parcel. Such reports must be certified by an independent licensed professional engineer and a person of authority from the Permittee. This certification must meet the requirements of 35 IAC 702.126. These reports must contain be detailed in nature and contain sufficient information which (1)

describes in detail all investigation/remediation efforts carried out in the parcel; and (2) the efforts were carried out in accordance with the approved plan and this permit.

M. COST ESTIMATES/FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The current cost-estimate for completing corrective action and groundwater remediation at the BP Main Plant by the facility is $87,922,423 in 2020 dollars. The Permittee shall prepare an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate as required in Condition IV.C.2. The cost-estimate for completing corrective action required in this permit must include 10% contingency.

2. The Permittee shall prepare a cost estimate for the completion of any corrective action required under this permit, in order to provide financial assurance for completion of corrective action, in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required under 35 IAC 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMU(s), and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 IAC 724.201 and this permit. These estimates must be based upon third party costs. The revised cost estimate for corrective action must be submitted to the Illinois EPA annually by January 1.

3. The Permittee shall demonstrate continuous compliance with 35 IAC 724.201 by providing documentation of financial assurance using a mechanism specified in 35 IAC 724.243, in at least the amount of the cost estimate required under Condition II.M.1 the words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 IAC 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the submittal of the initial or revised cost estimates required under Condition II.M.1. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 IAC 724.246 at its discretion.

4. It must be noted that cost estimates and financial assurance must be provided for the operation of the groundwater remediation system required by Section III of this permit as such a system is necessary to meet the requirements of 35 IAC 724.201.

5. All cost estimates prepared under the requirements of Conditions II.M.1 through II.M.4 must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281.

6. Financial assurance for corrective action must be updated, as necessary, to reflect the current status of the RCRA corrective action program at this facility. In addition, this financial assurance must be adjusted annually for inflation.

SECTION III: GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Hazardous constituents associated with historical activities at the BP Main Plant have been detected in the groundwater across the site which exceed the groundwater quality standards established in 35 IAC Part 620. Therefore, a corrective action program for groundwater meeting the requirements of 35 IAC 724.201 must be implemented at the facility. In addition to the corrective action necessary to treat or remove hazardous constituents released to groundwater, this permit also requires the Permittee to implement a corrective action program for the groundwater present in the uppermost aquifer beneath the facility, and off-site as necessary.

The groundwater corrective action program required by this permit includes:

1. Control of the horizontal and vertical flow of the vertical column of groundwater in the uppermost aquifer such that groundwater flow is towards the interior of the BP Main Plant. This control of groundwater flow will be accomplished by withdrawing sufficient quantities of groundwater from the uppermost aquifer. Such flow control is necessary as a corrective measure to prevent further contaminant migration of on-site releases of product or waste, beyond the boundaries of the BP Main Plant and is the basis for the establishment of a Groundwater Management Zone (GMZ), except as provided in Condition III.A.5 below.

2. Verification that the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

3. Monitoring the quality and movement of the groundwater in the uppermost aquifer beneath the BP Main Plant to determine the effectiveness of the groundwater corrective action program, as well as, verify compliance with the GMZ.

4. Remediating and/or removing refinery product from above the water table, and within the smear zone of the uppermost aquifer. The smear zone will be considered the minimum and maximum range of water table fluctuations observed at the BP Main Plant.

5. In the event that the Permittee is unable to demonstrate an inward gradient in the southeast corner of the facility, or in the vicinity of Land Reuse Area 9, compliance will be satisfied by demonstration that the groundwater quality at designated Sentry Observation Monitoring Wells in this portion of the facility meet applicable groundwater quality standards. The Permittee shall comply with the requirements of III.E.12 in the event that groundwater quality in this portion of the facility does not meet groundwater quality standards. Contingent actions could include increased monitoring to demonstrate that contaminants do not migrate beyond the GMZ boundary and/or sentry well installation and monitoring, increased groundwater extraction, or other alternate measures.

6. Implementation of the bioremediation systems for impacted groundwater, treatment and reduction of free phase and residual product, and interim removal actions for recoverable product must be completed as set forth in Condition II.E of the permit.

B. IMPLEMENTATION

1. The Permittee shall implement the Groundwater Corrective Action Program established in this permit upon the effective date of this permit. On that date, the corrective action and groundwater monitoring requirements set forth in this permit shall supersede those previously established.

2. The Permittee shall carry out the corrective actions specified in this permit on the groundwater beneath the BP Main Plant. The "uppermost aquifer" refers to the geologic formation nearest the natural ground surface that is an aquifer, as well as lower aquifers that are hydraulically connected with this aquifer in the vicinity of the facility. The uppermost aquifer at this facility is a sand and gravel aquifer located approximately 30 feet below the ground surface (ft-bgs) and extending to a depth of about 101 to 113 ft-bgs to the top of the bedrock surface. This aquifer is commonly referred to as the "American Bottoms."

3. For the purposes of this permit and in accordance with 35 IAC Part 620 regulations, the sand and gravel aquifer has been designated Class I: Potable Resource Groundwater. The analytical results obtained from these groundwater monitoring wells shall be compared to the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1 or to established background values or other applicable standards as appropriate.

4. The Permittee must continue corrective action measures to the extent necessary to ensure that the groundwater protection standard is not exceeded to meet the requirements of 35 IAC 724.201.

C. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells identified in the table below to allow for the collection of groundwater samples from the uppermost aquifer. The location of these wells is specified in Figure C-2 of the approved permit application. Northing and Easting coordinates for wells are provided in Attachment F.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
GMZ Boundary Wells					
G005[8]	B-5D	44.00	386.10	406.10-386.10	UMA H
G006	B-6	44.00	384.01	404.01-384.01	UMA H
G008*	B-8D	50.00	378.21	408.21-378.21	UMA H
G021	C-11	49.70	382.27	417.27-382.27	UMA C
G023	C-13	49.50	381.74	416.74-381.74	UMA C
G04R	B-4R	59.50	382.54	402.54-382.54	UMA H
G045	G-5	40.87	402.67	412.67-402.67	UMA H
G055	G-15	52.19	393.02	413.02-393.02	UMA H
G059	G-19	45.00	384.33	404.33-384.33	UMA C
G062	G-22	45.00	388.01	408.01-388.01	UMA H
R063	G-23R	46.24	385.58	405.82-385.82	UMA H
G067#	G-27	49.00	386.28	406280-386.28	UMA H
G068@	G-28	50.00	392.24	414.24-392.24	UMA H
G073	G-33	44.00	387.15	407.15-387.15	UMA H
G079	G-39	40.00	383.12	404.12-384.12	UMA C
G084	G32R	45.00	389.13	409.13-389.33	UMA H
G085	G-26R	54.15	388.59	408.24-388.94	UMA H
G111	SWMU12-MW02	38.17	393.89	404.06-394.06	UMA H
G112	SWMU12-GH1	43.22	388.87	408.87-388.87	UMA C
G32R	H32R	44.50	384.64	405.34-385.34	UMA C
G35A	G35A	32.20	397.95	408.15-398.15	UMA H
G35B	G35B	40.20	390.26	400.46-390.46	UMA H
G37	H-37	46.00	386.47	401.47-386.47	UMA C
G5B	G-5B	75.85	367.73	377.73-367.73	UMA H
G500[7]	G500	29.39	401.06	411.06-401.06	UMA C
G69R	G-29R	59.96	385.87	405.87-385.87	UMA H
G74L	G-34	60.00	386.69	406.69-386.69	UMA H
G75L	G-35	60.00	386.51	406.51-386.51	UMA H
G76L	G-36	60.00	385.81	405.81-385.81	UMA H
G91	M-1D	39.70	388.13	398.13-388.13	UMA H
G92	M-2D	40.40	386.08	401.08-386.08	UMA H
G93L	M-3D	40.80	386.18	401.18-386.18	UMA H
H31B	H-31B	75.02	357.32	367.32-357.32	UMA H
RG36	H36R	60.43	384.94	404.27-389.57	UMA H
R302&	R302	33.20	399.84	410.04-400.04	Cahokia Clay
G303	RP-3D	39.85	393.24	398.74-393.74	UMA C
G503[8]	G08A	32.00	396.20	406.20-396.20	UMA H
G504[8]	R067	32.12	404.38	409.68-404.68	UMA H
G505[8]	R068	37.70	403.90	414.20-404.20	UMA H

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
Observation Monitoring Wells					
G002	G-01R	37.32	391.34	411.16-391.56	UMA C
G009	B-9	49.00	382.66	407.66-382.66	UMA H
G020	C-10	49.50	382.50	417.50-382.50	UMA C
R042[3A]	R042	37.20	393.48	403.48-394.02	UMA H
G048	G-8	48.00	381.68	401.68-381.68	UMA H
G057[4]	G-17	35.02	391.90	411.90-391.90	UMA C
G058[4]	G18	36.00	391.27	411.27-391.27	UMA C
R083[3A]	R083	38.79	393.44	403.98-394.52	UMA H
G10L	H-20	58.43	371.82	396.82-376.82	UMA H
G14L	H-24	57.00	372.85	397.85-377.85	UMA H
G16L	H-26A	55.00	378.24	408.24-378.24	UMA H
G22R	C-12R	54.70	378.10	398.10-378.10	UMA C
G30R	H-30R	43.04	387.98	408.63-388.63	UMA H
G31D	C-21C	70.00	357.98	362.98-357.98	UMA H
G39[+]	H-39	42.10	385.74	400.74-385.74	UMA H
G84L	H-4	59.00	374.19	399.19-379.19	UMA H
G87L	H-7	51.50	376.68	402.68-382.68	UMA C
G92L	H-12	69.00	373.82	410.82-378.82	UMA H
G98L	H-18	52.50	378.22	403.22-383.22	UMA C
G301	RP-1	49.00	377.38	388.38-378.38	UMA H
G305	RP-5	49.00	381.06	391.06-381.06	UMA C
G307	RP-7D	49.00	383.13	393.13-383.13	UMA H
G501[3A]	G501	40.89	392.55	403.09-393.63	UMA H
G502[3A][8]	G502	35.55	393.75	404.29-394.83	UMA H
Sampling Only Network[5]					
G031	C-21A	35.00	393.18	403.18-393.18	Cahokia Clay
G065	G-25	55.00	389.58	409.58-389.58	UMA H
G082	G-42	40.00	388.81	409.81-388.81	UMA C
R11L	H-21R	57.47	371.85	391.85-371.85	UMA C
G19	H-29	47.24	386.42	401.42-386.42	UMA H
R31L[8]	R31L	55.00	373.10	378.10-373.10	UMA H
G33	H-33	44.00	387.37	407.37-387.37	UMA C
G71L	G-31	58.70	387.25	407.25-387.25	UMA H
G97L	H-17	58.00	377.09	402.09-382.09	UMA H
G306	RP-6	49.00	381.34	391.34-381.34	UMA H
Gauging Only Network					
G016	C-6	49.50	381.00	416.00-381.00	UMA C
G046	G-6	50.00	391.37	411.37-391.37	UMA H
G050	G-10	44.00	386.65	406.65-386.65	UMA C

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)	Well Designation[1]
G31R[8]	H-31R	42.22	389.88	410.08-390.08	UMA H
G83L	H-3	52.50	375.09	400.09-380.09	UMA H
G86L	H-6	64.30	376.92	401.92-381.92	UMA H
G89L	H-9	53.50	375.96	400.96-380.96	UMA H
G99L[8]	H-19	53.50	376.60	402.10-382.10	UMA H
G128[2]	G128	33.65	395.86	406.04-396.26	UMA H
G506	A8MW04	50.00	383.34	418.34-383.34	UMA H
G507	A8MW05	48.00	383.74	413.74-383.74	UMA H
G508	A8MW06	48.00	381.97	416.97-381.97	UMA H
LNAPL Monitoring network [6]					
G011	C-1	49.50	380.30	415.30-380.30	UMA C
G027	C-17	40.00	390.32	400.32-390.32	UMA C
G049	G-9	47.00	382.75	402.75-382.75	UMA H
G13L	H-23	51.50	380.14	408.64-388.64	UMA H
G34	H-34	38.47	393.11	403.11-393.11	UMA C
G96L	H-16	58.50	373.28	393.28-378.28	UMA H
G417	B-17	51.00	380.48	400.48-380.48	UMA H
G603	RC-3	54.00	377.3	397.30-377.30	UMA H
G604	RC-4	51.46	379.92	399.92-379.92	UMA H
G605	RC-5	51.19	378.91	398.91-378.91	UMA H
G613	RC-13	63.12	368.38	403.38-373.38	UMA H
G614	RC-14	61.81	369.99	404.99-374.99	UMA H
G615	RC-15	59.66	370.48	405.48-375.48	UMA H
G617	RC-17	58.00	370.91	403.91-386.91	UMA H
G618	RC-18	57.50	371.78	411.78-376.78	UMA H
G619	RC-19	58.00	369.3	407.30-372.30	UMA H
G620	RC-20	85.36	344.51	406.28-349.64	UMA H
G509[9]	B-14	54.83	376.37	396.37-376.37	UMA H
G510+[8]	C-9	+	+	+	unknown
G511	G-11	43.08	388.38	408.21-388.21	UMA H
G512[9]	G-12	45.37	386.12	406.25-386.25	UMA H
G513	G-40	40.00	388.26	409.26-389.26	UMA C
G514[9]	G-47	38.67	389.33	407.66-389.66	UMA C
G515+[9]	G-14	+	+	+	unknown
G516	A3MW01	45.00	384.8	414.80-384.80	UMA H
G517	A3MW02	50.00	380.5	415.50-380.50	UMA H
G518	A6MW01	50.00	380.01	415.01-380.01	UMA H
G519	A6MW02	50.00	382.17	417.17-382.17	UMA C
G520	A6MW03	55.00	376.26	416.26-376.26	UMA H
G521	A8MW02	50.00	379.67	414.67-379.67	UMA H
G522	A9BH05	37.00	391.29	405.29-391.29	UMA C
G523	LS-1	33.87	394.71	414.71-394.71	UMA C

G524[9]	SVE-2	36.62	395.97	416.50-396.50	UMA C
Demonstration Wells					
R032[3B]	R032	39.27	388.99	399.47-389.71	UMA C
R034[3B]	C-24R	35.24	393.64	403.88-386.34	UMA C
R035[3B]	C-25AR	35.57	392.04	402.50-392.72	UMA C
G304[3B]	RP-4D	45.75	385.51	396.34-386.34	UMA C

Notes: * = Groundwater sampling only required at G008 when G503 is dry.
+ = Well construction information is incomplete.
# = Groundwater sampling only required at G067 when G504 is dry.
@ = Groundwater sampling only required at G068 when G505 is dry.
& = R302 was installed as a water table well and G302 was abandoned (G302 had screened interval 393.63-383.63). It appears a benzene pipeline release from the neighboring site (ID No. 1191150025) may be the source of contamination previously measured at G302. IEPA will require the neighboring site to delineate onto BP property. The contamination detected at the screened interval for former G302/RP-2D must continue to be monitored due to contaminant levels previously detected. As the Illinois EPA is working with Shell Oil Products US to delineate benzene contamination associated with a benzene pipeline release at BOL site ID No. 1191150025, BP will not be required to install a well at the screened interval of approximately 393.63-383.63 at this time.
1 = Top of casing and ground surface elevation measurements are from the 2020 Monitoring Well Survey unless otherwise noted.
2 = Groundwater gauging only at G128 due to known benzene release from Shell Oil pipeline in 1986 and the requirement for the permittee associated with site 1191150002 sampling G128.
3A = Sentry Well used to demonstrate contaminant control in the southeast portion of the GMZ.
3B = Sentry Well used to demonstrate contaminant control in the vicinity of Land Reuse Area 9.
4 = Also a designated Sentinel Well under the Riverfront RCRA Permit.
5 = Groundwater sampling only, well will still be gauged when sampled in accordance with Condition III.F.1; however, water level data will not be utilized for developing potentiometric surface maps or evaluation of hydraulic gradients as required under Condition III.E.6.
6 = LNAPL monitoring only, groundwater sampling not required (32 wells).
7 = G500 installed on November 20, 2017 as the well listed in the May 29, 2018 RCRA Permit as IEPA Well No. G113 "to be installed." The designation G500 was used because there is a different well designated as G113 under the Riverfront RCRA Permit.
8 = Top of casing and ground surface elevation measurements measured on the following dates: June 17, 2021 (G31R, GOSA, C-9); March 7, 2022 (G005, G99L, G502); and September 19, 2023 (R31L, R067, R068).
9 = Top of casing and ground surface elevation measurements are from 2015 Monitoring Well Survey.
10 = Well designations are identified based on zones within the uppermost aquifer being monitored: wells behaving as perched wells (Cahokia Perched); within the silty sandy layer of the Cahokia Sand facies (UMA C); within the coarse sand and gravel of the Henry formation (UMA H).

11 = Per Condition IV.C.1.a, G078, G030, G97L, and G87L require a new or replacement well or well pairs be installed within ninety (90) days to monitor the previously screened interval. Of those wells, only G078 no longer exists because the well was damaged.

Additional Notes:
"Ft-bgs" = refers to the number of feet below the ground surface.
"Ft-MSL" = refers to the number of feet referenced to mean sea level.
"Stick-up" = refers to the height of the reference survey datum. This point is determined with + 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

2. The Permittee shall maintain the Gradient Control Wells (Cone of Depression (COD) Wells) identified in the table below to allow for the withdrawal of contaminated groundwater, as well as, the measurement of water levels to verify the flow of groundwater is adequately controlled as required by Condition III.A.1 above.

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Elevation (ft. MSL)	Well Screen Length (ft.)
Gradient Control Wells				
HW1B	HW01-B	75.00	356.12	300
HW2A	HW02-A	75.00	355.71	300
HW2B	HW02-B	75.00	356.37	300

Note: The Gradient Control Wells are horizontal wells.

3. Construction of each monitoring well/piezometer must be in accordance with the "Monitoring Well Diagram" and "Well Completion Report" forms located on the Illinois EPA website, unless otherwise approved in writing by the Illinois EPA. All new monitoring wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs contained in the "Field Boring Log" form on the Illinois EPA website, unless otherwise approved by the Illinois EPA.

4. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.C.1 and III.C.2 are damaged, or the structural integrity has been compromised causing the well not to serve its function or to act as a contaminant pathway. A proposal for the replacement of the subject well shall accompany the notification. The well shall not be plugged until the new well is on-line and monitoring data has been obtained and verified unless the well is extremely damaged or would create a potential route for groundwater contamination. Prior to replacing the subject well, the Permittee shall obtain written approval from the Illinois EPA regarding the proposed installation procedures and construction.

5. Should any well become consistently dry or unserviceable, a replacement well shall be provided within ten (10) feet of the existing well. This well shall monitor the same zone as the existing well and be constructed in accordance with the current Illinois EPA groundwater monitoring well construction standards at the time that the well is replaced. A well which is more than ten (10) feet from the existing well or does not monitor the

same geologic zone must be approved by the Illinois EPA and designated as a new well.

6. The Permittee shall submit boring logs, construction diagrams and datasheets from installation and development of a new or replacement well to the Illinois EPA at the address below within thirty (30) days of the date that installation of the well is completed. In addition, the Permittee shall submit certification that plugging and abandonment of a well was carried out in accordance with the approved procedures to the Illinois EPA at the address below within thirty (30) days of the date that the well is plugged and abandoned. All pertinent information should be submitted to the appropriate State agencies.

   Illinois Environmental Protection Agency
   Bureau of Land -- #33
   Permit Section
   1021 North Grand Avenue East
   Post Office Box 19276
   Springfield, Illinois 62794-9276

7. All wells/piezometers shall be clearly identified and shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

8. All groundwater monitoring wells and piezometers not utilized in the approved groundwater monitoring system, but retained by the facility, must be constructed, and maintained in accordance with 77 IAC Part 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition III.C.4.

D. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and their concentration limits comprise the groundwater protection standard for the groundwater monitoring wells found in Conditions III.C.1. Total (unfiltered) values will be used for the comparison with the 35 IAC Part 620, Class I, Groundwater Quality Standards. Dissolved values shall be used for statistical evaluations required in Condition III.H unless otherwise noted.

Field Parameters	Storet	Units
pH	00400	Standard Units
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Bottom of Well #	72020	Ft MSL
Elevation of Measuring Point (Top of casing)##	72110	Ft MSL

Shall be determined during the first semi-annual sampling event each year.
Shall be surveyed once every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes as required by Condition III.I.9.a.

Hazardous Constituents	Storet No.	Concentration Limits (mg/L)
Metals		
Antimony	01097	0.006
Arsenic	01002	0.010
Barium	01007	2.0
Beryllium	01012	0.004
Cadmium	01027	0.005
Chromium	01034	0.1
Cobalt	01037	1.0
Lead	01051	0.0075
Mercury	71900	0.002
Nickel	01067	0.1
Selenium	01147	0.05
Vanadium	01087	0.049
VOCs		
1,2-Dichloroethane	34531	0.005
1,3-Dichlorobenzene	34561	0.0002
1,4-Dichlorobenzene	34571	0.075
2-Butanone (MEK)	81595	4.2
Benzene	34030	0.005
Carbon Disulfide	77041	0.7
Chlorobenzene	34301	0.1
Chloroform	32106	0.0002
Ethylbenzene	78113	0.7
Toluene	34010	1.0
Total Xylenes	34020	10.0
Methyl Tertiary-Butyl Ether	46491	0.07
Styrene	77128	0.1
SVOCs		
2,4-Dimethylphenol	34606	0.14
2,4-Dinitrophenol	34616	0.014
2-Methylphenol (o-cresol)	77152	0.35
4-Methylphenol (p-cresol)	77146	0.035
4-Nitrophenol	34646	--
Anthracene	34220	2.1
Benzo(a)anthracene	34526	0.00013
Benzo(a)pyrene	34247	0.0002
Benzo(b)fluoranthene	34230	0.00018
Benzo(k)fluoranthene	34242	0.00017
Bis(2-ethylhexyl)phthalate	39100	0.006

Hazardous Constituents	Storet No.	Concentration Limits (mg/L)
Butyl benzyl phthalate	34292	1.4
Chrysene	34320	0.0015
Dibenzo(a,h)anthracene	34556	0.0003
Diethyl phthalate	34336	5.6
Dimethyl phthalate	34341	--
Di-n-butyl phthalate	39110	0.7
Di-n-octyl phthalate	34596	0.14
Fluoranthene	34376	0.28
Naphthalene	34696	0.14
Phenanthrene	34461	0.21
Phenol	34466	0.1
Pyrene	34469	0.21
Pyridine	77045	0.007

-- Not available

2. Alternate concentration limits may be established where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment.

   a. Where a hazardous constituent has a standard in 35 IAC Part 620, the facility must apply for an adjusted standard as outlined in Section 28.1 of the Environmental Protection Act (Act) or reapply once corrective measures have been implemented pursuant to 35 IAC 620.450.

   b. For those hazardous constituents without a 35 IAC 620 standard, the alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

E. GROUNDWATER CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the Groundwater Corrective Action Program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. The Permittee shall determine the groundwater quality for the Observation wells and the GMZ Boundary Wells designated in Condition III.D.1 for the hazardous constituents listed in Condition III.E.1 above.

2. In accordance with 35 IAC 620.250, a GMZ is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from the facility. The GMZ must be monitored and maintained as follows:

   a. The GMZ horizontal and vertical extent is monitored with program monitoring wells measuring concentrations of hazardous constituents in Condition III.D.1 in groundwater.

i. The following groundwater monitoring wells shall define the outermost horizontal extent of the approved GMZ: G005, G006, G008, G021, G023, G04R, G045, G055, G059, G062, R063, G067, G068, G073, G079, G084, G111, G112, G32R, G37, G5B, G35A, G35B, G500, G69R, G74L, G75L, G76L, G91, G92, G93L, H31B, RG36, R302, G303, G503, G504, G505.

ii. The vertical boundaries of the GMZ shall range from the approximate top of the uppermost aquifer (30 feet bgs) to the top of the bedrock surface at the BP Main Plant facility. As required by Condition IV.C.1.b, wells must be proposed to better define the vertical extent.

b. The results of monitoring the GMZ shall be submitted to the Illinois EPA semi-annually in accordance with the schedule found in Condition III.I.2.

c. The GMZ expires when all groundwater monitoring wells within the GMZ have attained the appropriate Class I concentration limits that comprise the groundwater protection standard found in Condition III.D.1.

d. The appropriate Class I concentration limits shall be considered attained when groundwater monitoring results meet the appropriate concentration limit for two (2) consecutive years. A Mann-Kendall trend analysis based on eight (8) quarters of data shall be submitted for Illinois EPA review and approval unless otherwise approved.

e. An evaluation of the GMZ shall be submitted in a report for Illinois EPA review and approval, a minimum of every five (5) years, in accordance with the guidance document, "Re-evaluation of Groundwater Management Zones at RCRA Facilities" found at the Illinois EPA website. Statistical analysis required by III.H must also be included.

3. The Groundwater Corrective Action Program shall control the horizontal and vertical flow in the vertical column of water present in the uppermost aquifer beneath the facility and monitor the position and rate of migration of the hazardous constituents released to groundwater as follows:

a. The pumping from the Gradient Control Wells (also referred to as Cone of Depression (COD) wells) shall maintain the cone of depression to ensure groundwater flow is adequately controlled in the uppermost aquifer, except as provided in Condition III.A.

b. The pumping rate from each Gradient Control Well (COD well) shall be recorded each business day. This data shall be used to calculate the monthly average withdrawal rate for the Gradient Control System.

4. The Permittee shall monitor the groundwater horizontal and vertical gradients in the uppermost aquifer beneath the facility.

5. The Permittee shall record the following measurements and submit to the Illinois EPA semi-annually as required by Condition III.I.2.

   a. A record of the amount of groundwater withdrawn each day by the Gradient Control Wells (COD wells).

   b. Quarterly monitoring of the piezometric head at wells identified in Condition III.C.1 and III.C.2 above to demonstrate that groundwater flow is properly controlled throughout the contaminated area requiring corrective action.

   c. The measured thickness of hydrocarbon product encountered at each well identified in Condition III.C.1 and III.C.2.

6. The Permittee shall determine the groundwater flow rate (i.e., seepage velocity in ft/day) and direction in the uppermost aquifer at least annually from the monitoring wells listed in Condition III.C.1.

7. The groundwater quality in the uppermost aquifer shall be monitored on a quarterly or semi-annual basis at each of the wells identified in Condition III.C.1, and submitted to the Illinois EPA semi-annually, as identified in Condition III.I.2.

8. If the groundwater gradient is not maintained, as required by Condition III.E.3, or contamination is migrating beyond the GMZ Boundary Wells, the Permittee shall submit an application for a permit modification, as required by Condition III.J.

9. Prior to making any changes on-site which might affect the overall program associated with controlling the groundwater flow as required by Condition III.E.3 of the permit (i.e., maintain and verify an inward gradient), the Permittee must obtain written permission from the Illinois EPA. Detailed information regarding the changes shall be submitted to the Illinois EPA at least 120 days prior to the date that the change is to be made. Disapproval or approval with modifications of any written requests for changes shall be subject to the appeal provisions of Section 40 of the Act.

10. The Permittee shall maintain all equipment associated with withdrawal and treatment of water withdrawn from the uppermost aquifer to adequately control groundwater flow. This includes maintenance of any pollution control equipment (i.e., air pollution and water pollution control equipment) necessary for these activities.

11. The Permittee must continue to pursue access to the off-site property where former wells G060 and G061 are located for the purposes of properly abandoning these wells. Once access to the property is obtained, the facility must submit certification that plugging and abandonment of the well(s) was carried out in accordance with the approved procedures to Illinois EPA and the appropriate State Agencies in accordance

with Condition III.C.6. Until the wells are abandoned, the status and details of any efforts must be reported in the reports required by Condition III.I.2.

12. In the event that the Permittee is unable to demonstrate an inward groundwater gradient based upon groundwater elevation data in the Southeast portion of the GMZ, and/or in the vicinity of Land Reuse Area 9 for the GMZ (western portion of the GMZ), during a monitoring event, the Permittee will take the following actions:

    a. The Permittee will review the groundwater quality data for the most recent sampling event for the Sentry Observation Monitoring Wells (G042R, G083R, G501, and G502) for the southeast corner of the GMZ, and/or Demonstration Wells (R032, R034, R035, and G304) for the vicinity of Land Reuse Area 9.

    b. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

    c. If the groundwater quality data from the most recent sampling event for the Sentry Observation Monitoring Wells or Demonstration Wells, does not meet permit-defined requirements for VOCs, the Permittee shall:

        i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

        ii. Perform a "Resampling Event" for the Sentry Observation Monitoring Wells within thirty (30) days of the date the determination is made.

    d. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c meets permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

    e. If the groundwater quality data from the Resampling Event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.c does not meet the permit-defined requirements for VOCs, the Permittee shall:

        i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

        ii. Initiate "Contingency Monitoring" consisting of monthly groundwater gauging and monitoring for a period of three (3) months for the Southeast portion of the GMZ, and/or in the vicinity of Land Reuse Area 9, as follows:

1. For the Southeast portion of the GMZ, the groundwater gauging performed for Contingency Monitoring shall use at a minimum the following nine (9) monitoring wells in order to develop a groundwater flow gradient. For the southeast portion of the GMZ: wells G301, G305, R042, R083, G501, G502, G005, G92, and G112. For the vicinity of Land Reuse Area 9: wells R032, R034, R035, and G304.

2. For the vicinity of Land Reuse Area 9, the groundwater gauging and monitoring performed for Contingency Monitoring shall use at a minimum the following four (4) monitoring wells in order to develop a groundwater flow gradient for the vicinity of Land Reuse Area 9 of the GMZ: R032, R034, R035, and G304.

3. The Contingency Monitoring shall include monthly groundwater sampling for a period of three (3) months for the Sentry Observation Monitoring Wells R042, R083, G501, and G502 for the southeast area, and/or the Demonstration Wells R032, R034, R035and G304 for Land Reuse Area 9.

f. If the three (3) monthly groundwater gauging potentiometric maps from Contingency Monitoring demonstrate an inward gradient, and the groundwater quality data from the three (3) monthly sampling events for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii meets the permit-defined requirements for VOCs, the Permittee shall include a summary of the results in the semi-annual report required by Condition III.I.2.

g. If the monthly groundwater gauging potentiometric maps for Contingency Monitoring do not demonstrate an inward gradient, and the groundwater quality data from the sampling event for the Sentry Observation Monitoring Wells and/or Demonstration Wells required by Condition III.E.12.e.ii does not meet the permit-defined requirements for VOCs, the Permittee shall submit a written report to the Illinois EPA:

i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

ii. Submit a written report to the Illinois EPA within thirty (30) days of the date the determination is made describing the actions to be taken.

iii. Install additional well(s) at locations approved by the Illinois EPA.

iv. Implement an Illinois EPA-approved groundwater monitoring program for the new wells on a monthly basis for three (3) months.

v. Evaluate Contingent Corrective Measures to address the potential for off-site contaminant migration from the southeast corner, including but not limited to, modification of pumping rates at the Gradient Control Wells, rehabilitation of one or more Gradient Control Wells to address loss of hydraulic capacity, supplemental groundwater investigation, and/or in-situ technologies.

h. Design and implement Contingent Corrective Measures approved by the Illinois EPA.

13. The Permittee shall operate, expand and use the Bioremediation Systems and/or other technologies approved by the Illinois EPA in order to remediate hydrocarbons and refinery product in accordance with Condition II.D of the Corrective Action Section of the Permit and 35 IAC Parts 620, 724, and 742. Historical information related to the development of these remediation systems is summarized in Attachment E. Current information related to the remediation activities of hydrocarbons and refinery product must be submitted within reports required by Condition II.M.1. A discussion must also be provided in reports required by Condition III.I.6.

14. Semi-annual evaluations for the indoor inhalation exposure route must be provided for exceedances of 35 IAC Part 620 and screening levels identified in Table H of Appendix B in 35 IAC Part 742 at the groundwater monitoring wells located at the property boundary and at any off-site locations. Screening levels for the current type of property use shall be used.

a. Identify any homes or buildings potentially impacted by the exceedance and evaluate, in accordance with 35 IAC Part 742, if the indoor inhalation pathway is complete by conducting site-specific evaluations based on the most recent water level, building-specific construction information if known, known occupancy and any other site-specific factors, as appropriate and applicable, at each building.

b. If the evaluation demonstrates that the indoor inhalation pathway is incomplete, the Permittee shall include the demonstration in the semi-annual report required by Condition III.I.2.

c. If the evaluation demonstrates that the indoor inhalation pathway is complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval.

d. A new evaluation is required for each sampling to determine whether screening levels are exceeded.

F. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well at least quarterly and each time groundwater is sampled in accordance with Condition III.I.3.

2. The Permittee shall report the surveyed elevation of stick-up and ground surface referenced to MSL once every five (5) years or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.I.9.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually in accordance with Condition III.I.10. The mandatory measurement shall be taken during the second quarter sampling event each year.

G. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall follow the techniques and procedures described in Exhibit C-1 of the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.C.1:

1. Samples shall be collected by the techniques described for low-flow sample collection in Section 2.2 of Exhibit C-1.

2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Section 2.2 of Exhibit C-1.

3. Samples shall be analyzed according to the procedures specified in Section 7 of Appendix B. Groundwater analysis must be in accordance with the most current version of the applicable methods found in USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods," Third Edition (SW-846) and finalized updates.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section 2.2 of Exhibit C-1.

H. STATISTICAL METHODS

The Permittee shall evaluate the quality of groundwater samples collected during semi-annual sampling events identified in Condition III.E to determine trends and demonstrate effectiveness of corrective action as follows:

1. The GMZ Boundary Wells and Observation Monitoring Wells, as identified in Condition III.C.1, shall be used for statistical evaluations of groundwater quality data as follows:

   a. The groundwater quality data shall be statistically evaluated annually for the constituents identified in Condition III.D.1, in accordance with Exhibit C-3 of the approved permit application.

b. The results of the statistical evaluations shall be discussed and included within the required 5-year GMZ Evaluation reports required by Condition III.I.11.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions III.D, III.E, and III.F into the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions III.D. and III.E shall be collected and reported as identified in the table below. The results of the analyses conducted on the groundwater quality samples shall be submitted in accordance with this schedule. All additional data collected for the groundwater monitoring program as specified in Conditions III.D, III.E and III.F shall also be submitted to the Illinois EPA in accordance with this schedule.

Sampling Event of Calendar Year	Samples to be Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January - February	August 1
Second Quarter	April - May	August 1
Third Quarter	July - August	February 1
Fourth Quarter	October - November	February 1

3. Groundwater surface elevation data measured pursuant to Condition III.F.1, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2.

4. Groundwater withdrawal rates collected and calculated pursuant to Condition III.E.5.a shall be submitted semi-annually in accordance with the schedule identified in Condition III.I.2.

5. Gradient control measurements collected pursuant to Condition III.E.5.b shall be collected at least quarterly and submitted to the Illinois EPA semi-annually as identified in Condition III.I.2.

6. Free product thickness data measured pursuant to Condition III.E.5.c, and reduction of hydrocarbons and refinery product data collected in accordance with Condition II.D of the Corrective Action Section, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition III.I.2. Reporting information must also be included in Corrective Action Progress Reports required by Condition II.M.1.

7. The groundwater flow rate and direction, determined pursuant to Condition III.E.6, shall be submitted annually as a part of the first and second semi-annual reports as identified in Condition III.I.2.

8. Groundwater quality samples collected to meet the requirements of Condition III.E.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in Condition III.I.2. The extent of dissolved contamination must be depicted on figures as needed to define the extent of contamination.

9. The Permittee shall report the surveyed elevation, as required by Condition III.F.2, of the top of the well casing ("stick-up"), referenced to MSL, in accordance with the following schedule:

   a. For wells identified in Condition III.C.1 above, every five (5) years (during the second semi-annual sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.

   b. For any new wells, at the time of installation and reported in the as-built diagrams. Subsequent measurements shall be made every five (5) years (during the second quarter sampling event) or whenever the elevation changes.

10. Elevation of the bottom of each monitoring well identified in Condition III.C.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the second quarter sampling event (Storet 72020).

11. Statistical evaluations, as required by Condition III.H, shall be submitted to the Illinois EPA as a part of the required 5-year GMZ Evaluation reports required by Condition III.E.2.e.

12. Information required by Conditions III.I.2, III.I.3, III.I.9 and III.I.10 must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in the form, "Formatting Requirements for the 01 (and 02) Record of the Electronically Submitted Groundwater and Leachate Data" (LPC 160) located on the Illinois EPA website and in accordance with the schedule found in Condition III.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found at the Illinois EPA website.

13. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) as a cover sheet for any notices or reports required by the facility's permit for identification purposes. Only one (1) copy of the LPC 592 must accompany the submittal. However, the Permittee must submit one (1) original and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report to the Illinois EPA. The form is not to be used for permit modification requests.

14. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. All submittals must contain tables of data, drawings, and text (as necessary) to accurately describe the information contained in the submittal.

15. The Permittee shall submit a written report to the Illinois EPA, in accordance with the schedule found in Condition III.I.2, which discusses the effectiveness of the Groundwater Corrective Action Program. At a minimum, the report must:

    a. Address the information requirements in Conditions III.C, III.D, III.E and III.F.

    b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition III.D.

    c. Provide a discussion of any change in the quality of groundwater beneath the facility which has resulted from the corrective action.

16. If the Permittee evaluation, when required by Condition III.E.12, determines verification of contaminant control is necessary due to a lack of inward gradient, the Permittee will complete the following reporting and notification requirements in III.E.12:

    a. Notify the Illinois EPA in writing within seven (7) days of the date the determination resampling is required.

    b. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring is required.

    c. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made Contingency Monitoring does not meet the requirements for inward gradient and the permit-defined requirements for VOCs, the Permittee shall take steps to implement additional corrective measures as outlined in Condition III.E.12.g, and:

        i. Notify the Illinois EPA in writing within seven (7) days of the date the determination is made.

        ii. Submit a written report to the Illinois EPA within thirty (30) days describing the actions to be taken.

        iii. Take necessary actions to meet applicable groundwater standards at GMZ Boundary wells.

17. If the indoor inhalation exposure route evaluation required by Condition II.E.14 demonstrates that the indoor inhalation pathway is complete, the Permittee must submit the evaluation and propose additional corrective action within thirty (30) days of the discovery of the exceedance for the Illinois EPA review and approval

18. If the Permittee determines that groundwater flow is not being adequately controlled, and/or the contaminant control evaluations indicate contaminants are migrating beyond the GMZ boundaries, the Permittee shall:

a. Notify the Illinois EPA in writing within seven (7) days of the date that this determination is made.

b. Take actions as necessary to regain the control of groundwater flow as required by Condition III.E.3.

c. Submit a written report to the Illinois EPA within thirty (30) days describing the actions taken to regain control of groundwater flow. In addition, the report must contain information which demonstrates that groundwater flow is being adequately controlled.

d. Submit a request for permit modification to the Illinois EPA within sixty (60) days describing any changes which must be made to the corrective action program to ensure that the groundwater flow is adequately controlled.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the Groundwater Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724.201, the Permittee must, within ninety (90) days, submit an application for permit modification to the Illinois EPA, Bureau of Land, Permit Section, to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the permit may be modified by the Illinois EPA in accordance with 35 IAC 702.183 and 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification in this section of the regulations include, but are not limited to, alterations to the permitted facility, additional information which would have justified the application of different permit conditions at the time of permit issuance, and new regulations.

SECTION IV: SPECIAL CONDITIONS

A. REQUIRED FORMS

1. The Permittee shall provide a completed Illinois EPA permit application form LPC-PA23 with all additional information, permit modifications, and permit applications that are submitted to the Illinois EPA Bureau of Land.

2. The Permittee shall submit a current 39(i) certification and supporting documentation with all applications for a permit.

Note: If the Permittee desires to add additional staff as delegated signatories for future modifications, certifications, etc., the Permittee must meet the requirements of 35 IAC 702.126 and the delegated signatory individuals should also send in an individual 39(i) certification form.

B. REPOSITORY

1. The Permittee shall maintain a repository at the Wood River Public Library, located at 326 E. Ferguson Avenue, Wood River, Illinois. The following information shall be sent to the repository:

   a. A copy of the approved renewed RCRA corrective action permit.

   b. All permit applications and permit modification requests.

   c. All Illinois EPA responses to modification requests made to the RCRA corrective action permit (Log No. B-147R2).

C. COMPLIANCE SCHEDULE

1. The following revisions must be met with regards to groundwater:

   a. Within ninety (90) days of the effective date of this permit, install a new or replacement well or well pairs for G078, G030, G97L, and G87L to monitor the previously screened interval. It is noted only G078 no longer exists because the well was damaged.

   b. Within ninety (90) days of the effective date of this permit, propose monitoring wells with screens positioned to adequately define the vertical boundary of the GMZ in Condition II.E.2.a.

   c. A Water Well Survey (WWS) must be provided within ninety (90) days of the effective date of this permit to include a WWS as described in 35 IAC 1600.210 and the guidance document entitled, "Well Survey Procedures at Bureau of Land Permitted Facilities" provided as Attachment G to the permit.

2. The Permittee must prepare and submit an updated cost estimate for the completion of any corrective action required under this permit in order to provide financial assurance for the approved amount of that cost estimate within ninety (90) days of the date of the effective date of this permit, as required in accordance with 35 IAC 724.201. This cost estimate must include a minimum of 10% contingency for all items necessary to complete corrective action.

SECTION V: STANDARD CONDITIONS

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA permit shall not constitute a defense to a violation of the Environmental Protection Act (Act) or Subtitle G, except for development, modification or operation without a permit. Issuance of this permit does not convey property rights or any exclusive privilege. Issuance of this permit does not authorize any injury to persons or property or invasion of other private rights, or infringement of state or local law or regulations. (35 Illinois Administrative Code (IAC) 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 IAC 703.270 through 703.273 and 702.186. The filing of a request by the Permittee for a permit modification or reissuance, or a notification of planned changes or anticipated noncompliance on the part of the Permittee does not stay the applicability or enforceability of any permit condition. (35 IAC 702.146)

3. SEVERABILITY. The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby. (35 IAC 705.202)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 IAC 702.160)

5. DUTY TO COMPLY. The Permittee shall comply with all conditions of this permit except for the extent and for the duration such noncompliance is authorized by an emergency permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC Code 702.141 and 703.242)

6. DUTY TO REAPPLY. If the Permittee wishes to continue an activity allowed by this permit after the expiration date of this permit, the Permittee must apply for a new permit at least 180 days before this permit expires, unless permission for a later date has been granted by the Illinois EPA. (35 IAC 702.142 and 703.125)

7. PERMIT EXPIRATION. This permit and all conditions herein will remain in effect beyond the permit's expiration date if the Permittee has submitted a timely, complete application (see 35 IAC 703.181-703.209) and through no fault of the Permittee the Illinois EPA has not issued a new permit as set forth in 35 IAC 702.125.

8. NEED TO HALT OR REDUCE ACTIVITY NOT A DEFENSE. It shall not be a defense for the Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. (35 IAC 702.143)

9. DUTY TO MITIGATE. In the event of noncompliance with the permit, the Permittee shall take all reasonable steps to minimize releases to the environment and shall carry out such measures as are reasonable to prevent significant adverse impacts on human health or the environment. (35 IAC 702.144)

10. PROPER OPERATION AND MAINTENANCE. The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory, and process controls, including appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of the permit. (35 IAC 702.145)

11. DUTY TO PROVIDE INFORMATION. The Permittee shall furnish to the Illinois EPA, within a reasonable time, any relevant information which the Illinois EPA may request to determine whether cause exists for modifying, revoking and reissuing or terminating this permit, or to determine compliance with this permit. The Permittee shall also furnish to the Illinois EPA, upon request, copies of records required to be kept by this permit. (35 IAC 702.148)

12. INSPECTION AND ENTRY. The Permittee shall allow an authorized representative of the Illinois EPA, upon the presentation of credentials and other documents as may be required by law, to:

    a. Enter at reasonable times upon the Permittee's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;

    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;

    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit; and

    d. Sample or monitor, at reasonable times, for the purposes of assuring permit compliance or as otherwise authorized by the appropriate Act, any substances or parameters at any location. (35 IAC 702.149)

13. MONITORING AND RECORDS. (35 IAC 702.150)

    a. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The method used to obtain a representative sample of the waste must be the appropriate method from 35 IAC 721, Appendix A. Laboratory methods must be those specified in Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846, latest versions; Methods for Chemical Analysis

of Water and Wastes, EPA-600/4-79-020, latest versions; or an equivalent method as specified in the approved Waste Analysis Plan.

b. The Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports and records required by this permit, and records of all data used to complete the application for this permit for a period of at least three (3) years from the date of the sample, measurement, report or application. These periods may be extended by request of the Illinois EPA at any time. The Permittee shall maintain records from all groundwater monitoring wells and associated groundwater surface elevations, for the active life of the facility, and for disposal facilities for the post-closure care period as well.

c. Records of monitoring information shall include:

i. The date(s), exact place, and time of sampling or measurements;

ii. The individual(s) who performed the sampling or measurements;

iii. The date(s) analyses were performed;

iv. The individual(s) who performed the analyses;

v. The analytical technique(s) or method(s) used; and

vi. The result(s) of such analyses. (35 IAC 702.150)

14. REPORTING PLANNED CHANGES. The Permittee shall give written notice to the Illinois EPA as soon as possible of any planned physical alterations or additions to the permitted facility. In general, proposed changes to the facility will need to be submitted to the Illinois EPA as permit modification request that complies with the requirements of 35 IAC 703.280. (35 IAC 702.152(a))

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee shall not commence treatment, storage, or disposal of hazardous waste; and for a facility being modified the Permittee shall not treat, store or dispose of hazardous waste in the modified portion of the facility, until:

a. The Permittee has submitted to the Illinois EPA by certified mail or hand delivery a letter signed by the Permittee and a registered professional engineer stating that the facility has been constructed or modified in compliance with the permit; and

b. 1. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

2. If, within fifteen (15) days of the date of submission of the letter in paragraph (a), the Permittee has not received notice from the Illinois EPA of its intent to

inspect, prior inspection is waived, and the Permittee may commence treatment, storage, or disposal of hazardous waste. (35 IAC 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advanced written notice to the Illinois EPA of any planned changes in the permitted facility or activity which may result in noncompliance with permit requirements, regulations, or the Act. (35 IAC 702.152(b))

17. TRANSFER OF PERMITS. This permit may not be transferred by the Permittee to a new owner or operator unless the permit has been modified or reissued pursuant to 35 IAC 703.260(b) or 703.272. Changes in the ownership or operational control of a facility must be made as a Class 1 modification with the prior written approval of the Illinois EPA. The new owner or operator shall submit a revised permit application no later than ninety (90) days prior to the scheduled change. (35 IAC 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 IAC 702.152(d))

19. COMPLIANCE SCHEDULES. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than specified in 35 IAC 702.162. (35 IAC 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

a. The Permittee shall report to the Illinois EPA any noncompliance with the permit which may endanger human health or the environment. Any such information shall be reported orally within twenty-four (24) hours from the time the Permittee becomes aware of the following circumstances. This report shall include the following:

i. Information concerning the release of any hazardous waste that may cause an endangerment to public drinking water supplies.
ii. Information concerning the release or discharge of any hazardous waste or of a fire or explosion at the HWM facility, which could threaten the environment or human health outside the facility.

b. The description of the occurrence and its cause shall include:

i. Name, address, and telephone number of the owner or operator;

ii. Name, address, and telephone number of the facility;

iii. Date, time, and type of incident;

iv. Name and quantity of material(s) involved;

v. The extent of injuries, if any;

vi. An assessment of actual or potential hazards to the environment and human health outside the facility, where applicable; and

vii. Estimated quantity and disposition of recovered material that resulted from the incident.

c. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times and if the noncompliance has not been corrected; the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Illinois EPA may waive the five (5) day written notice requirement in favor of a written report within fifteen (15) days. (35 IAC .152(f) and 703.245(b)).

21. OTHER NONCOMPLIANCE. The Permittee shall report all instances of noncompliance not otherwise required to be reported under Standard Conditions 16, 19 and 20, at the time monitoring reports, as required by this permit, are submitted. The reports shall contain the information listed in Standard Condition 20. (35 IAC 702.152(g)).

22. OTHER INFORMATION. Where the Permittee becomes aware that it failed to submit any relevant facts in the permit application or submitted incorrect information in a permit application or in any report to the Illinois EPA, the Permittee shall promptly submit such facts or information. (35 IAC 702.152(h))

23. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit shall be sent to:

Illinois Environmental Protection Agency
Bureau of Land
Permit Section - #33
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

24. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA shall be signed and certified as required by 35 IAC 702.126. (35 IAC .151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC Part 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until closure is complete, the following documents and amendments, revisions, and modifications to these documents:

a. Post-closure plan as required by 35 IAC 724.218(a) and this permit.

b. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.

c. Operating record as required by 35 IAC 724.173 and this permit.

d. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

GENERAL FACILITY STANDARDS

27. GENERATOR REQUIREMENTS. Any hazardous waste generated at this facility shall be managed in accordance with the generator requirements at 35 IAC Part 722.

28. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c).

29. GENERAL INSPECTION REQUIREMENTS. The Permittee shall follow the approved inspection schedule. The Permittee shall remedy any deterioration or malfunction discovered by an inspection as required by 35 IAC 724.115(c). Records of inspections shall be kept as required by 35 IAC 724.115(d).

30. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close containers storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified at 35 IAC 722.117(a)(8).

PREPAREDNESS AND PREVENTION

31. DESIGN AND OPERATION OF FACILITY. The Permittee shall maintain and operate the facility to minimize the possibility of fire, explosion, or any unplanned sudden or non-sudden release of hazardous waste constituents to air, soil, or surface water which could threaten human health or the environment. (35 IAC 724.131)

32. REQUIRED EQUIPMENT. The Permittee shall equip the facility with the equipment set forth in the approved contingency plan, as required by 35 IAC 724.132.

33. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee shall test and maintain the equipment specified in the contingency plan and this permit as necessary to assure its proper operation in time of emergency. Such testing and maintenance activities are set forth in the approved inspection schedule. (35 IAC 724.133)

34. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134.

35. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements.

36. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee shall attempt to make emergency response

arrangements with State and local authorities and agreements with State emergency response teams and emergency response contractors and equipment suppliers as required by 35 IAC 724.137. If State or local officials refuse to enter in preparedness and prevention arrangements with the Permittee, the Permittee must document this refusal in the operating record.

RECORD KEEPING

37. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

POST-CLOSURE

38. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 IAC 724.217 and in accordance with the approved post-closure plan.

39. AMENDMENT TO POST-CLOSURE PLAN. The Permittee must amend the post-closure plan whenever a change in the facility operation plans, or facility design affects the post-closure plan or when an unexpected event has occurred which has affected the post-closure plan pursuant to 35 IAC 724.218(d).

40. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 IAC 724.244, must be:

    a. Adjusted for inflation either sixty (60) days prior to each anniversary of the date on which the first closure cost estimate was prepared or if using the financial test or corporate guarantee, within thirty (30) days after close of the firm's fiscal year.

    b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of closure.

    c. Kept on record at the facility and updated. (35 IAC 724.244).

    d. Maintained at the value approved by the Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification.

41. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by Standard Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245.
    Financial assurance documents submitted to the Illinois EPA should be directed to the following address:

Illinois Environmental Protection Agency
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

42. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

SECTION VI: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the permit are summarized below. This summary table is provided to "highlight" the various reporting and notification requirements of this permit but is not meant to supersede the requirements of the various sections of this permit.

Condition	Action	Due Date
Section II: Corrective Action		
H.4	Submit Phase I CMP Workplan.	Within 90 days of notification from Illinois EPA
I.1	Notification of Newly Identified SWMU/AOCs.	Within 30 days of discovery
I.3	Submittal of Assessment Plan for Newly Identified SWMU.	Within 90 days of request for plan from Illinois EPA
I.5	Submittal of SWMU Assessment Report for Newly Identified SWMU.	In accordance with schedule in assessment plan
J	Notification of Release from Existing SWMU.	Within 30 days of discovery
II.M.2	Annual Cost Estimate for Corrective Action	January 1 each year
II.L.1	Quarterly Corrective Action Progress Report: January – March April – June July-September October – December	 May 1 August 1 November 1 March 1
II.L.2	Annual Report of Corrective Action Program Activities with Quarterly Report for October-December	March 1 of each year
II.L.3	Final Report for each parcel/area	As corrective action is completed
Section III: Groundwater Corrective Action Program		
C.3	Notification that well has been damaged or its structural integrity compromised.	Within 30 days of identification
C.5	Boring logs, construction diagrams and datasheets from installation and development of new/replaced well.	Within 30 days after well installed

C.2 General schedule for collection and reporting of groundwater data:

Sampling Event of Calendar year	Collected During the Months of	Results Submitted to the Illinois EPA by the Following
First Quarter	January-February	August 1
Second Quarter	April-May	August 1

	Third Quarter July-August February 1 Fourth Quarter October-November February 1	
I.3	Groundwater surface elevation data.	Quarterly as set forth in Condition III.I.2
I.4	Groundwater withdrawal rates.	Quarterly as set forth in Condition III.I.2
I.5	Gradient control measurements.	Semi-annually as set forth in Condition III.I.2
I.6	Free product thickness.	Semi-annually as set forth in Condition III.I.2 and quarterly per Condition II.M.1.
I.7	Groundwater flow rate and direction.	Annually as set forth in Condition III.I.2
I.8	Groundwater quality results.	Semi-annually as set forth in Condition III.I.2
I.9	The surveyed elevation of the top of well casing.	Every 5 years
I.10	Elevation of the bottom of each monitoring well.	Second quarter as set forth in Condition III.I.2
I.11	Report every 5 years the summary of annual statistical calculations	Every 5 years within GMZ evaluations
I.12	Electronic reporting of groundwater data	Semi-annually as set forth in Condition III.I.2
I.15	Report to Illinois EPA on effectiveness of corrective action program.	By August 1 of each year
I.16.a	Contaminants in Sentry Observation Wells or Demonstration Wells require resampling	Within 7 days of the determination
I.16.b	Contingency Monitoring is required	Within 7 days of the determination
I.16.c.i	Gradient is not maintained and VOCs are not met	Within 7 days of the date the determination is made
I.16.c.ii	Notify the Illinois EPA in writing describing the actions to be taken	Within 30 days
I.17	Submit an evaluation of the indoor inhalation pathway and propose additional corrective action.	Within 30 days of the discovery
I.18.a	Notify the Illinois EPA in writing that groundwater flow is not being adequately controlled	Within 7 days of the date the determination is made
I.18.b	Submit a report to Illinois EPA describing the actions taken to regain control of groundwater flow.	Within 30 days
I.18.c	Submit a request for permit modification to Illinois EPA describing	Within 60 days

	any changes to the corrective action program to regain control of groundwater flow.	
J.1	Modification of groundwater corrective action program.	Within 90 days of determination existing program does not meet the requirements of 35 IAC 724.201
Section IV: Special Conditions		
A.1	Submit LPC-PA23 form.	With all additional information, permit modifications, and permit applications
A.2	Submit 39i certification form.	With all permit applications
Section V: Standard Conditions		
6	Submit complete application for new permit	At least 180 days prior to permit expiration
11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time
14	Notify Illinois EPA of planned physical alterations or additions.	As soon as possible
16	Notify Illinois EPA of changes which may result in permit noncompliance.	Advanced written notice to the Illinois EPA
17	Application for permit modification indicating permit is to be transferred.	90 days prior to change in ownership
20	Report to Illinois EPA any non-compliance which may endanger health or environment.	
	- via telephone	Within 24 hours after discovery
	- in writing	Within 5 days after discovery
21	Report all other instances of noncompliance.	At the time monitoring reports are submitted
34	Application for permit modification amending post-closure plan.	60 days prior to the proposed change in facility design or operation, or no later than 60 days after an unexpected event has occurred
35.a	Adjust post-closure cost estimates for inflation.	Within 60 days before anniversary date, or within 30 days after close of the firm's fiscal year.

35.b	Revision post-closure cost estimates.	As needed, within 90 days of discovery of revision
36	Change in financial assurance mechanism for post-closure.	As needed
37	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding

ATTACHMENTS

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

1. RCRA Post-Closure Renewal Application (Log No. B-147R2) dated October 8, 2020.
2. Additional Information for B-147R2- Replacement Pages submitted 1) Condition C.8.1.5 – Page 13 and 2) Exhibit C-1, Table 1- Page 4, dated April 28, 2022.
3. Time extension request for submittal of a response to the IEPA RCRA Permit Renewal Application NOD letter, dated July 5, 2024.
4. "Response to Illinois EPA Comments dated July 18, 2024" dated August 1, 2024.
5. Additional Information for B-147R2. Replacement pages, for Section C, dated August 29, 2024.

ATTACHMENT B

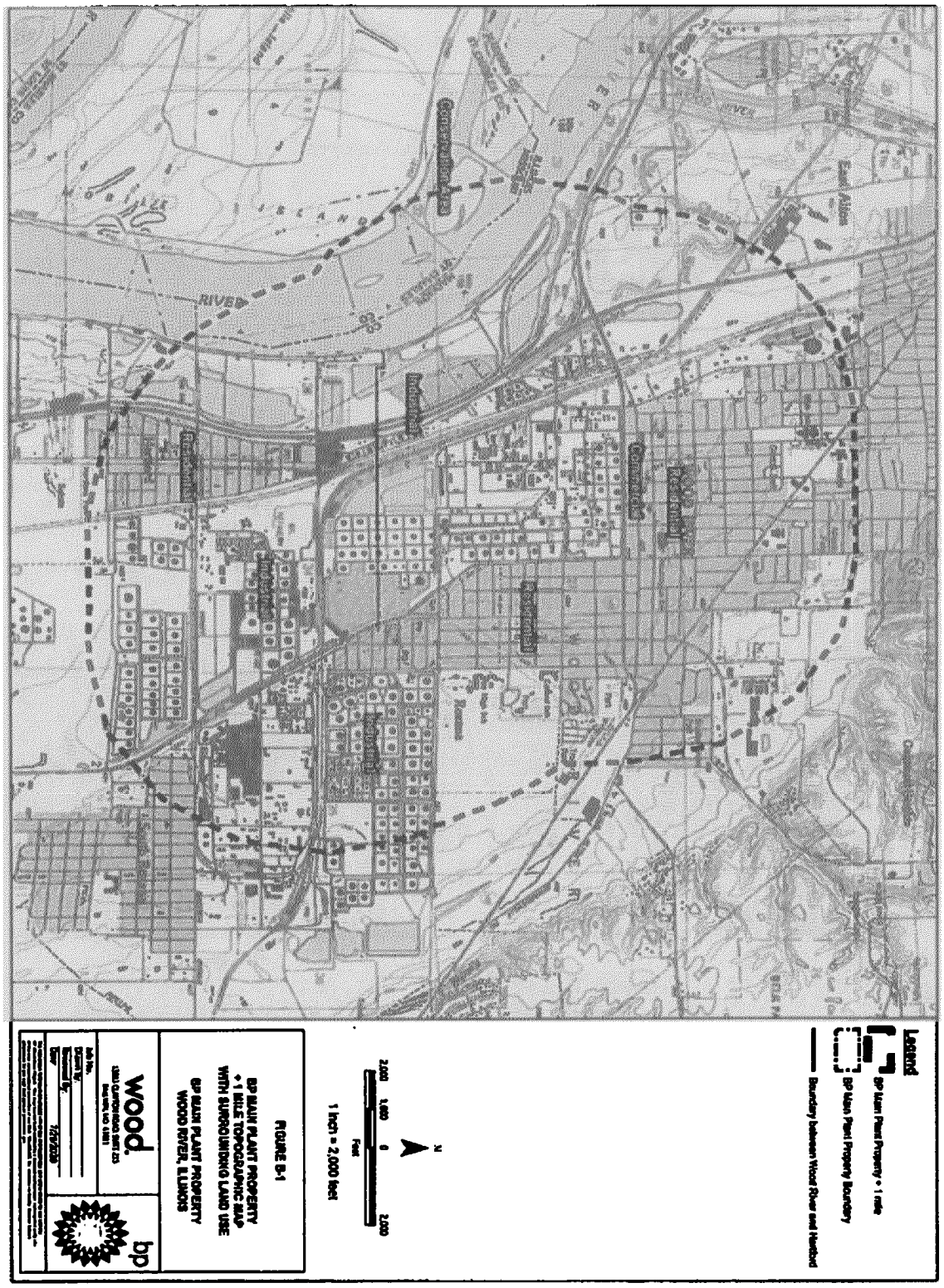
LOCATION MAP & DRAWING OF PERMITTED UNITS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

1191150001-BP Main Plant
Log No. B-147R2
Page B-1 of B-3



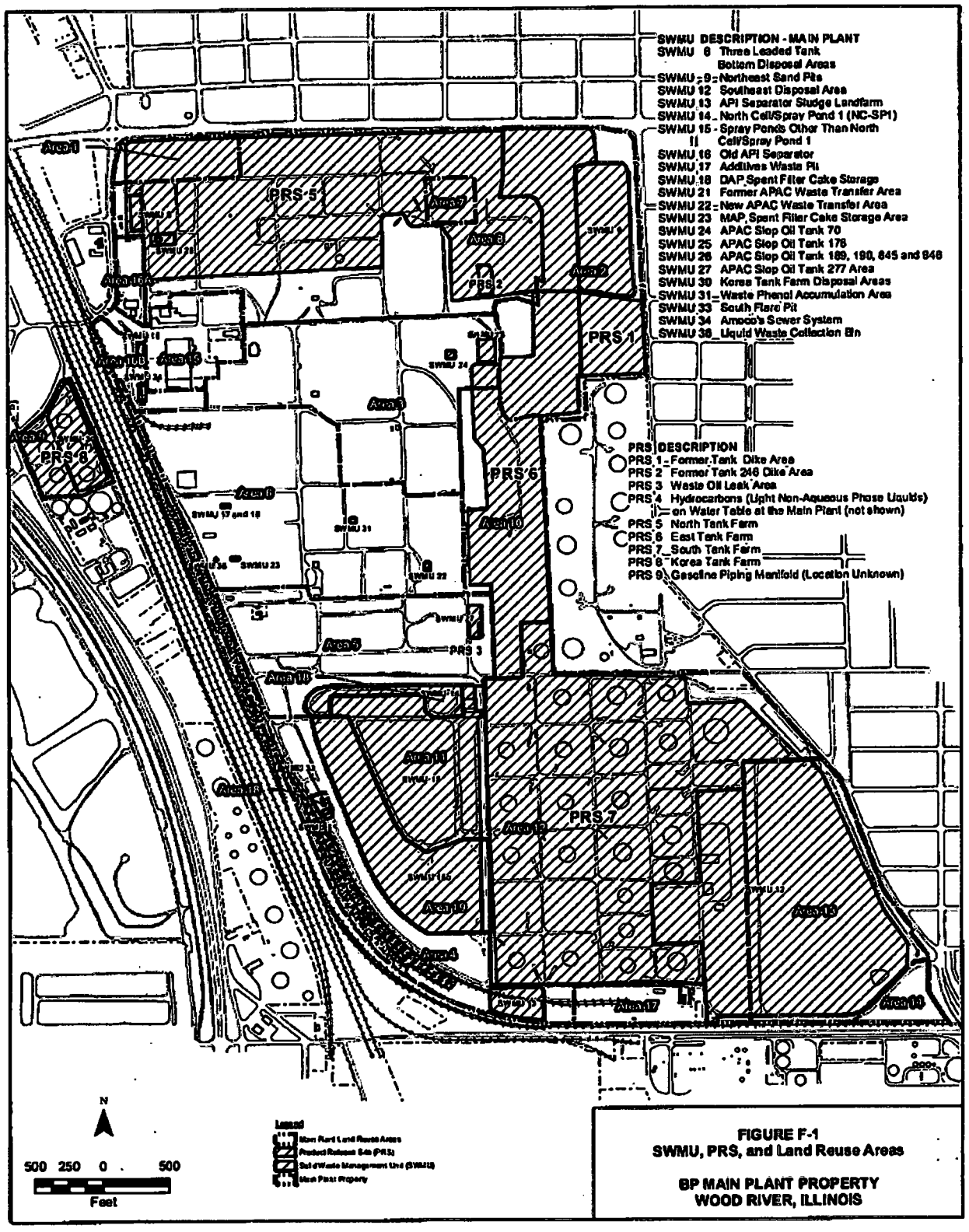
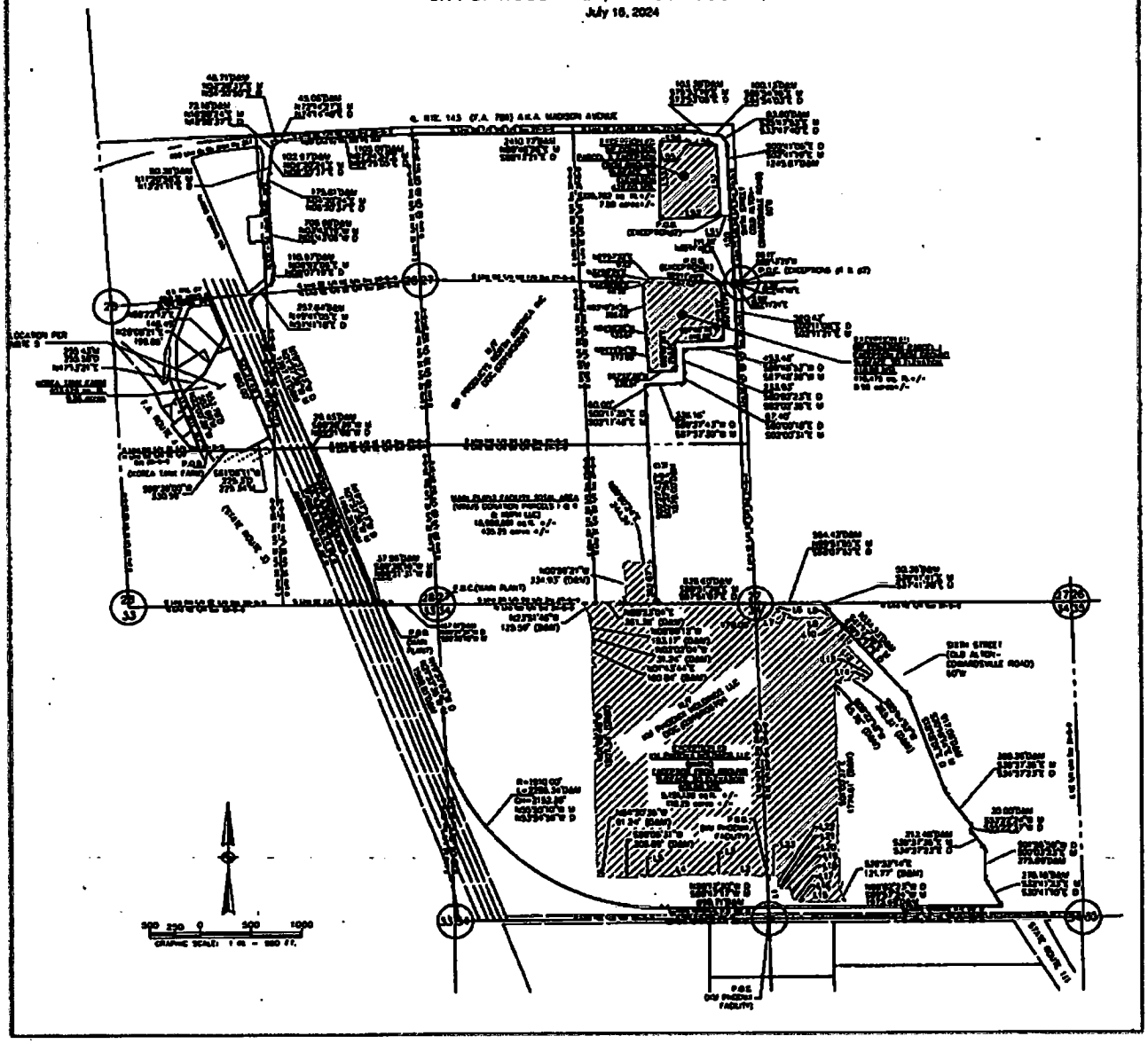


FIGURE F-1
SWMU, PRS, and Land Reuse Areas

BP MAIN PLANT PROPERTY
WOOD RIVER, ILLINOIS

EXHIBIT: B.P. AMOCO MAIN PLANT AND [redacted] EA TANK FARM WITH
DONATION PARCEL EXCEPTIONS PARCEL I & PARCEL II AND KINDER MORGAN PHOENIX HOLDINGS, LLC EXCEPTION
BEING PART OF SECTIONS 27, 28, 33 AND 34, ALL IN TOWNSHIP 5 NORTH, RANGE 9 WEST OF THE THIRD PRINCIPAL MERIDIAN
CITY OF WOOD RIVER, MADISON COUNTY, ILLINOIS
July 16, 2024



ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT C

SUMMARY OF CORRECTIVE ACTION SUBMITTALS

The table below summarizes the plans/reports/documents submitted to Illinois EPA regarding the corrective action efforts at the BP/Main Plant facility in Wood River, Illinois.

Note:

CCR = Current Conditions Report
GMZ = Groundwater Management Zone
NC-SP1 = North Cell of Spray Pond 1
RFI = RCRA Facility Investigation
SFP = South Flare Pit
SSI = Statistically Significant Increase

Log No.	Submittal	Status
B-147	RCRA Permit issued to facility, Section IV contains corrective action requirements.	Approved September 30, 1993
B-147	Proposed GMZ	Approved April 6, 1994
B-147-CA-1	RFI Phase I workplan	Approved September 7, 1994
B-147-CA-2	RFI Phase I report	Approved June 5, 2001
B-147-CA-3	Supplemental RFI Phase I report	Approved June 5, 2001
B-147-CA-4	Conceptual RFI Phase II/III workplan	Superseded by CA-7
B-147-CA-5	Investigation Workplan for Areas 1 and 2	Approved August 15, 2000
B-147-CA-6	Engineered Barrier Specification Report	Superseded by CA-9
B-147-CA-7	RFI Phase II/III workplan	Approved February 5, 2002
B-147-CA-8	Human Exposures Controlled (CA725) Demonstration	Superseded by CA-12
B-147-CA-9	Engineered Barrier Specification Report	Approved August 3, 2001
B-147-CA-10	"Comfort Letter" request for soils in Area 1	Approved July 9, 2001
B-147-CA-11	No Further Action Determination for Area 1	Approved December 5, 2001
B-147-CA-12	Human Exposures Controlled (CA725) Demonstration	Approved October 9, 2001

Log No.	Submittal	Status
B-147-CA-13	Request to incorporate two releases in Area 12 into corrective action program	Superseded by CA-16
B-147-CA-14	NFA for Area 2	Approved August 13, 2002
B-147-CA-15	Groundwater action Releases Under Control (CA750) Demonstration	Approved March 18, 2002
B-147-CA-16	Request to Incorporate two releases in Area 12 into corrective action program	Approved September 13, 2002
B-147-CA-17	CCR/Characterization Workplan for Area 4	Approved January 10, 2002
B-147-CA-18	GMZ Re-Evaluation	Approved March 13, 2002
B-147-CA-19	CCR/Characterization Workplan for Area 19	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-20	CCR/Characterization Workplan for Area 15	Approved March 20, 2002 (soils); April 9, 2002 (groundwater)
B-147-CA-21	City of Wood River Ordinance and MOU to restrict groundwater use	Approved March 28, 2002
B-147-CA-22	CCR/Characterization workplan for Area 9	Approved September 5, 2002
B-147-CA-23	Modifications to Approved Phase II/III RFI workplan (CA-7)	Approved June 21, 2002
B-147-CA-24	CCR/Characterization Workplan for Area 6	Approved September 5, 2002
B-147-CA-25	CCR/Characterization workplan for Area 5	Approved September 27, 2002
B-147-CA-26	Revised CCR/Characterization workplan for Area 15	Approved September 27, 2002
B-147-CA-27	CCR/Characterization Workplan for Area 3	Approved September 27, 2002
B-147-CA-28	Comments on IEPA's January 10, 2002 letter regarding Area 4 (CA-17)	Approved September 5, 2002
B-147-CA-29	Draft ELUC for Area 1	Approved January 10, 2003

Log No.	Submittal	Status
B-147-CA-30	Investigation Report for Area 4	Approved August 22, 2003
B-147-CA-31	Investigation Report for Area 15	Approved November 19, 2003
B-147-CA-32	Revised Corrective Action Schedule	Approved February 7, 2003
B-147-CA-33	CCR/Characterization Workplan for Area 7/8	Approved August 7, 2003
B-147-CA-34	Revised Corrective Action Schedule	Superseded by B-147-CA-45
B-147-CA-35	Report on soil removal activities in Area 2	Approved August 11, 2003
B-147-CA-36	Area 15 Report-Addendum 1	Approved November 19, 2003
B-147-CA-37	Area 15 Report-Addendum 2	Approved November 19, 2003
B-147-CA-38	Extension request for submitting Area 12 CCR/Workplan	Approved December 30, 2004
B-147-CA-40	Draft ELUC for Area 2	Approved January 29, 2003
B-147-CA-41	CCR/Characterization Workplan for Area 10	Approved June 4, 2003
B-147-CA-42	Soil Removal Activities Report at Area 15	Approved June 16, 2004
B-147-CA-43	Draft ELUC for Area 15	Approved August 23, 2004
B-147-CA-44	Soil Removal Activities Report at Area 4	Approved September 15, 2004
B-147-CA-45	Revised Corrective Action Schedule	Approved December 30, 2004
B-147-CA-46	Recorded ELUC for Area 15	Approved September 29, 2005
B-147-CA-47	Draft ELUC for Area 4	Approved June 1, 2005
B-147-CA-48	Recorded ELUC for Area 1	Approved March 25, 2005
B-147-CA-49	Recorded ELUC for Area 2	Approved March 29, 2005
B-147-CA-50	Updated RFI Phase II/III Project Plan Schedule	Approved September 21, 2005
B-147-CA-51	2004-05 CCR Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved December 29, 2005

Log No.	Submittal	Status
B-147-CA-52	Recorded ELUC for Area 4	Approved September 29, 2005
B-147-CA-53	Submittal regarding facility's GMZ	Approved January 24, 2006
B-147-CA-54	Summary of Phytoremediation/Landfarming Remedial Measures at Tank 293	Approved August 11, 2008
B-147-CA-55	Reevaluation of GMZ	Approved January 21, 2009
B-147-CA-56	Updated RFI Phase II/III Project Plan Schedule	Superseded by B-147R
B-147-CA-57	Investigation Report for Area 3	Soil comments e-mailed by IEPA February 25, 2008
B-147-CA-58	Investigation Report for Area 5	Disapproved June 22, 2007
B-147-CA-59	Investigation Report for Area 6	Superseded by B-147R-CA-29
B-147-CA-60	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-61	Underground Piping Investigation Work Plan	Approved April 4, 2007 (eventually superseded by CA-90)
B-147-CA-62	Re-evaluation of GMZ	Approved January 21, 2009
B-147-CA-63	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-64	Underground Piping Work Plan for 7 and 8 Areas	Superseded by CA- 90
B-147-CA-65	Investigation Report for Area 19	Approved December 6, 2007
B-147-CA-66	Draft White Paper – Property Transfer Process	Approved March 31, 2009
B-147-CA-67	Demonstration that detection monitoring SS1s at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-68	Information regarding two releases in Area 8	Approved August 13, 2007

Log No.	Submittal	Status
B-147-CA-69	Addendum to Area 5 Report	On January 30, 2009, IEPA required additional investigation be conducted in Area 5.
B-147-CA-70	Supplemental Report for Soil Sampling of NC-SP1 and SFP	Approved January 7, 2008 (NFA determination made for NC-SP1; additional work required for SFP).
B-147-CA-71	Area 5 Land Reuse Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-72	Corrective Action Excavation in Area 5	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-73	Area 5 Analytical Reports for Perched Groundwater	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-74	2007 Annual Current Conditions Report – Phytoremediation at Tank 293	Approved August 11, 2008
B-147-CA-75	Area 5 Land Reuse Inventory Report and closure Plan, Revision 1	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA- 76	Area 10 Land Reuse Investigation and Closure Plan	Superseded by B-147R-CA-4
B-147-CA-77	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source	Approved January 6, 2009
B-147-CA-78	Comments on IEPA's December 6, 2007 letter regarding the Area 19 Land Reuse Investigation Report and Closure Plan (CA-65)	Approved April 13, 2009
B-147-CA-79	Area 9 Land Reuse Report	Superseded by B-147R-CA-15
B-147-CA-80	Site-Wide Class II GW Determination	Disapproved December 17, 2012
B-147-CA-81	Area 7/8 Land Reuse Investigation Report and Closure Plan	Superseded by B-147R-CA-27
B-147-CA-82	2007 Annual Current Conditions Report, Phytoremediation/Landfarming at Tank 293	Approved August 11, 2008

Log No.	Submittal	Status
B-147-CA-83	Additional information regarding two releases in Area 8 (see CA-68)	Received June 4, 2008
B-147-CA-84	Area 16 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-85	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are from alternate source.	Approved January 6, 2009
B-147-CA-86	Area 17 CCR/Characterization Workplan	Approved May 5, 2009
B-147-CA-87	Underground Pipeline Work Plan	Superseded by B-147-CA-90
B-147-CA-88	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved January 6, 2009
B-147-CA-89	Additional information regarding Area 5 Investigation Report	On January 30, 2009, IEPA sent letter requiring additional investigation in Area 5.
B-147-CA-90	Underground Product Pipeline Investigation Workplan – Revision 1	Approved April 13, 2009
B-147-CA-91	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of renewal permit.
B-147-CA-92	Response to Comments, Area 6 Land Reuse Investigation Report	Superseded by B-147R-CA-21
B-147-CA-93	CCR for Phytoremediation/Landfarming	Approved November 20, 2009
B-147-CA-94	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-95	Requested changes to IEPA's April 13, 2009 approval of the Underground Product Pipeline Investigation Workplan	Approved July 6, 2009
B-147-CA-96	Letter Regarding Vertical Parceling	Approved March 3, 2010
B-147-CA-97	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).

Log No.	Submittal	Status
B-147-CA-98	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-99	Proposal to evaluate: (1) the hydrocarbon recovery system at facility; and (2) arsenic impacts in Well RG36	Approved February 24, 2010
B-147-CA-100	Demonstration that detection monitoring SSIs at NC-SP1 and SFP are due to alternate source.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-101	Shallow investigation of South Flare Pit.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-102	Current Condition Report for phytoremediation landforming at Tank 293.	Approved July 12, 2011
B-147-CA-103	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-104	Response to request for improvement to hydrocarbon recovery system.	Approved August 31, 2011
B-147-CA-105	Demonstration that detection monitoring statistical increases are not due to significant changes in groundwater quality.	Approved as of the effective date of B-147R renewal permit (see B-147R below).
B-147-CA-106	Response to February 24, 2010 letter requiring improvements to hydrocarbon recovery system.	Approved August 31, 2011.
B-147-CA-107	Site-wide Geology Report and cone penetrometer logs.	Approved December 17, 2012
B-147-CA-108	Demonstration Regarding SSIs for NCSP1/SFP (2Q10)	Approved August 31, 2011
B-147-CA-109	SSI Demonstration for SFP (3Q10)	Approved August 31, 2011
B-147R	Renewed RCRA Permit	Approved March 4, 2011
B-147R-CA-1	2010 Report for Phytoremediation/Landfarming at Tank 293	Approved July 12, 2011

Log No.	Submittal	Status
B-147R-CA-2	Submittal Regarding GMZ Boundary Wells	Approved August 31, 2011
B-147R-CA-3	Area 11 CCR/Characterization Workplan	Approved January 24, 2012
B-147R-CA-4	Area 10 Comprehensive Report	Received May 5, 2011
B-147R-CA-5	Information Regarding the Arsenic Levels at Monitoring Wells RG36	Approved October 29, 2013
B-147R-CA-6	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011 (see also B-147R-CA-12)
B-147R-CA-7	Draft ELUC for Area 2, excluding Donation Parcel	Superseded by B-147R-CA-11
R B-147-CA-8	Additional Information Regarding the Arsenic Levels at Monitoring Well RG36	Disapproved October 29, 2013
B-147R-CA-9	Draft ELUC for South Flare Pit	Superseded by B-147R-CA-18
B-147R-CA-10	Area 13 CCR/Characterization Work Plan	Approved October 26, 2012
B-147R-CA-11	Draft ELUC for Area 2, Excluding Donation Parcel	Approved November 3, 2011
B-147R-CA-12	Draft ELUC for Donation Parcel in Area 2	Approved November 3, 2011
B-147R-CA-13	Area 14 CCR/Characterization Workplan	Approved July 12, 2012
B-147R-CA-14	Response to August 31, 2011 IEPA letter (see R-CA-2)—improvements to HRS and GMZ	Approved October 29, 2013
B-147R-CA-15	Area 9 Comprehensive Report	Received December 15, 2011
B-147R-CA-16	Recorded ELUC for Donation Parcel in Area 2	Approved March 13, 2012
B-147R-CA-17	Recorded ELUC for Area 2, excluding Donation Parcel	Approved February 27, 2012
B-147R-CA-18	Revised Draft ELUC for South Flare Pit	Approved August 11, 2014
B-147R-CA-19	Area 5 Comprehensive Report	Received February 2, 2012

Log No.	Submittal	Status
B-147R-CA-20	2011 Report for Phytoremediation-Landfarming Project at Tank 293	Approved December 21, 2012
B-147R-CA-21	Area 6 Report	Received March 16, 2012
B-147R-CA-22	GMZ Re-Evaluation	Approved October 29, 2013
B-147R-CA-23	Site-Wide Class 2 Groundwater Demonstration	Approved December 17, 2012
B-147R-CA-24	Area 3 Current Conditions Report/Characterization Plan	Received May 10, 2012
B-147R-CA-25	Area 17 comprehensive land reuse investigation report and remediation plan	Received October 25, 2012
B-147R-CA-26	Extension request for submittal of response to 12/17/12 letter re: sitewide Class 2 Groundwater demonstration and cone penetration test.	Approved December 3, 2014
B-147R-CA-27	Area 7/8 comprehensive land reuse investigation report and remediation plan	Received December 17, 2012
B-147R-CA-28	Response to comments for the sitewide class 2 groundwater demonstration	Approved December 3, 2014
B-147R-CA-29	2012 annual current condition report: phytoremediation/landfarming remedial measures at Tank 293.	Approved November 13, 2013
B-147R-CA-30	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Approved February 9, 2016
B-147R-CA-31	Area 2 donation parcel ii current conditions rpt/vapor intrusion wp	Superseded by B-147R-CA-35
B-147R-CA-33	Response to 10/29/13 letter (condition 2.3(iv))	Approved February 9, 2016
B-147R-CA-34	Tank 293 annual current conditions report	Approved December 3, 2014
B-147R-CA-35	Area 2 donation parcel ii current conditions rpt and vapor intrusion wp.	Approved October 24, 2014
B-147R-CA-36	Response/schedule to 10/29/13 letter and 12/19/13 meeting	Approved June 10, 2014
B-147R-CA-37	Updated financial assurance cost estimates	Approved August 2, 2017

Log No.	Submittal	Status
B-147R-CA-38	Extension request to respond to IEPA's 12/29/13 letter	Approved June 10, 2014
B-147R-CA-39	Response to IEPA 2/14/13 email comments on the Area 9 Investigation Report (B-147R-CA-15)	Received May 5, 2014
B-147R-CA-40	Information Re: Existing HRS	Approved April 4, 2016
B-147R-CA-41	Updated Regarding HRS Evaluation	Approved April 4, 2016
B-147R-CA-42	Updated Regarding the Cone of Depression (COD) Evaluation	Approved January 19, 2016
B-147R-CA-43	Information Regarding filing ELUC	Approved October 27, 2015
B-147R-CA-44	Extension Request (GW)	Approved July 18, 2017
B-147R-CA-45	Area 16 Investigation Report and Remediation Plan	Approved June 14, 2016
B-147R-CA-46	Response to Comments Regarding Site-Wide Class II GW Demonstration	Received December 24, 2014
B-147R-CA-47	60 day extension Request (GW)	Approved July 18, 2017
B-147R-CA-48	Annual 2014 Current Conditions Report for Tanlk293	Approved January 16, 2015
B-147R-CA-49	GMZ Well Evaluation Report	Approved July 18, 2017
B-147R-CA-50	Potential TACO Based CA for Tank 293	Received June 17, 2015
B-147R-CA-51	Area 2 Donation Parcel II CCR & Vapor Intrusion Work Plan	Superseded by B-147R-CA-57 and R-CA-59
B-147R-CA-52	COD Well Performance Evaluation Report	Approved January 19, 2016
B-147R-CA-53	ELUC Submittal	Received July 15, 2015
B-147R-CA-54	GMZ Re-evaluation Report	Approved July 18, 2017
B-147R-CA-55	Evaluation of Significant Increase	Received April 23, 2015
B-147R-CA-56	COD Well Evaluation and Status Report	Approved January 19,. 2016
B-147R-CA-57	Area 2 Donation Parcel II – Boundary Approval request	Approved August 22, 2016
B-147R-CA-58	ELUC	Approved July 18, 2016

Log No.	Submittal	Status
B-147R-CA-59	Area 2 Donation Parcel II – Vapor Intrusion Report	Approved August 22, 2016
B-147R-CA-60	HRS Evaluation Update	Approved April 4, 2016
B-147R-CA-61	HRS Evaluation Update	Approved April 4, 2016
B-147R-CA-63	2015 Annual CCR for Tank 293	Received March 1, 2016
B-147R--CA-64	Draft ELUC for Donation Parcel Area 2 (7.5-ac)	Approved February 28, 2017
B-147R--CA-65	Draft ELUC for Donation Parcel Area 2	Approved February 28, 2017
B-147R--CA-77	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres -Top layer)	Approved May 4, 2017
B-147R--CA-78	Revised Draft ELUC for Police Station Parcel (Area 2 7.5 acres – Beneath the top layer)	Approved April 21, 2017
B-147R--CA-79	4th Quarter 2016 Demonstration Report (SSIE)	Received April 24, 2017
B-147R--CA-80	Extension Request for Information Required by IEPA's Response to B-147R-CA-22	Received June 22, 2017
B-147R--CA-81	Proposed ELUC	Received July 10, 2017
B-147R-CA-82	Response to IEPA 7/18/27 letter regarding GMZ wells	Received October 16, 2017
B-147R-CA-83	Extension request for submittal of cost estimate	Received October 30, 2017
B-147R-CA-84	GMZ monitoring wells	Received October 16, 2017
B-147R-CA-85	Plan for GMZ optimization for compliance commitment agreement	Received January2, 2018
B-147R-CA-86	Interim progress report - bioremediation pilot systems operations	Received April 2, 2018
B-147R-CA-87	Fourth Quarter 2017 GW demonstration report	Received April 12, 2018
B-147R-CA-88	Response to IEPA's 7/18/17 GMZ wells letter	Received May 1, 2018
B-147R-CA-89	GW Monitoring Optimization Report	Approved January 19, 2023

Log No.	Submittal	Status
B-147R-CA-90	Time Extension Request	Approved June 24, 2019
B-147R-CA-91	Remedial Action Selection Report and Main Plant Remedy Roadmap	Approved February 11, 2020
B-147R-CA-92	Performance Report-Pilot-Scale Bioremediation Systems	Approved February 11, 2020
B-147R-CA-93	Indoor Inhalation Exposure Route Evaluation & Work Plan	Denied May 30, 2019
B-147R-CA-94	State-wide Arsenic/Inorganic Demonstration Report	Approved June 24, 2019
B-147R-CA-95	4th Quarter 2018 Demonstration Report (Statistically Significant Increase Evaluation)	Approved February 27, 2020
B-147R-CA-96	Revised Indoor Inhalation Exposure Route Evaluation and Work plan	Received August 29, 2019
B-147R-CA-97	Site-wide inorganics and metals evaluation work plan schedule update letter	Received November 5, 2019
B-147R-CA-98	Action Plan for potential manmade pathway evaluation	Received November 26, 2019
B-147R-CA-99	Main Plant Area 10 Comprehensive land reuse Investigation Report	Received December 20, 2019
B-147R-CA-100		
B-147R-CA-101	2019 Annual Tank 293 Current Conditions Report	Received February 28, 2020
B-147R-CA-102	Documentation of monitoring well installation and abandonment	Received March 27, 2020
B-147R-CA-103	Proposed modification to 2Q 2020 GW Gauging & Monitoring in response to COVID-19 pandemic	
B-147R-CA-104	4th Quarter 2019 Demonstration Report	Received May 21, 2020
B-147R-CA-104	4th Quarter 2019 Demonstration Report (Statistically Significant Increase Evaluation)	Received April 30, 2020
B-147R-CA-105	RCRA Land reuse investigation assessments	Received June 22, 2020
B-147R-CA-106	Notification of COD Pumping and Equipment Status	Received July 29, 2020
B-147R-CA-107	COD pumping and equipment status update	Received September 16, 2020

Log No.	Submittal	Status
B-147R-CA-108	Request to update Main Plant Observation Monitoring Well Abandonment of G047	Received September 23, 2020
B-147R-CA-109	Site-wide inorganics and metals evaluation work plan	Received November 302020
B-147R-CA-110	Groundwater Management Zone Re-evaluation	Received December 21, 2020
B-147R-CA-111	Soil Gas Pathway Evaluation Report	Received June 8, 2021
B-147R-CA-112	Results in accordance with Site-Wide Inorganics and Metals Evaluation Report submitted on 12/20/18	Received January 26, 2022
B-147R-CA-113	Remedial Action Selection Report & Main Plant Remedy Roadmap. This is a follow up on IEPA correspondence dated 2-11-20	Received January 31, 2022
B-147R-CA-114	Monitoring Well Condition	Approved January 19, 2023
B-147R-CA-115	Proposed upgrades to the Cone of Depression (COD) Well System	Approved January 19, 2023
B-147R-CA-116	4th Quarter 2021 Demonstration Report	Received May 3, 2022
B-147R-CA-117	Northern GMZ Monitoring Wells G067/G068	Approved January 19, 2023
B-147R-CA-118	Well replacement extension request	Approved April 21, 2023
B-147R-CA-119	4th Quarter 2022 Demonstration Report	
B-147R-CA-120	Documentation of monitoring well installation and abandonment	Received July 21, 2023
B-147R-CA-121	Main Plant GMZ Well G078 Well Condition Notification letter in accordance with Condition V.D.4 of the RCRA permit	Received July 13, 2023
B-147R-CA-122	Corrective Action Mod request for the Korea tank Farm (Area 9) at the Main Plant	Approved November 20, 2023
B-147R-CA-123	Gradient Control Well G668 and G669 Condition Notification	Received September 13, 2023
B-147R-CA-124	Main Plant Observation Well G97L Well Conditions Notification letter in accordance with ConditionV.D.4 of the RCRA	Received January 30, 2024
B-147R-CA-125	Main plant land reuse investigation data submittal of general background, sampling methods, analytical procedures, and analytical results for areas	Received March 12, 2024

Log No.	Submittal	Status
B-147R-CA-126	Additional info to the revised indoor inhalation exposure route eval and work plan dated 8/29/19 to provide an update on changed site conditions	Received April 16, 2024
B-147R-CA-127	Response to recommendation to vent well cap in the 8/3/23 Inspection Report	Received April 24, 2024
B-147R-CA-128	Main Plant Observation well G87L well condition Notification letter in accordance with Condition V.D.4 of RCRA permit	Received July 31, 2024

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT D

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

1.0 INTRODUCTION/PURPOSE

RCRA corrective action projects typically consist of two phases: (1) A RCRA Facility Investigation (RFI) where an investigation is conducted at the solid waste management units (SWMU's) of concern at a facility; and (2) implementation of corrective measures needed to properly address any contaminant encountered during the RFI. This document has been developed to outline the procedures to be carried out to implement a corrective measure program.

2.0 BRIEF OVERVIEW OF A RCRA CORRECTIVE MEASURES PROGRAM

Typically, at the end of an RFI, the concentration of contaminants present in the soil/sediments/groundwater/surface waters at a SWMU or other area of concern (AOC) is compared to remediation objectives developed in accordance with 35 IAC Part 742. If the contaminant levels are above these objectives, then some type of corrective measure must be completed to achieve these objectives. In addition, certain corrective measures may need to be carried out to support the established remediation objectives (i.e., the establishment of engineered barriers and/or institutional controls). However, at a unit where waste or high levels of contamination remains, a decision may be made to close the unit as a landfill and then provide post-closure rather than removing the material and/or achieving remediation objectives developed in accordance with 35 IAC Part 742.

To allow for a logical and orderly progression in developing and implementing necessary corrective measures, the Corrective Measures Program (CMP) being carried out in accordance with this RCRA permit should be carried out in five phases which build on each other. It is not necessary for a corrective measures program at a given SWMU or other AOC to follow these five (5) phases step-by-step; rather, phases can be combined and/or skipped, depending on the actual remedial measure selected. The overall CMP implemented must set forth a logical path for its implementation and allow for Illinois EPA oversight and approval throughout the entire process.

A brief discussion of the five (5) phases of a CMP is as follows:

1. Phase I is the conceptual design of the selected corrective measure(s).

2. Phase II is the development of final design plans for the corrective measure, including installation and operation/maintenance plans.

3. Phase III is the actual construction/installation of the selected corrective measure.

4. Phase IV is the operation, maintenance, and monitoring of the selected corrective measure to ensure it is properly protecting human health and the environment.

5. Phase V is the final demonstration/verification that the implemented corrective measure achieved the approved remedial objectives.

Sections 3.0 through 7.0 which follow provide a more detailed discussion of each of these five phases. Section 8.0 has been developed to describe the CMP which may be used in lieu of the afore-mentioned five phase procedure when soil removal is the selected remedy. It must be noted that work plans, reports, etc. must be developed to document how the Permittee carries out the required corrective measures program at each SWMU or other AOC. All such documents must be reviewed and approved by the Illinois EPA prior to their implementation.

3.0 PHASE I OF THE CMP

Phase I of the CMP includes selection of the corrective measure to be taken and developing a basis for completing the final design of the measure. This effort should be documented in a Conceptual Design Report which describes the proposed corrective measure for each SWMU and other AOCs and provides a conceptual design for these measures. The main criteria for the Illinois EPA review are whether the proposed corrective measures are able to achieve the final cleanup objectives previously established by the Permittee and the Illinois EPA and/or provide the necessary institutional controls to prevent the migration of contaminants from the SWMU of concern. Based upon a review of the Conceptual Design Report, the Illinois EPA may approve the corrective measures, require revisions to the proposed corrective measures, or require that a new corrective measures proposal be submitted to the Illinois EPA.

The Conceptual Design Report should contain the following sections:

1. Introduction/Purpose. This section should contain: (1) general background information regarding the project; (2) the purpose and goals of the submittal; and (3) the scope of the project.

2. Existing Site Conditions. This section should contain a summary of the investigative activities conducted for each of the units of concern. Investigation analytical results should be provided in tabular form, and maps depicting both the horizontal and vertical extent of contamination at the site should be provided.

3. Evaluation for Potential Future Migration. Based on the existing site conditions, a conceptual model of the site should be developed and presented in this section. The potential for additional future migration of contamination for each of the units of concern must then be evaluated, especially those units which have been determined to have released hazardous waste/hazardous constituents to the groundwater. It may be helpful to develop conceptual models for contaminant migration. Of special concern in this evaluation are (1) the physical properties of the contaminants (solubility, volatility, mobility, etc.); and (2) existing site conditions (types of soil present, location of contamination, hydrology, geology, etc.).

4. Corrective Measures Objectives. This section should discuss the general objectives of the proposed corrective measure to be constructed/installed, and the ability of the proposed corrective measure to achieve the established remediation objectives (unless the selected corrective measure is closure as a landfill which will require proper establishment of a final cover and proper post-closure care of the closed unit).

5. Identification of Options Available. This section should contain a brief discussion of the various options available to achieve the corrective measures objectives for each unit. This discussion should identify: (1) a general overview of each option available, including how the option will achieve the stated objective; (2) the advantages associated with each option; (3) the disadvantages associated with each option and (4) an estimate of the cost associated with choosing each remedial option.

6. Description of Selected Corrective Measure. This section should contain a qualitative discussion of the corrective measure chosen, along with the rationale which was used to select this measure from all those identified initially. This discussion should include documentation that the selected corrective measure will be effective.

7. Identification of Design Criteria. This section should identify what information must be available to design the selected corrective measure.

8. Review of Available Information. This section should contain an evaluation of the existing information to ensure that it is sufficient to complete the design of the selected corrective measure. If insufficient information is available, then the report should contain procedures for collecting the required additional information.

9. Procedures for Completing the Design. This section should contain a description of the procedures which will be followed to complete the design of the corrective measure. This should include as appropriate:

   a. Identification of the references and established guidance which will be used in designing the selected corrective measure. Justification for the selection of this procedure should also be provided.

   b. A description of the procedures which will be used to complete the design of the corrective measure.

   c. Identification of assumptions to be used in the design, and the impact these assumptions have on the overall corrective measure;

   d. Significant data to be used in the design effort;

   e. Identification and discussion of the major equations to be used in the design effort (including a reference to the source of the equations);

   f. Sample calculations to be used in the design effort;

   g. Conceptual process/schematic diagrams;

   h. A site plan showing a preliminary layout of the selected corrective measure;

   i. Tables giving preliminary mass balances;

j. Site safety and security provisions.

This information will form the technical basis for the detailed design of the remedial measure and the preparation of construction plans/specifications.

10. Identification of Required Permits. This section should identify and describe any necessary permits associated with the selected corrective measure, as well as the procedures which will be used to obtain these permits.

11. Long Lead Procurement Time Considerations. This section should identify any elements/components of the selected corrective measure which will require a large amount of time to obtain/install. The following issues should also be discussed: (1) the reason why it will take a large amount of time to obtain/install the item; (2) the length of time necessary for procurement and (3) recognized sources of such items.

12. Project Management. This section should contain information regarding the procedures and personnel which will be involved in completing the design of the selected corrective measure. A schedule for completing the design should also be provided.

4.0 PHASE II OF THE CMP

Once the Illinois EPA approves the Conceptual Design Report, the facility should complete the design of the approved corrective action (Phase II of the CMP). Upon final completion of the design, a Final Design Report, consisting of final plans, specifications, construction work plan, etc., must be submitted to the Illinois EPA for review and approval.

Several documents must be submitted to the Illinois EPA as part of Phase II of the CMP. The following text describes the expected contents of the various documents which should be developed and submitted to the Illinois EPA as part of Phase II of the CMP.

1. Final Design Report and Construction Work Plan. The Final Design Report and Construction Work Plan must contain the detailed plans, specifications and drawings needed to construct the corrective measure. In addition, this document must contain (1) calculations, data etc., in support of the final design; and (2) a detailed description of the overall management strategy, construction quality assurance procedures and schedule for constructing the corrective measure. It must be noted that the approved Conceptual Design Report forms the basis for this final report. The information which should be provided in this document includes:

   e. Introduction/Purpose. This portion of the document should: (1) provide background information regarding the project, (2) describe the purpose and goals of the project, and (3) describe the scope of the project.

   f. Detailed Plans of the Design System, including the following:

      1) Plan views;

2) Section and supplementary views which, together with the specifications and general layouts, facilitate construction of the designed system;

3) Dimensions and relative elevations of structures;

4) Location and outline form of the equipment;

5) Ground elevations; and

6) Descriptive notations, as necessary, for clarity.

c. Technical Specifications. Complete technical specifications for the construction of the system, including, but are not limited to, the following:

1) All construction information, not shown in the drawings, which is necessary to inform the contractor in detail as to the required quality of materials, workmanship, and fabrication of the project;

2) The type, size, strength, and operating characteristics of the equipment;

3) The complete requirements for all mechanical and electrical equipment, including machinery, valves, piping and jointing of pipe;

4) Electrical apparatus, wiring and meters;

5) Construction materials;

6) Chemicals, when used;

7) Miscellaneous appurtenances;

8) Instruction for testing materials and equipment as necessary; and

9) Availability of soil boring information.

d. Project Management. A description of the construction management approach, including the levels of authority and responsibility, lines of communication and qualifications if key personnel who will direct corrective measures construction/installation must be provided in the work plan.

e. Construction Quality Assurance/Quality Control. A construction quality assurance/quality control plan describing the procedures which will be followed to ensure the corrective measure is constructed/installed in accordance with the approved plans and specifications.

f. Schedule. The work plan must contain a schedule for completion of all major activities associated with construction/installation of the selected corrective measures. All major points of the construction/installation should be highlighted.

g. Waste Management Practices. This portion of the document should identify the wastes anticipated to be generated during the construction/installation of the corrective measures and provide a description of the procedures for appropriate characterization and management of these wastes.

h. Required Permits. Copies of permit applications submitted to other Bureaus of the Illinois EPA for the selected corrective measure must be provided in the report. If it is determined that no permit is required for construction/installation and implementation of the corrective measures, rationale and justification must be provided to support this contention.

i. Cleanup Verification. The report must contain the procedures which will be followed that the approved remediation objectives have been achieved when operation of the system is completed.

2. Operation and Maintenance Plan. An Operation and Maintenance Plan must be developed and submitted as part of Phase II of the CMP. This plan should outline the procedures for performing operations, long term maintenance, and monitoring of the corrective measure.

a. Introduction and Purpose. This portion of the document should provide a brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

b. System Description. This portion of the document should provide a description of the corrective measure and significant equipment, including manufacturer's specifications. This portion of the permit should also include a narrative of how the selected system equipment is capable of complying with the final engineered design of the corrective measure.

c. Operation and Maintenance Procedures. This portion of the document should provide a description of the normal operation and maintenance procedures for the corrective measures system, including:

1) Description of tasks for operation;

2) Description of tasks for maintenance;

3) Description of prescribed treatment or operation conditions; and

4) Schedule showing the frequency of each operation and maintenance task.

d. Inspection Schedule. This portion of the document should provide a description of the procedures for inspection of the corrective measures system, including problems to look

for during the inspection procedure, specific inspection items, and frequency of the inspections.

e. Waste Management Practices. This portion of the document should provide a description of the wastes generated by the corrective measure, and the appropriate procedures for proper characterization/management of these wastes.

f. Contingency Procedures. This portion of the document should provide a description of the procedures which will address the following items:

1) System breakdowns and operational problems including a list of redundant and emergency backup equipment and procedures;

2) Alternative procedures (i.e., stabilization) which are to be implemented in the event that the corrective measure fails. The alternative procedures must be able to prevent release or threatened releases of hazardous wastes/hazardous constituents which may endanger human health and the environment, or exceed cleanup standards.

3) Notification of facility and regulatory personnel in the event of a breakdown in the corrective measures, including written notification identifying what occurred, what response action is being taken and any potential impacts on human health and the environment.

5.0 PHASE III OF THE CMP

Once the final design report is approved by the Illinois EPA, construction/installation of the approved corrective measure must commence. During this period, quarterly reports should be submitted which contain the following information:

1. Summary of activities completed during the reporting period;

2. An estimate of the percentage of the work completed;

3. Summaries of all actual or proposed changes to the approved plans and specifications or its implementation;

4. Summaries of all actual or potential problems encountered during the reporting period;

5. Proposal for correcting any problems; and

6. Projected work for the next reporting period.

Upon completion of construction/installation of the approved corrective measure, a Construction Completion Report must be submitted to the Illinois EPA documenting that these efforts were carried out in accordance with the Illinois EPA approved plans and specifications. This report should contain

a thorough description of the efforts that went into constructing/installing the corrective measure and demonstrate that the procedures in the Illinois EPA approved Final Design Report were followed during this effort. Such a report should be formatted in a logical and orderly manner and contain the following information:

1. An introduction discussing the background of the project and the purpose and scope of the corrective measure described in the report.

2. Identification of the plans, technical specifications and drawings which were used in constructing/installing the corrective measure. These specifications and drawings should have been approved by the Illinois EPA during Phase II.

3. Identification of any variations from the Illinois EPA approved plans, technical specifications and drawings used in construction/installing the corrective measure. Justification regarding the need to vary from the approved plans and specifications must also be provided.

4. A description of the procedures used to construct/install the corrective measure, including the procedures used for quality assurance and quality control.

5. As built drawings, including identification of any variations from the approved plans, technical specifications and drawings.

6. A summary of all test results from the construction/installation effort, including quality assurance/quality control testing.

7. Actual test results, including quality assurance/quality control test results. These results should be located in an attachment/appendix and be well organized.

8. Identification of any test results which did not meet the specified value and a description of the action taken in response to this failure, including re testing efforts.
9. Photographs documenting the various phases of construction.

10. A detailed discussion of how the construction/installation effort met the requirements of the approved Final Design Report.

11. A certification meeting the requirements of 35 IAC 702.126 by an independent qualified, licensed professional engineer and by an authorized representative of the owner/operator.

6.0 PHASE IV OF THE CMP

Once the corrective measure has been constructed/installed, it must be operated, maintained and monitored in accordance with the approved plans and specifications (this is Phase IV of the CMP). During this period, quarterly reports must be submitted to the Illinois EPA documenting the results of these efforts. These reports include the following:

1. Introduction. A brief description of the facility operations, scope of the corrective measures project, and summary of the project objectives.

2. System Description. A description of the corrective measures constructed/installed at the site, and identify significant equipment.

3. Monitoring Results. A description of the monitoring and inspection procedures to be performed on the corrective measures. A summary of the monitoring results for the corrective measures, including copies of any laboratory analyses which document system effectiveness, provide a description of the monitoring procedures and inspections performed, and include a summary of the monitoring results for the corrective measure. Copies of all laboratory analytical results which document system monitoring must be provided.

4. Effectiveness Determination. Calculations and other relevant documentation which demonstrates the effectiveness of the selected corrective measure in remediating/stabilizing contamination to the extent anticipated by the corrective measures final design. Copies of relevant analytical data should be provided to substantiate this determination.

5. System Effectiveness Recommendation. Based upon the results of the effectiveness determination required under Item 4 above, recommendations on continued operation of the corrective measure must be provided. If the corrective measure is not performing in accordance with the final design, a recommendation on revisions or expansion of the system should be provided.

7.0 PHASE V OF THE CMP

Once all corrective measures have been completed, a report must be developed documenting all the efforts which were carried out as part of implementing the corrective measure and demonstrating, as appropriate, that the approved remediation objectives have been achieved. This report should contain a compilation of all previous reports and also contain sufficient information to demonstrate that the approved remediation objectives have been achieved. It must be noted that such a report will not be developed for a unit closed as a landfill until the post-closure care period has been completed.

8.0 PROCEDURES WHICH SHOULD BE FOLLOWED WHEN SOIL REMOVAL IS THE SELECTED CORRECTIVE MEASURE

Sections 2.0 through 6.0 above describe the procedures which should be followed when it is necessary to design a physical corrective measure (e.g., a final cover system, certain type of treatment system, etc.). However, such detail is not necessary if excavation/removal is selected as the remedial action for the contaminated soil encountered at the site. In general, a work plan should be developed for this effort (for Illinois EPA review and approval) which fully describes each step to be used in removing the contaminated soil from the property. This includes a description of (1) the equipment utilized in the removal effort, (2) the pattern followed in removing the soil; (3) the depth to which the soil will be removed; (4) management of the soil on-site after it is removed from the ground; (5) loading areas; (6) the ultimate destination of the soil; and (7) any other steps critical to the removal effort.

One way to conduct a soil removal effort is to collect and analyze a sufficient number of soil samples to clearly determine the horizontal and vertical extent of soil contamination prior to conducting the soil removal effort. The boundaries of soil which must be removed are defined by the Illinois EPA established cleanup objectives for the project. Soil excavation must extend to sample locations where soil test results indicate that the remediation objectives are met. Closure verification sampling is not necessary in such cases, if a registered professional engineer oversees the soil removal effort and certifies that the remediation limits extend to these boundaries.

Another way to conduct a soil removal effort is to collect and analyze a limited number of soil samples prior to the soil removal effort and to rely mainly on field observation to determine the extent of the soil removal. In such cases closure verification sampling is necessary. Soil samples must be collected for analysis from the bottom and sidewalls of the final excavation. The following sampling/analysis effort is necessary to demonstrate that the remaining soil meets the established cleanup objectives:

1. A grid system should be established over the excavation.

2. Samples should be collected from the floor of the excavation at each grid intersection, including intersections along the perimeter of the excavation.

3. Samples should be collected at 6-inch to 12-inch below the ground surface (bgs) along the excavation sidewalls at each grid intersection around the excavation perimeter. Samples must also be collected at the midpoint of the excavation wall at each grid intersection along the excavation perimeter.

4. Collection/analysis of all required samples must be in accordance with the procedures set forth in the approved plan.

5. Soil samples which must be analyzed for volatile organic compounds (VOCs) must be collected in accordance with the procedures set forth in Method 5035 of SW-846. In addition, such samples must be collected 6-inch to 12-inch beneath the floor/sidewalls of the excavation to minimize the possibility of volatilization of the contaminants prior to the collection of the samples.

6. No random sampling may be conducted to verify achievement of cleanup objectives have been met.

Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the area of concern meets the established cleanup objectives. Additional samples must be collected and analyzed in accordance with the procedures described above from areas where additional soil has been removed.

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT E

SUMMARY OF HISTORICAL AND CURRENT HYDROCARBON RECOVERY AND REMEDIAL SYSTEMS AT THE MAIN PLANT FACILITY

Updated as of September 2024

A. SUMMARY

The following subsections detail the historical and current remediation systems operated at the BP Main Plant to mitigate hydrocarbons and refinery product in accordance with Condition II.E of the facility's permit.

Historical remedial operations included a Hydrocarbon Recovery System (HRS) as an interim remedial measure (IRM), as discussed in Section C, below.

Current remedial operations include three pilot-scale Bioremediation Systems as successors to the HRS, which reached its limit of effectiveness. The Bioremediation Systems are being operated to mitigate hydrocarbons and refinery product, and to provide information on long-term performance and other essential data to evaluate the full-scale implementation of hydrocarbon and other refinery related product remediation at the BP Main Plant facility. These Bioremediation Systems include:

- Central Bioventing System (Section E)
- Sothern Biosparging/Bioventing System (Section F)
- Northern Air Sparge/Soil Vapor Extraction System (AS/SVE) (Section G)

B. DEFINITIONS

"Bioremediation systems" means systems or technologies that enhance the biodegradation of hydrocarbons, and preferentially remove compounds that are typically more toxic which results in compositional change. The biodegradation processes affect refinery product from the smear zone and vadose zone as it contributes to soil vapor and dissolved phase impacts. Systems to accomplish this include bioventing, biosparging, and AS/SVE systems or some combination of systems designed to remediate hydrocarbons. It may also include other technologies that could enhance bioremediation such as infiltration galleries or ambient air introduction that can increase oxygen to the subsurface to enhance aerobic biodegradation.

"Hydrocarbon Remediation Well" means any type of well, including Bioremediation System wells, installed to remediate hydrocarbons, from the smear zone and vadose zone.

"Remediating refinery product" means the use of physical, chemical, or biological means to remove or treat refinery product located from the smear zone or vadose zone as it contributes to dissolved phase impacts in order to reduce the mass present at the Site.

"Smear Zone" means the vertical profile of hydrocarbon impacted soil located across the area of groundwater fluctuations, between the high and low groundwater elevations.

"Vadose Zone" means the vertical profile of unsaturated soils located above the water table.

C. HISTORICAL HYDROCARBON RECOVERY SYSTEM (HRS) OPERATION

The HRS at the BP Main Plant facility was commissioned as an IRM in 1993 to hydraulically recover subsurface mobile LNAPL from above the water table. The original system included twenty-one (21) HRS extraction wells as listed below. Following seventeen (17) years of operation, sixteen (16) HRS wells were deactivated in 2010 based on declining LNAPL recovery. After seven (7) additional years of operation, the remaining five (5) HRS wells were deactivated in 2017 due to the system reaching its limit of performance effectiveness. As described in the technical memorandum by BP entitled, Hydrocarbon Recovery System (HRS) Evaluation, dated May 24, 2017, the HRS removed 6.5 million gallons of LNAPL over twenty-two (22) years of operation. However, despite this volume of mobile LNAPL having been removed, the HRS did not have a significant impact on dissolved phase concentrations in groundwater. Accordingly, installation and operation of three (3) pilot-scale bioremediation systems (as discussed below) was implemented as a replacement for the HRS, to provide information needed to design full-scale remedies to target the remaining LNAPL with the goal to reduce dissolved phase concentrations of benzene.

Identification of Historical/Inactive HRS Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
G601	RC-1	56.0	373.40	393.40 – 373.40
G602	RC-2	55.0	374.96	394.96 – 374.96
G603	RC-3	51.0	379.39	399.39 – 379.39
G604	RC-4	49.5	382.18	402.18 – 382.18
G606	RC-6	55.0	373.27	408.27 – 378.27
G607	RC-7	58.5	368.97	403.97 – 373.97
G608	RC-8	61.0	364.90	399.90 – 369.90
G609	RC-9	64.0	367.40	402.40 – 372.40
G610	RC-10	69.0	366.61	401.61 – 371.61
G611	RC-11	70.0	369.96	404.96 – 374.96
G612	RC-12	73.0	368.21	395.21 – 373.21
G615	RC-15	58.4	371.77	407.15 – 377.15
G617	RC-17	58.0	370.41	392.41 – 375.41
G618	RC-18	57.5	371.76	411.76 - 376.76
G619	RC-19	58.0	368.92	408.92 – 373.92
G629	RC-H-29	57.6	379.88	401.48 – 379.88
G605	RC-5	49.8	380.56	401.27 – 381.27
G613	RC-13	60.0	371.25	406.25 – 376.25
G614	RC-14	59.5	371.60	406.60 – 376.60
G616	RC-16	65.0	367.61	402.61 – 372.61
G620	RC-20	85.4	344.72	406.49 – 349.72

ft. MSL= feet above mean sea level

D. CURRENT HYDROCARBON REMEDIATION SYSTEMS OPERATIONS

BP is currently operating three (3) pilot-scale bioremediation systems and has implemented pilot-scale passive bioventing in two (2) additional areas for remediation of groundwater and destruction of LNAPL impacts. These remedial approaches focus on in-situ remediation of hydrocarbons by delivering increased oxygen to the subsurface via different mechanisms as opposed to hydraulic recovery. Biodegradation also has the added benefit of not only removing LNAPL mass but changing the chemical composition of LNAPL in the subsurface, through sparging and venting, to mitigate impact to dissolved phase groundwater conditions. The locations of the bioremediation systems are depicted on Figure E-1.

The primary objectives of these bioremediation systems include:

I. Progressing LNAPL remediation beyond what the HRS could achieve including dissolved phase risk reduction;

II. Identification of technology combinations that will be flexible across water table conditions and optimize vapor treatment;

III. Evaluation of alternative remedial approaches for hydrocarbon and LNAPL mitigation; and

IV. Support for selection and design of appropriate final remedies.

Performance of the initial pilot-scale systems was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018) and found enhanced biodegradation via all three (3) technologies (i.e., bioventing, biosparging, and AS/SVE) to be viable for remediation of groundwater and more effective at destruction of remaining LNAPL impacts than physical hydrocarbon recovery. The passive bioventing technologies implemented promote the same remedial mechanisms as active bioventing but utilize natural pressure changes between the vadose zone and surface to deliver oxygen into the vadose zone in the form of ambient air. The technologies all specifically enhance the removal rate of hydrocarbon compared to historical systems and promote compositional change to decrease concentrations of aromatic BTEX compounds at the site.

BP completed modifications to the pilot-scale bioremediation systems and technologies between 2019 to 2021 to maintain and enhance hydrocarbon remediation through treatment of expanded site areas at the BP Main Plant Property. Installation of air injection wells, piezometers, and soil vapor monitoring points (VMPs) was initiated in 2019 and completed during First Quarter 2020. Surveying of the newly installed wells was also completed in First Quarter 2020. Installation of requisite equipment and start-up activities were completed in 2020 and 2021. Passive bioventing was implemented in two of the initial pilot areas in 2021 and 2022, as previous remedial efforts progressed remediation in those area to the point where passive bioventing is able to deliver sufficient oxygen to maintain an aerobic vadose zone for enhanced bioremediation.

The three (3) expansion pilot bioremediation systems continue to operate as of 2024. Any changes to the operations or configuration of the systems is documented through an annual update to Attachment C of the permit as required by Section IV.C.8 of the permit. Information presented in the following previously submitted Class 1* Permit modification requests has been incorporated into this exhibit: i) Attachment C Annual Update (1/31/2022); ii) Attachment C Annual Update (1/31/2023); and iii) Attachment C Annual Update (1/31/2024). The configuration and operation of the three pilot-scale bioremediation systems are detailed in Sections E (Central Biovent System), F (Southern Biosparge/Biovent System) and G (Northern AS/SVE System). Each section includes a timeline of operations, enhancements, and modifications for each system.

E. PILOT-SCALE CENTRAL BIOVENTING SYSTEM

A bioventing pilot test was performed to evaluate performance of this remedial approach and to quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/contaminants of concern (COCs) removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018). The pilot test finding is that bioventing is more effective at treating hydrocarbons through mass removal (biodegradation) and compositional change than physical removal of hydrocarbon.

The biovent system underwent an expansion in 2019-2020, including installation of additional biovent wells to treat a larger area to the west of the original biovent implementation area (Figure 3). Performance data from the initial pilot test was utilized in design of the expansion pilot system to more efficiently deliver oxygen into the subsurface. The monitoring network was also modified with the installation of additional piezometers and VMPs in 2019-2020. Active bioventing in six (6) biovent wells in the initial Central Biovent pilot system area was shut down in July 2020 and transitioned to passive bioventing in 2021 as part of the modifications to the current operating system. Full-time operation of the expanded Central Biovent System was initiated in April 2021.

The six (6) biovent wells from the initial biovent system area were converted to passive biovent wells by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface. In April 2023, Main Plant Observation Well G050 was also fitted for passive bioventing as an IRM to address LNAPL.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-June 2020	Initial pilot wells operate with active bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
July 2020-March 2021	System shut down for completion of system	

	expansions and electrical system upgrades.	
April 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A3BV-1A, A3BV-1B, A3BV-2A, A3BV2B, A3BV-3A, A3BV-3B, A3BV-4A, A3BV-4B, A3BV-5A, A3BV-5B, A3BV-6A, A3BV-6
December 2021- 2024 (ongoing)	Initial pilot wells used for passive bioventing.	A3BVS-S, A3BVS-D, A3BVNW-S, A3BVNW-D, A3BVNE-S, A3BVNE-D
April 2023-2024 (ongoing)	Main Plant Observation Well used for passive bioventing.	G050

System Description

The pilot-scale biovent system equipment is designed to deliver sufficient air into the subsurface at low pressures to allow for aerobic respiration to dominate the treatment zone. Flow from a rotary vane compressor delivers air at total flow rates up to 60 standard cubic feet per minute (scfm) @ 10 pounds per square inch (psi), split into up to 12 of the 18 total biovent wells. Air from the compressor has a throttling valve, temperature indicator, check valve, and pressure indicator. The biovent process and instrumentation diagram is presented as Figure 2, and the biovent system schematic is presented as Figure 2A.

Flow from the equipment is routed through a 6-leg manifold. Each manifold leg has a flow control valve, rotameter-style flowmeter, and pressure gauge. Each manifold leg feeds up to two (2) biovent wells via aboveground piping. Each of the biovent well lateral legs has its own flow control valve and pressure indicator. Operation of each of the six (6) manifold legs is controlled with a normally closed solenoid controlled via a human machine interface (HMI) screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting, heating, and ventilation).

Biovent configurations and flow rates are controlled by system valves, the Programmable Logic Controller (PLC) and HMI. The system is designed to operate up to 12 of the 18 total individual biovent points at a time in any combination. Individual point flow rates are between 1 to 20 scfm, with a combined rate of up to 60 scfm. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Biovent System Layout and Well Network

The pilot-scale biovent system layout and well network are depicted on Figure 3. The Central Biovent System remediation wells include 18 biovent wells, and performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biovent Wells: Eighteen (18) total biovent wells are present; six (6) were components of the initial system installation, and twelve (12) were installed during the system expansion. Biovent

well construction was designed to target the vadose zone directly above the water table under typical conditions.

Piezometers: Six (6) total piezometers were installed to monitor the shallow water table and identify LNAPL presence in the remediation areas. Piezometers supplement existing monitoring wells in the north (G99L) and south (G13L) of the expansion treatment area. One (1) additional deep monitoring well is present in the initial treatment area – A3AS-C.

Vapor Monitoring Points: A total of twenty (20) nested VMP locations are used to monitor the vadose zone to measure degradation. VMP depths are staggered to ensure granularity in measuring impacts and changing gradients. The twenty (20) nested VMPs are located at differing distances from the pilot test wells and throughout the treatment zones to allow for monitoring the influence of the system. Each location contains 3-4 nested VMPs for a total of 67 individual VMPs.

The wells comprising the Bioventing system are listed below:

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	366.19 - 361.19
A3BVS-S	A3BVS-S	25	406.27	416.27 - 406.27
A3BVS-D	A3BVS-D	35	396.20	406.20 – 396.20
A3BVNW-S	A3BVNW-S	25	406.05	416.05 – 406.05
A3BVNW-D	A3BVNW-D	35	396.11	406.11 – 396.11
A3BVNE-S	A3BVNE-S	25	406.27	416.27 – 406.27
A3BVNE-D	A3BVNE-D	35	396.28	406.28 – 396.28
A3BV-1A	A3BV-1A	32	397.77	407.77-397.77
A3BV-1B	A3BV-1B	32	397.24	407.24-397.24
A3BV-2A	A3BV-2A	32	397.72	407.72-397.72
A3BV-2B	A3BV-2B	32	397.02	407.02-397.02
A3BV-3A	A3BV-3A	32	398.35	408.35-398.35
A3BV-3B	A3BV-3B	32	399.09	409.09-399.09
A3BV-4A	A3BV-4A	32	396.96	406.96-396.96
A3BV-4B	A3BV-4B	32	397.71	407.71-397.71
A3BV-5A	A3BV-5A	32	398.58	408.58-398.58
A3BV-5B	A3BV-5B	32	398.77	408.77-398.77
A3BV-6A	A3BV-6A	32	399.35	409.35-399.35
A3BV-6B	A3BV-6B	32	399.16	409.16-399.16

Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3PZ-N	A3PZ-N	35	396.11	396.11 - 411.11

A3PZ-C	A3PZ-C	35	396.22	396.22 - 411.22
A3PZ-S	A3PZ-S	35	396.14	396.14 - 411.14
A3PZ-N2	A3PZ-N2	34	394.64	404.64-394.64
A3PZ-C2	A3PZ-C2	35	394.61	404.61-394.61
A3PZ-S2	A3PZ-S2	36	394.66	404.66-394.66

Bioventing System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A3VMPNA-10	A3VMPNA-10	10	9.5-10	0.75
A3VMPNA-20	A3VMPNA-20	20	19.5-20	0.75
A3VMPNA-24	A3VMPNA-24	24	23.5-24	0.75
A3VMPNA-28	A3VMPNA-28	28	27.5-28	0.75
A3VMPNB-15	A3VMPNB-15	15	14.5-15	0.75
A3VMPNB-22	A3VMPNB-22	22	21.5-22	0.75
A3VMPNB-26	A3VMPNB-26	26	25.5-26	0.75
A3VMPNB-30	A3VMPNB-30	30	29.5-30	0.75
A3VMPC-10	A3VMPC-10	10	9.5-10	0.75
A3VMPC-20	A3VMPC-20	20	19.5-20	0.75
A3VMPC-24	A3VMPC-24	24	23.5-24	0.75
A3VMPC-28	A3VMPC-28	28	27.5-28	0.75
A3VMPSW-10	A3VMPSW-10	10	9.5-10	0.75
A3VMPSW-20	A3VMPSW-20	20	19.5-20	0.75
A3VMPSW-24	A3VMPSW-24	24	23.5-24	0.75
A3VMPSW-28	A3VMPSW-28	28	27.5-28	0.75
A3VMPSW-15	A3VMPSW-15	15	14.5-15	0.75
A3VMPSW-22	A3VMPSW-22	22	21.5-22	0.75
A3VMPSW-26	A3VMPSW-26	26	25.5-26	0.75
A3VMPSW-30	A3VMPSW-30	30	29.5-30	0.75
A3VMPSE-10	A3VMPSE-10	10	9.5-10	0.75
A3VMPSE-20	A3VMPSE-20	20	19.5-20	0.75
A3VMPSE-24	A3VMPSE-24	24	23.5-24	0.75
A3VMPSE-28	A3VMPSE-28	28	27.5-28	0.75
A3VMPSE-15	A3VMPSE-15	15	14.5-15	0.75
A3VMPSE-22	A3VMPSE-22	22	21.5-22	0.75
A3VMPSE-26	A3VMPSE-26	26	25.5-26	0.75
A3VMPSE-30	A3VMPSE-30	30	29.5-30	0.75
A3VMP1-S	A3VMP1-S	17	16-17	0.75
A3VMP1-M	A3VMP1-M	22	21-22	0.75
A3VMP1-D	A3VMP1-D	27	26-27	0.75
A3VMP2-S	A3VMP2-S	17	16-17	0.75
A3VMP2-M	A3VMP2-M	22	21-22	0.75
A3VMP2-D	A3VMP2-D	27	26-27	0.75
A3VMP3-S	A3VMP3-S	17	16-17	0.75
A3VMP3-M	A3VMP3-M	22	21-22	0.75

A3VMP3-D	A3VMP3-D	27	26-27	0.75
A3VMP4-S	A3VMP4-S	17	16-17	0.75
A3VMP4-M	A3VMP4-M	22	21-22	0.75
A3VMP4-D	A3VMP4-D	27	26-27	0.75
A3VMP5-S	A3VMP5-S	17	16-17	0.75
A3VMP5-M	A3VMP5-M	22	21-22	0.75
A3VMP5-D	A3VMP5-D	27	26-27	0.75
A3VMP6-S	A3VMP6-S	17	16-17	0.75
A3VMP6-M	A3VMP6-M	22	21-22	0.75
A3VMP6-D	A3VMP6-D	27	26-27	0.75
A3VMP7-S	A3VMP7-S	17	16-17	0.75
A3VMP7-M	A3VMP7-M	22	21-22	0.75
A3VMP7-D	A3VMP7-D	27	26-27	0.75
A3VMP8-S	A3VMP8-S	17	16-17	0.75
A3VMP8-M	A3VMP8-M	22	21-22	0.75
A3VMP8-D	A3VMP8-D	27	26-27	0.75
A3VMP9-S	A3VMP9-S	17	16-17	0.75
A3VMP9-M	A3VMP9-M	22	21-22	0.75
A3VMP9-D	A3VMP9-D	27	26-27	0.75
A3VMP10-S	A3VMP10-S	17	16-17	0.75
A3VMP10-M	A3VMP10-M	22	21-22	0.75
A3VMP10-D	A3VMP10-D	27	26-27	0.75
A3VMP11-S	A3VMP11-S	17	16-17	0.75
A3VMP11-M	A3VMP11-M	22	21-22	0.75
A3VMP11-D	A3VMP11-D	27	26-27	0.75
A3VMP12-S	A3VMP12-S	17	16-17	0.75
A3VMP12-M	A3VMP12-M	22	21-22	0.75
A3VMP12-D	A3VMP12-D	27	26-27	0.75
A3VMP13-S	A3VMP13-S	17	16-17	0.75
A3VMP13-M	A3VMP13-M	22	21-22	0.75
A3VMP13-D	A3VMP13-D	27	26-27	0.75

Bioventing System Area Deep Monitoring Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A3AS-C	A3AS-C	70	361.19	361.19 - 366.19

F. PILOT-SCALE SOUTHERN BIOSPARGE/BIOVENT SYSTEM

A biosparging/bioventing pilot test was performed to evaluate the performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The test was also intended to determine the efficiency of using a horizontal well for sparging, and whether this approach could potentially be used to serve as a barrier for contaminant migration in the dissolved phase. Performance of the pilot-scale system was presented in the October 2018

Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that biosparging/bioventing is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The biosparge system was modified to treat a larger area to the north and west of the original implementation area and to include use of bioventing. When operating under the expanded bioventing scenario, flow from the existing compressor is routed through a flow amplifying air eductor and manifold to deliver air to 36 vertical biovent wells (as opposed to the original single horizontal biosparge well). The monitoring network was also expanded with the addition of piezometers and VMPs. The wells associated with the bioparge/biovent system expansion were installed in 2019-2020. Active biosparging in the horizontal well was shut down in September 2020 as part of the modifications to the current operating system. Full-time operation of the modified and expanded Southern Biosparge/Biovent System was initiated in July 2021.

In April 2023, BP Main Plant Observation Well G16L was converted to a passive biovent well by fitting a one-way valve to allow ambient air into the vadose zone when negative pressure is present in the subsurface. In December 2023, G16L was then converted to an active biovent well as part of the Pilot-Scale Southern Biosparge/Biovent System.

A timeline of system operations is provided below.

Time Period	Description	Wells
April 2017-September 2020	Initial horizontal well operates with active biosparging.	A5HBS
October 2020-June 2021	System shut down for completion of system expansions and electrical system upgrades.	
July 2021-2024 (ongoing)	Expansion system wells operate with active bioventing.	A5BV-1, A5BV-2, A5BV-3, A5BV-4, A5BV-5, A5BV-6, A5BV-7, A5BV-8, A5BV-9, A5BV-10, A5BV-11, A5BV-12, A5BV-13, A5BV-14, A5BV-15, A5BV-16, A5BV-17, A5BV-18, A5BV-19, A5BV-20, A5BV-21, A5BV-22, A5BV-23, A5BV-24, A5BV-25, A5BV-26, A5BV-27, A5BV-28, A5BV-29, A5BV-30, A5BV-31, A5BV-32, A5BV-33, A5BV-34, A5BV-35

April 2023- November 2023	Main Plant Observation Well used for passive bioventing.	G16L
December 2023- 2024 (ongoing)	Main Plant Observation Well used for active bioventing.	G16L

System Description

The biosparge/biovent pilot test system is designed to deliver air into the subsurface at moderate flow rates and pressure. The biosparge scenario volatizes VOCs in the saturated zone and enhances biodegradation of those impacts via inducing aerobic conditions. The biovent scenario delivers air to the vadose zone to ensure aerobic conditions are present which enhances hydrocarbon biodegradation. Flow from a compressor delivers air at flow rates up to 150 scfm at 40 psi. Air from the compressor has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. The biosparge/biovent process and instrumentation diagram is presented as Figure 4, and the biosparge/biovent process flow schematic is presented as Figure 4A.

Under the biosparge scenario, flow from the equipment is routed directly to the biosparge horizontal well with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of the well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The system components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge configurations and flow rates are controlled by system valves, the pressure regulator, PLC and HMI. The system is designed to operate the biosparge well at flow rates between 30 and 150 scfm but typically operates in the range of 50 to 85 scfm total flow. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

Under the biovent configuration, rather than running compressed air directly to the biosparge horizontal well, compressed air is run through an air eductor to boost flow rates up to 240 scfm at 10 psi in a manifold building with 36 manifold points. Each well on the manifold is equipped with a flow control valve, flowmeter, pressure regulator, and pressure gauge. Operation of each well is controlled with a normally-closed solenoid controlled via an HMI screen on an interior control panel. The manifold components are plumbed in a modular/mobile enclosure with environmental controls (e.g. lighting interior and exterior, heating, and ventilation).

Biosparge System Layout and Well Network

The biosparge/biovent system layout and well network are depicted on Figure 5. The Biosparge Remediation Well includes the horizontal biosparge well. There are 35 biovent remediation wells in the Southern Biosparge/Biovent System area, plus the monitoring well (G16L) to

which bioventing is being applied. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Biosparge Horizontal Well:

One (1) horizontal biosparge well was installed for the pilot test. The biosparge well construction described below was designed to be placed at the bottom of groundwater impacts to create an oxygen curtain through which impacted water should pass. The screened portion of the well is 150 feet long and placed perpendicular to groundwater flow; the screen length allows for groundwater flow to be influenced within the targeted area even with minor temporal variations in groundwater flow.

Horizontal biosparge well construction specifications are summarized below:

I. Horizontal directional drilling methodology;
II. Installed at a depth of 45 ft-bgs;
III. Screen length of 150 feet;
IV. Riser length of 240 to 250 feet on each end of well (630 feet total length horizontally);
V. 3-inch diameter, HDPE construction;
VI. Custom slotting to uniformly sparge approximately 2 to 10 scfm per 10 horizontal feet of screen.

Biovent Wells:
Thirty-five (35) biovent wells were installed during the system expansion. Biovent well construction was designed to target the vadose zone directly above the groundwater table under typical conditions. In December 2023, G16L was converted to an active biovent well, for a current total of thirty-six (36) biovent wells.

Piezometers:
A total of twenty-two (22) piezometers were installed at three different depths – fifteen (15) shallow, six (6) mid, and one (1) deep to monitor the vertical extent of impacts in the water table. In the biosparge area, seven (7) wells were installed upgradient of the biosparge well and twelve (12) wells downgradient. In the biovent area, three (3) additional piezometers supplement existing monitoring wells in the treatment area (A6MW03, G048, and G049).

Vapor Monitoring Points:
Twenty-eight (28) nested VMPs were installed to monitor the vadose zone impacts. Each set of nested points contains two (2) to three (3) depths of monitoring points to assess the vadose zone vertically for a total of 81 points. VMP placement is meant to measure influence at different depths and measure the extent of influence perpendicular from the well screen orientation.

The wells comprising the Biosparging system are listed below:

Biosparging Hydrocarbon Remediation Well

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5HBS*	A5HBS	45	varies*	(150 ft long)*

*Horizontal Well

Bioventing Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5BV-1	A5BV-1	36	395.27	405.27-395.27
A5BV-2	A5BV-2	36	396.77	406.77-396.77
A5BV-3	A5BV-3	36	396.08	406.08-396.08
A5BV-4	A5BV-4	36	395.99	405.99-395.99
A5BV-5	A5BV-5	36	395.93	405.93-395.93
A5BV-6	A5BV-6	36	394.65	404.65-394.65
A5BV-7	A5BV-7	36	395.51	405.51-395.51
A5BV-8	A5BV-8	36	NS	NS
A5BV-9	A5BV-9	36	396.53	406.53-396.53
A5BV-10	A5BV-10	36	396.45	406.45-396.45
A5BV-11	A5BV-11	36	396.33	406.33-396.33
A5BV-12	A5BV-12	36	396.32	406.32-396.32
A5BV-13	A5BV-13	34	397.05	407.05-397.05
A5BV-14	A5BV-14	36	397.62	407.62-397.62
A5BV-15	A5BV-15	36	NS	NS
A5BV-16	A5BV-16	36	NS	NS
A5BV-17	A5BV-17	36	396.39	406.39-396.39
A5BV-18	A5BV-18	36	396.38	406.38-396.38
A5BV-20	A5BV-20	36	395.21	405.21-395.21
A5BV-21	A5BV-21	36	395.26	405.26-395.23
A5BV-22	A5BV-22	36	397.00	407.00-397.00
A5BV-23	A5BV-23	38	391.95	406.95-391.95
A5BV-24	A5BV-24	41	391.75	406.75-391.75
A5BV-25	A5BV-25	41	391.38	406.38-391.38
A5BV-26	A5BV-26	36	397.40	407.40-397.40
A5BV-27	A5BV-27	38	395.68	405.68-395.68
A5BV-28	A5BV-28	38	393.43	408.43-393.43
A5BV-29	A5BV-29	38	395.04	410.04-395.04
A5BV-31	A5BV-31	38	394.73	409.73-394.73
A5BV-32	A5BV-32	33	398.32	408.32-398.32
A5BV-33	A5BV-33	34	397.61	407.61-397.61
A5BV-34	A5BV-34	38	391.53	406.53-391.53
A5BV-35	A5BV-35	38	391.48	406.48-391.48
A5BV-36	A5BV-36	38	391.65	406.65-391.65

NS – Not surveyed, in a health and safety exclusion zone during surveying.

Biosparging/Bioventing System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A5PZN-S	A5PZN-S	40	389.29	389.29 - 399.29
A5PZNW-S	A5PZNW-S	38	391.56	391.56 - 401.56
A5PZNW-M	A5PZNW-M	45	384.51	384.51 - 389.51
A5PZW-S	A5PZW-S	39.5	390.44	390.44 - 400.44
A5PZW-M	A5PZW-M	45	385.07	385.07 - 390.07
A5PZW-D	A5PZW-D	65	365.04	365.04 - 370.04
A5PZW-S1	A5PZW-S1	40	389.51	389.51 - 399.51
A5PZW-S2	A5PZW-S2	40	389.85	389.85 - 399.85
A5PZSW-S	A5PZSW-S	40	389.82	389.82 - 399.82
A5PZSW-M	A5PZSW-M	45	384.86	384.86 - 389.86
A5PZNE-S	A5PZNE-S	40	389.51	389.51 - 399.51
A5PZNE-M	A5PZNE-M	45	384.51	384.51 - 389.51
A5PZE-S1	A5PZE-S1	40	389.93	389.93 - 399.93
A5PZE-S2	A5PZE-S2	40	390.72	390.72 - 400.72
A5PZE-M	A5PZE-M	45	384.62	384.62 - 389.62
A5PZSE-S	A5PZSE-S	40	389.79	389.79 - 399.79
A5PZSE-M	A5PZSE-M	45	384.71	384.71 - 389.71
A5PZS-S1	A5PZS-S1	40	389.51	389.51 - 399.51
A5PZS-S2	A5PZS-S2	40	389.90	389.90 - 399.90
A5PZ-1	A5PZ-1	40	392.47	402.47-392.47
A5PZ-2	A5PZ-2	40	391.59	401.59-391.59
A5PZ-3	A5PZ-3	40	NS	NS

Biosparging System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A5VMPNW-S	A5VMPNW-S	10	9.5-10	0.75
A5VMPNW-M	A5VMPNW-M	20	19.5-20	0.75
A5VMPNW-D	A5VMPNW-D	25	24.5-25	0.75
A5VMPSW-S	A5VMPSW-S	10	9.5-10	0.75
A5VMPSW-M	A5VMPSW-M	20	19.5-20	0.75
A5VMPSW-D	A5VMPSW-D	25	24.5-25	0.75
A5VMPW-S	A5VMPW-S	10	9.5-10	0.75
A5VMPW-M	A5VMPW-M	20	19.5-20	0.75
A5VMPW-D	A5VMPW-D	25	24.5-25	0.75
A5VMPE-S	A5VMPE-S	10	9.5-10	0.75
A5VMPE-M	A5VMPE-M	20	19.5-20	0.75
A5VMPE-D	A5VMPE-D	25	24.5-25	0.75

A5VMP1-S	A5VMP1-S	23	22-23	0.75
A5VMP1-M	A5VMP1-M	28	27-28	0.75
A5VMP2-S	A5VMP2-S	23	22-23	0.75
A5VMP2-M	A5VMP2-M	28	27-28	0.75
A5VMP2-D	A5VMP2-D	33	32-33	0.75
A5VMP3-S	A5VMP3-S	22	21-22	0.75
A5VMP3-M	A5VMP3-M	27	26-27	0.75
A5VMP3-D	A5VMP3-D	32	31-32	0.75
A5VMP4-S	A5VMP4-S	22	21-22	0.75
A5VMP4-M	A5VMP4-M	29	28-29	0.75
A5VMP4-D	A5VMP4-D	33	32-33	0.75
A5VMP5-S	A5VMP5-S	23	22-23	0.75
A5VMP5-M	A5VMP5-M	28	27-28	0.75
A5VMP6-S	A5VMP6-S	21	20-21	0.75
A5VMP6-M	A5VMP6-M	26	25-26	0.75
A5VMP6-D	A5VMP6-D	31	30-31	0.75
A5VMP7-S	A5VMP7-S	21	20-21	0.75
A5VMP7-M	A5VMP7-M	26	25-26	0.75
A5VMP7-D	A5VMP7-D	31	30-31	0.75
A5VMP8-S	A5VMP8-S	22	21-22	0.75
A5VMP8-M	A5VMP8-M	27	26-27	0.75
A5VMP8-D	A5VMP8-D	32	31-32	0.75
A5VMP9-S	A5VMP9-S	20	19-20	0.75
A5VMP9-M	A5VMP9-M	25	24-25	0.75
A5VMP10-S	A5VMP10-S	20	19-20	0.75
A5VMP10-M	A5VMP10-M	25	24-25	0.75
A5VMP10-D	A5VMP10-D	30	29-30	0.75
A5VMP11-S	A5VMP11-S	22	21-22	0.75
A5VMP11-M	A5VMP11-M	27	26-27	0.75
A5VMP11-D	A5VMP11-D	32	31-32	0.75
A5VMP12-S	A5VMP12-S	22	21-22	0.75
A5VMP12-M	A5VMP12-M	27	26-27	0.75
A5VMP12-D	A5VMP12-D	32	31-32	0.75
A5VMP13-S	A5VMP13-S	22	21-22	0.75
A5VMP13-M	A5VMP13-M	27	26-27	0.75
A5VMP13-D	A5VMP13-D	32	31-32	0.75
A5VMP14-S	A5VMP14-S	22	21-22	0.75
A5VMP14-M	A5VMP14-M	27	26-27	0.75
A5VMP14-D	A5VMP14-D	32	31-32	0.75
A5VMP15-S	A5VMP15-S	22	21-22	0.75
A5VMP15-M	A5VMP15-M	27	26-27	0.75
A5VMP15-D	A5VMP15-D	32	31-32	0.75
A5VMP16-S	A5VMP16-S	22	21-22	0.75
A5VMP16-M	A5VMP16-M	27	26-27	0.75
A5VMP16-D	A5VMP16-D	32	31-32	0.75
A5VMP17-S	A5VMP17-S	22	21-22	0.75
A5VMP17-M	A5VMP17-M	27	26-27	0.75

A5VMP17-D	A5VMP17-D	32	31-32	0.75
A5VMP18-S	A5VMP18-S	22	21-22	0.75
A5VMP18-M	A5VMP18-M	27	26-27	0.75
A5VMP18-D	A5VMP18-D	32	31-32	0.75
A5VMP19-S	A5VMP19-S	22	21-22	0.75
A5VMP19-M	A5VMP19-M	27	26-27	0.75
A5VMP19-D	A5VMP19-D	32	31-32	0.75
A5VMP20-S	A5VMP20-S	24	23-24	0.75
A5VMP20-M	A5VMP20-M	28	27-28	0.75
A5VMP20-D	A5VMP20-D	32	31-32	0.75
A5VMP21-S	A5VMP21-S	22	21-22	0.75
A5VMP21-M	A5VMP21-M	27	26-27	0.75
A5VMP21-D	A5VMP21-D	32	31-32	0.75
A5VMP22-S	A5VMP22-S	22	21-22	0.75
A5VMP22-M	A5VMP22-M	27	26-27	0.75
A5VMP22-D	A5VMP22-D	35	34-35	0.75
A5VMP23-S	A5VMP23-S	22	21-22	0.75
A5VMP23-M	A5VMP23-M	27	26-27	0.75
A5VMP23-D	A5VMP23-D	32	31-32	0.75
A5VMP24-S	A5VMP24-S	23	22-23	0.75
A5VMP24-M	A5VMP24-M	28	27-28	0.75
A5VMP24-D	A5VMP24-D	32	31-32	0.75

G. PILOT-SCALE AIR SPARGE / SOIL VAPOR EXTRACTION (AS/SVE) SYSTEM

An AS/SVE pilot test was performed to evaluate performance of this remedial approach and quantify the mass remediation rate (and thus remediation timeframe) in comparison to more traditional LNAPL/COC removal systems, such as groundwater/LNAPL physical extraction, and, in comparison with natural biodegradation rates. The AS/SVE test is evaluating the combined effects air sparging below the water table for stripping of contaminants and enhancing aerobic biodegradation in the vadose zone and below the water table via introduction of ambient air. SVE is specifically utilized when biodegradation is insufficient to control the VOCs in soil gas during sparging or bioventing. Performance of the pilot-scale system was presented in the October 2018 Performance Report – Pilot-Scale Bioremediation Systems (BP, 2018); the pilot test finding is that AS/SVE is treating hydrocarbons more effectively than previous hydrocarbon recovery efforts.

The AS/SVE extraction system was modified to treat a larger area to the south, east, and west of the original AS/SVE pilot test area. This included installation of additional air sparge and soil vapor extraction wells. To treat the additional loading, a catalytic oxidizer is being used for the treatment of off-gases, a change from the previous granular activated carbon off-gas treatment system. The monitoring network was also modified with the addition of piezometers and VMPs. All of the expansion wells were installed in 2019-2020. The initial AS/SVE pilot system was shut down in July 2020 as part of the modifications to the current operating system. Full-time operation of the expanded AS/SVE System was initiated in December 2020.

The four SVE wells and four shallow piezometers from the initial AS/SVE system area were converted to passive biovent wells in December 2021 by fitting one-way valves that allow ambient air into the vadose zone when negative pressure is present in the subsurface.

A timeline of system operations is provided below.

Time Period	Description	Wells
June 2017-July 2020	Initial pilot wells operate AS/SVE with granular activated carbon (GAC) off-gas treatment.	A8AS-N, A8AS-W, A8AS-E, A8AS-S, A8AS-C, A8SVE-NW, A8SVE-NE, A8SVESW, A8SVE-SE
August 2020- November 2020	System shut down for completion of system expansions and electrical system upgrades.	
December 2020- 2024 (ongoing)	Expansion system wells operate AS/SVE with catalytic oxidizer off-gas treatment.	A8AS-1A, A8AS-1B, A8AS-1C, A8AS-2A, A8AS-2B, A8AS-2C, A8AS-3A, A8AS-3B, A8AS-3C, A8AS-4A, A8AS-4B, A8AS-4C, A8AS-5A, A8AS-5B, A8AS-5C, A8SVE-1A, A8SVE-1B, A8SVE-2A, A8SVE-2B, A8SVE-3A, A8SVE-3B
October 2022-2024 (ongoing)	Initial pilot SVE wells and shallow piezometers used for passive bioventing.	A8SVE-NW, A8SVE-NE, A8SVE-SW, A8SVE-SE, A8PZS-S, A8PZN-S, A8PZNE-S, A8PZSW-S

System Description

The AS/SVE pilot test system is designed to deliver air into the subsurface and capture resultant vapors. Flow from the AS compressor delivers air at total flow rates up to 150 scfm at 50 psi, split into up to fifteen (15) of the twenty (20) AS wells. Air from the blower has a receiver tank, particulate filter, throttling valve, flow meter, and pressure gauge. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 inches of water column (iw), split among up to six (6) of the ten (10) SVE wells. Vapors collected from the blower pass through throttling valves, a moisture knockout tank, dilution valve, vacuum gauges, and particulate filter prior to entering the blower. After exiting the blower discharged vapors pass through a flow meter, pressure gauge, and temperature gauge prior to passing through a heat exchanger and catalytic oxidizer prior to discharging through a stack. The off-gas treatment via a catalytic oxidizer was installed in the third quarter of 2020 and is a change from granular activated carbon treatment utilized during initial pilot test operation.

Condensate collected in the moisture separator is drained via an automated pumping system to a condensate holding tank within the enclosure. This condensate is periodically pumped out manually and discharged to the catch basin in the wash down pad for entry into the site groundwater treatment system. The AS/SVE process and instrumentation plan is presented as Figure 6, and the AS/SVE system schematic is presented as Figure 6A.

AS flow is routed through a five (5)-point manifold and split to reach up to fifteen (15) of the twenty (20) AS wells. Each manifold leg has a solenoid valve, flow control valve, rotameter-style flowmeter, and pressure gauge. SVE flow is collected through a four (4)-point manifold to up to six (6) of the ten (10) SVE wells. Each manifold leg has a flow control valve, pilot-tube flowmeter, and vacuum gauge.

The system components are plumbed in a modular/mobile enclosure with interior/exterior lighting and environmental controls (e.g. heating and ventilation). Operational controls for the system include programmed/automated controls in the form of a PLC with HMI, individual equipment components, and automated operation of the process control valves. The gas flow capacities of the AS/SVE system are controlled by the air compressor and the SVE blower. AS compressor flow rates to the individual air sparge wells are between 1 and 30 scfm, with a combined rate of up to 150 scfm at 50 psi. Flow from the SVE blower collects vapors at total flow rates up to 500 scfm at 60 iw, split among the SVE wells. Flow rates, pressures, and operational timing are monitored and maintained by system technicians and engineers.

AS/SVE System Layout and Well Network

The AS/SVE system layout and well network are depicted on Figure 7. The Remediation Wells include twenty (20) AS wells and ten (10) SVE wells. At any given time, up to fifteen (15) AS wells and six (6) SVE wells can be active; the active Remediation Wells can be configured based on the capacity of the equipment and manifold listed above. Performance monitoring utilizes a series of piezometers and VMPs as summarized below.

Air Sparge Wells: Twenty (20) AS wells were installed in the treatment areas. The AS wells were installed to the full depth of groundwater impacts.

SVE Wells: Ten (10) SVE wells were installed to capture vapors created by the AS wells. The wells were placed to cover the AS well layout to ensure capture of any generated vapors.

Piezometers: A total of sixteen (16) piezometers were installed at three different depths - shallow, mid, and deep to monitor the full extent of impacts in groundwater. In the expansion area, the piezometers supplement existing monitoring wells in the treatment area (G85L and G86L). In June 2023, R85L, R85D, and R85A were installed to replace G85L, which was plugged and abandoned in November 2023.

Vapor Monitoring Points: Seventeen (17) nested VMPs were installed to monitor the vadose zone impacts. Each nested point contains three depths of monitoring points to assess the full vadose zone vertically, for a total of fifty-one (51) total VMPs.

The wells comprising the AS/SVE system are listed below:

Active AS/SVE Hydrocarbon Remediation Wells

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8AS-N	A8AS-N	50	390.49	395.49 – 390.49
A8AS-W	A8AS-W	50	390.51	395.51 – 390.51
A8AS-C	A8AS-C	50	390.74	395.74 – 390.74
A8AS-E	A8AS-E	45	395.59	400.59 – 395.59
A8AS-S	A8AS-S	45	395.71	400.71 – 395.71
A8SVE-NW	A8SVE-NW	35	405.55	415.55 – 405.55
A8SVE-NE	A8SVE-NE	35	405.49	415.49 – 405.49
A8SVE-SW	A8SVE-SW	35	405.71	415.71 – 405.71
A8SVE-SE	A8SVE-SE	35	405.64	415.64 – 405.64
A8AS-1A	A8AS-1A	67	373.53	378.53-373.53
A8AS-1B	A8AS-1B	67	373.57	378.57-373.57
A8-AS-1C	A8-AS-1C	70	369.62	374.62-369.62
A8AS-2A	A8AS-2A	67	373.28	378.28-373.28
A8AS-2B	A8AS-2B	67	372.67	377.67-372.67
A8AS-2C	A8AS-2C	70	369.06	374.06-369.06
A8-AS-3A	A8-AS-3A	65	375.59	380.59-375.59
A8AS-3B	A8AS-3B	67	372.66	377.66-372.66
A8-AS-3C	A8-AS-3C	70	368.98	373.98-368.98
A8-AS-4A	A8-AS-4A	65	376.67	381.67-376.67
A8-AS-4B	A8-AS-4B	65	375.83	380.83-375.83
A8-AS-4C	A8-AS-4C	65	375.25	380.25-375.25
A8-AS-5A	A8-AS-5A	65	376.87	381.87-376.87
A8-AS-5B	A8-AS-5B	65	376.71	381.71-376.71
A8-AS-5C	A8-AS-5C	65	376.10	381.10-376.10
A8SVE-1A	A8SVE-1A	25	415.27	425.27-415.27
A8SVE-1B	A8SVE-1B	25	411.49	421.49-411.49
A8SVE-2A	A8SVE-2A	25	415.73	425.73-415.73
A8SVE-2B	A8SVE-2B	25	413.82	423.82-413.82
A8SVE-3A	A8SVE-3A	25	416.91	426.91-416.91
A8SVE-3B	A8SVE-3B	25	416.31	426.31-416.31

AS/SVE System Area Piezometers

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Depth Elevation (ft. MSL)	Well Screen Interval (ft. MSL)
A8PZN-S	A8PZN-S	30	410.88	410.88 - 420.88
A8PZN-M	A8PZN-M	40	400.78	400.78 - 405.78
A8PZN-D	A8PZN-D	45	395.70	395.70 - 400.70
A8PZNW-S	A8PZNW-S	30	410.56	410.56 - 420.56
A8PZNW-M	A8PZNW-M	40	400.57	400.57 - 405.57
A8PZNW-D	A8PZNW-D	45	395.63	395.63 - 400.63

A8PZSE-S	A8PZSE-S	30	410.77	410.77 - 420.77
A8PZSE-M	A8PZSE-M	40	400.76	400.76 - 405.76
A8PZSE-D	A8PZSE-D	45	395.71	395.71 - 400.71
A8PZS-S	A8PZS-S	30	410.66	410.66 - 420.66
A8PZS-M	A8PZS-M	40	400.62	400.62 - 405.62
A8PZS-D	A8PZS-D	45	395.61	395.61 - 400.61
A8PZ-C	A8PZ-C	52	387.85	397.85-387.85
A8PZ-SE	A8PZ-SE	45	396.18	406.18-396.18
A8PZ-NE	A8PZ-NE	50	391.82	401.82-391.82
A8PZ-SW	A8PZ-SW	49	387.30	397.30-387.30

AS/SVE System Area Vapor Monitoring Points

IEPA Well No.	Facility Well No.	Well Depth (ft.)	Well Screen Interval (ft. BGS)	Well Diameter (inches)
A8VMPN-S	A8VMPN-S	10	9.5-10	0.75
A8VMPN-M	A8VMPN-M	20	19.5-20	0.75
A8VMPN-D	A8VMPN-D	25	24.5-25	0.75
A8VMPNE-S	A8VMPNE-S	10	9.5-10	0.75
A8VMPNE-M	A8VMPNE-M	20	19.5-20	0.75
A8VMPNE-D	A8VMPNE-D	25	24.5-25	0.75
A8VMPS-S	A8VMPS-S	10	9.5-10	0.75
A8VMPS-M	A8VMPS-M	20	19.5-20	0.75
A8VMPS-D	A8VMPS-D	25	24.5-25	0.75
A8VMPSW-S	A8VMPSW-S	10	9.5-10	0.75
A8VMPSW-M	A8VMPSW-M	20	19.5-20	0.75
A8VMPSW-D	A8VMPSW-D	25	24.5-25	0.75
A8VMP1-S	A8VMP1-S	5	4-5	0.75
A8VMP1-M	A8VMP1-M	15	14-15	0.75
A8VMP1-D	A8VMP1-D	25	24-25	0.75
A8VMP2-S	A8VMP2-S	5	4-5	0.75
A8VMP2-M	A8VMP2-M	15	14-15	0.75
A8VMP2-D	A8VMP2-D	25	24-25	0.75
A8VMP3-S	A8VMP3-S	5	4-5	0.75
A8VMP3-M	A8VMP3-M	15	14-15	0.75
A8VMP3-D	A8VMP3-D	25	24-25	0.75
A8VMP4-S	A8VMP4-S	5	4-5	0.75
A8VMP4-M	A8VMP4-M	15	14-15	0.75
A8VMP4-D	A8VMP4-D	25	24-25	0.75
A8VMP5-S	A8VMP5-S	5	4-5	0.75
A8VMP5-M	A8VMP5-M	15	14-15	0.75
A8VMP5-D	A8VMP5-D	25	24-25	0.75
A8VMP6-S	A8VMP6-S	5	4-5	0.75
A8VMP6-M	A8VMP6-M	15	14-15	0.75
A8VMP6-D	A8VMP6-D	25	24-25	0.75
A8VMP7-S	A8VMP7-S	5	4-5	0.75

A8VMP7-M	A8VMP7-M	15	14-15	0.75
A8VMP7-D	A8VMP7-D	25	24-25	0.75
A8VMP8-S	A8VMP8-S	5	4-5	0.75
A8VMP8-M	A8VMP8-M	15	14-15	0.75
A8VMP8-D	A8VMP8-D	25	24-25	0.75
A8VMP9-S	A8VMP9-S	5	4-5	0.75
A8VMP9-M	A8VMP9-M	15	14-15	0.75
A8VMP9-D	A8VMP9-D	25	24-25	0.75
A8VMP10-S	A8VMP10-S	5	4-5	0.75
A8VMP10-M	A8VMP10-M	15	14-15	0.75
A8VMP10-D	A8VMP10-D	25	24-25	0.75
A8VMP11-S	A8VMP11-S	5	4-5	0.75
A8VMP11-M	A8VMP11-M	15	14-15	0.75
A8VMP11-D	A8VMP11-D	25	24-25	0.75
A8VMP12-S	A8VMP12-S	5	4-5	0.75
A8VMP12-M	A8VMP12-M	15	14-15	0.75
A8VMP12-D	A8VMP12-D	25	24-25	0.75
A8VMP13-S	A8VMP13-S	5	4-5	0.75
A8VMP13-M	A8VMP13-M	15	14-15	0.75
A8VMP13-D	A8VMP13-D	25	24-25	0.75

Figures to Attachment E:

E-1 -- Site Plan
E-2 -- Process and Instrumentation Plan – Central Biovent System
E-2A- Process Flow Schematic Central Biovent Area
E-3 – Area 3 Biovent Expansion
E-4 -- Process and Instrumentation Plan – Southern Biosparge System
E-4A-Process Flow Schematic Southern Biosparge/Biovent Area
E-5 – Area 5 Biosparge/ Biovent System Area
E-6 – Process and Instrumentation Plan – Air Sparge/SVE System
E-6A-Process Flow Schematic Northern AS/SVE Area
E-7 – Northern Air Sparge/ Soil Vapor Extraction System Area

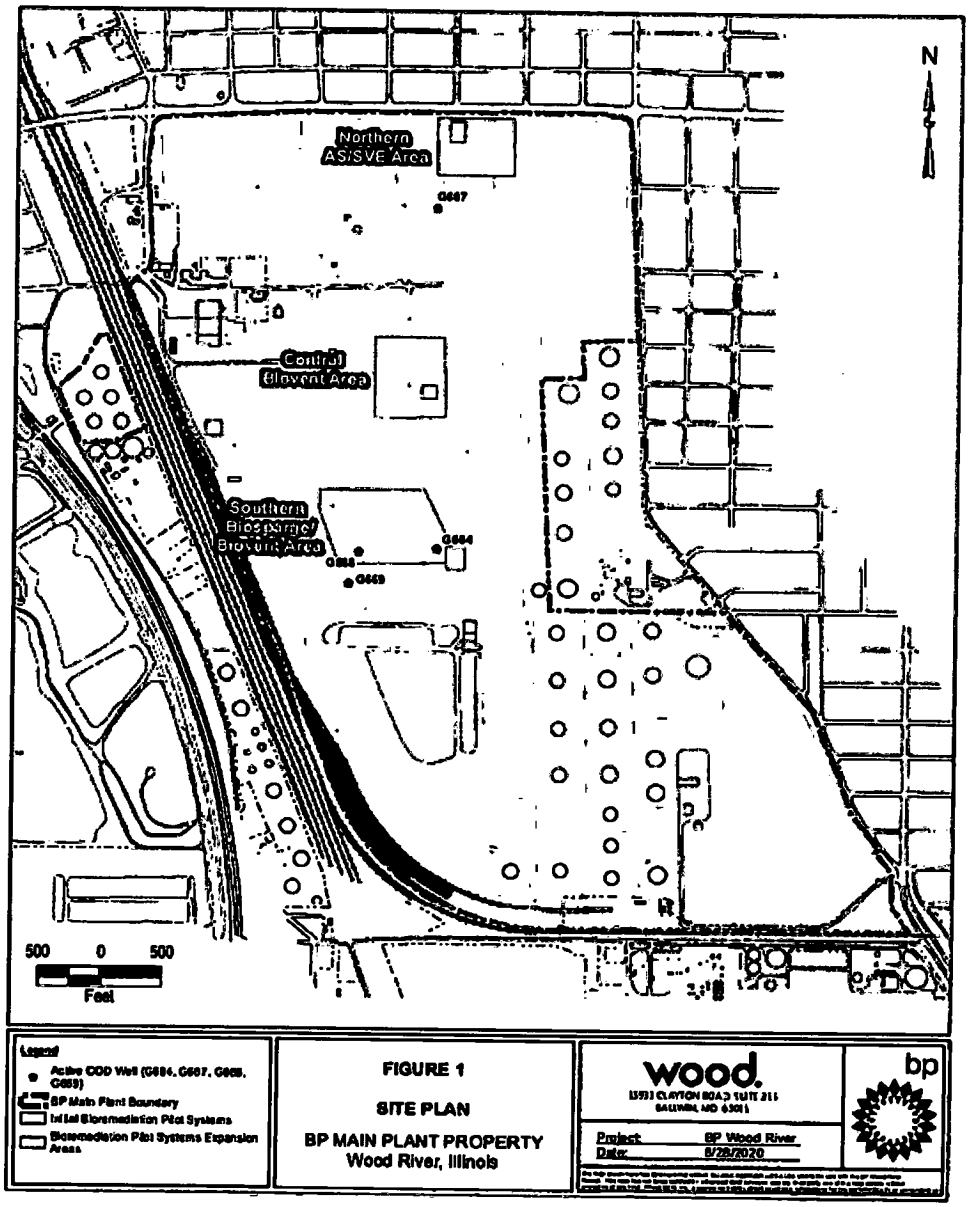


Figure E-1 -- Site Plan

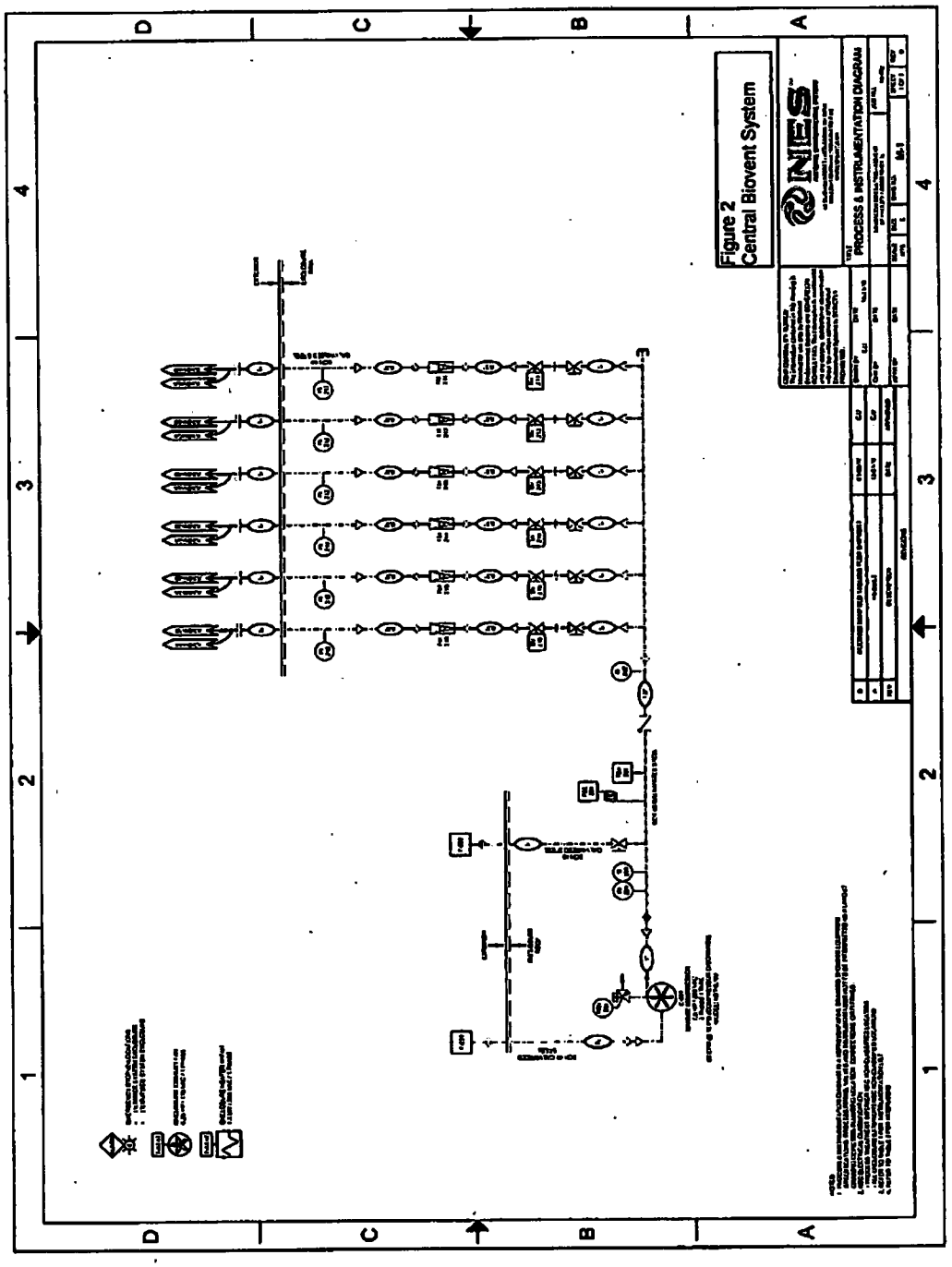


Figure E-2 -- Process and Instrumentation Plan – Central Biovent System

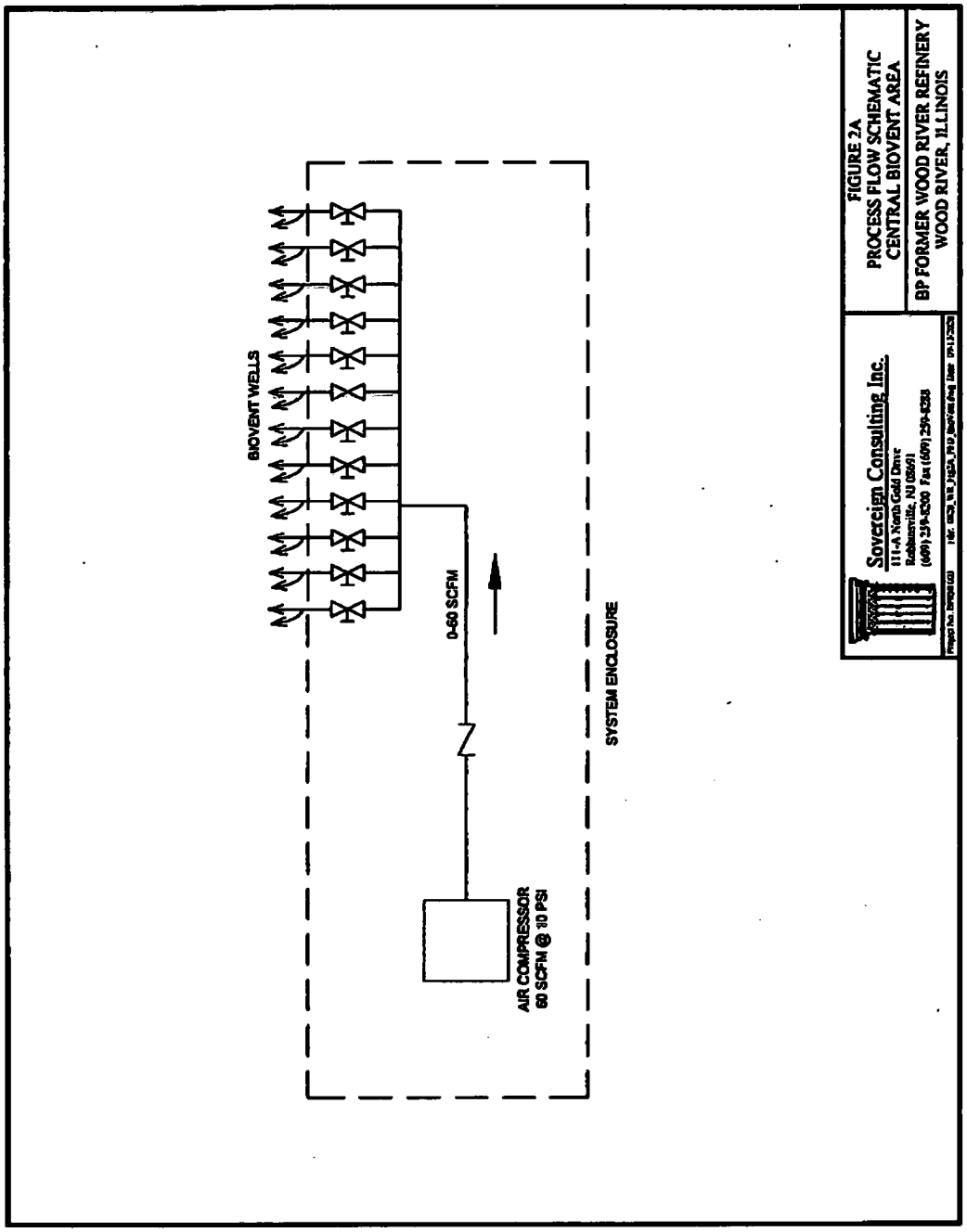


Figure E-2A- Process Flow Schematic Central Biovent Area



Figure E-3 – Area 3 Biovent Expansion

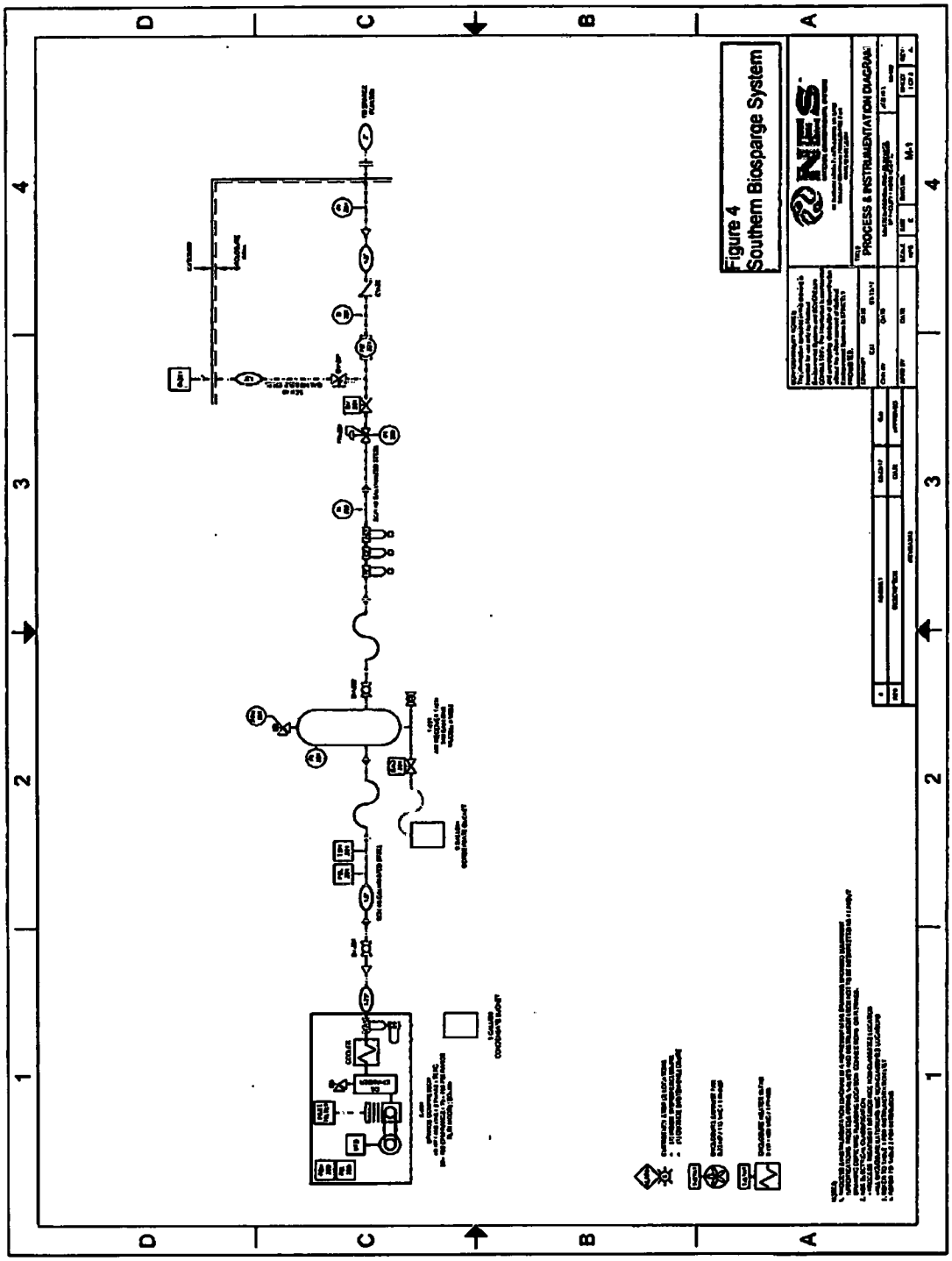


Figure E-4 – Process and Instrumentation Plan – Southern Biosparge System

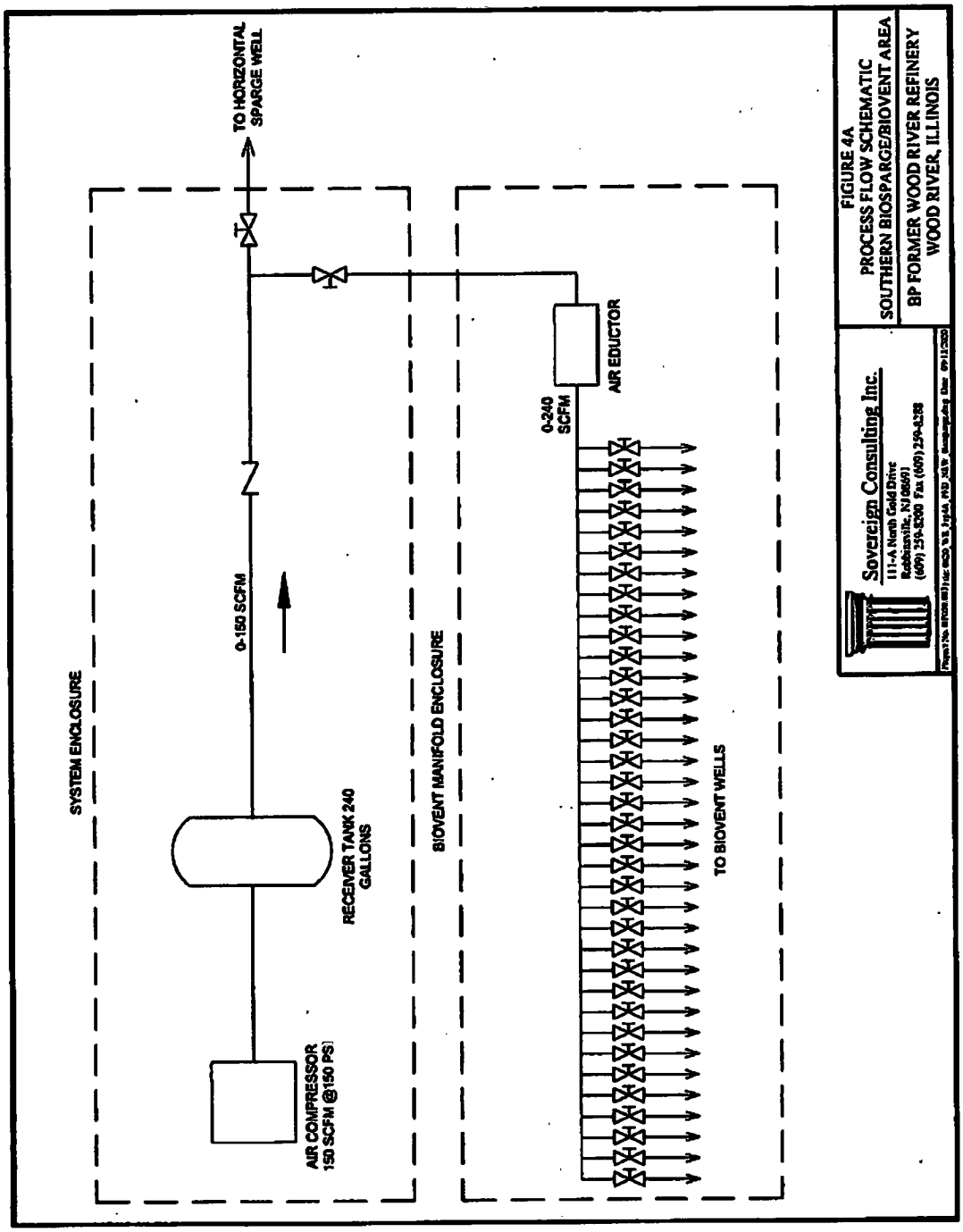


Figure E-4A-Process Flow Schematic Southern Biosparge/Biovent Area



Figure E-5 – Area 5 Biosparge/ Biovent System Area

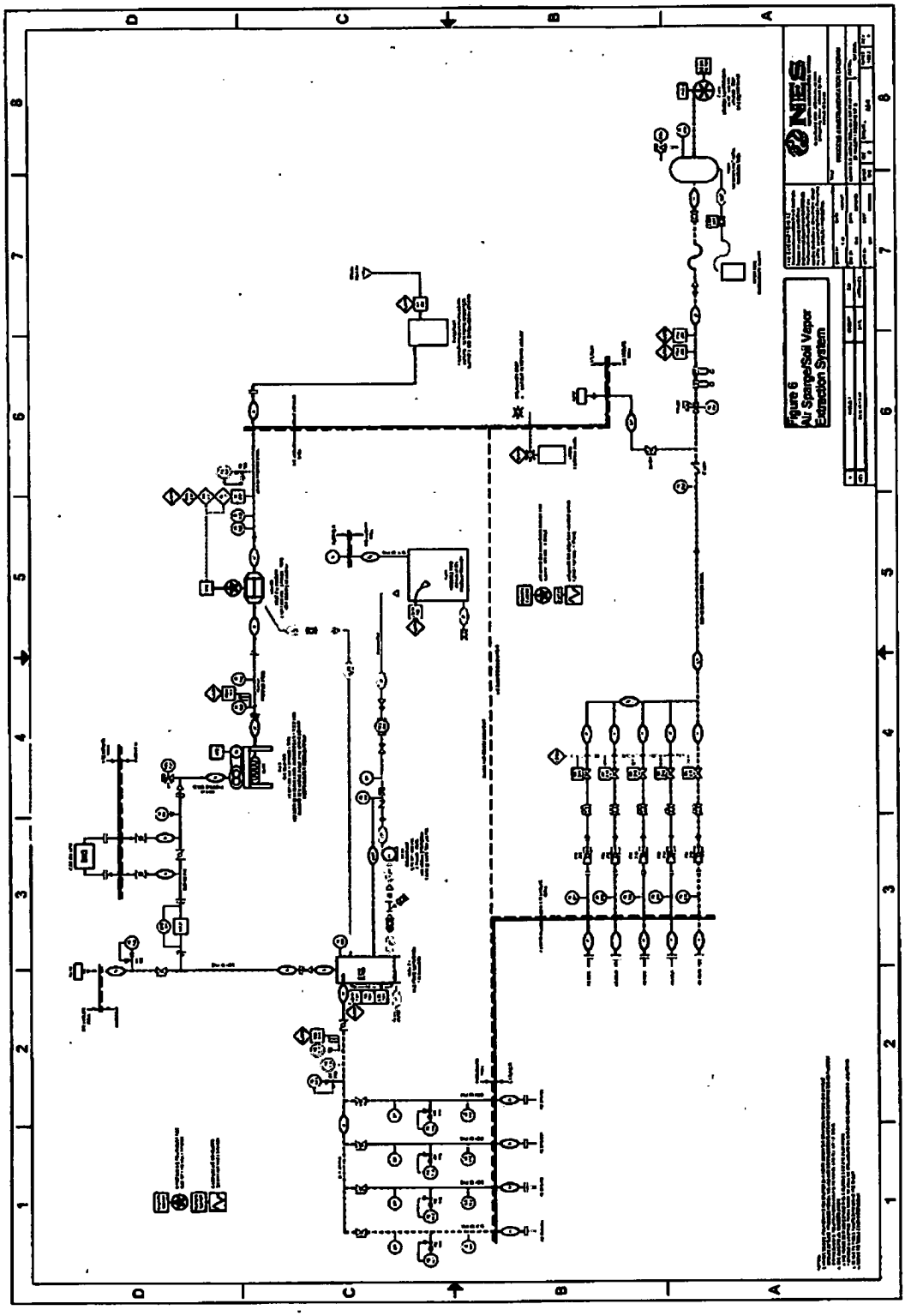


Figure E-6 – Process and Instrumentation Plan – Air Sparge/SVE System

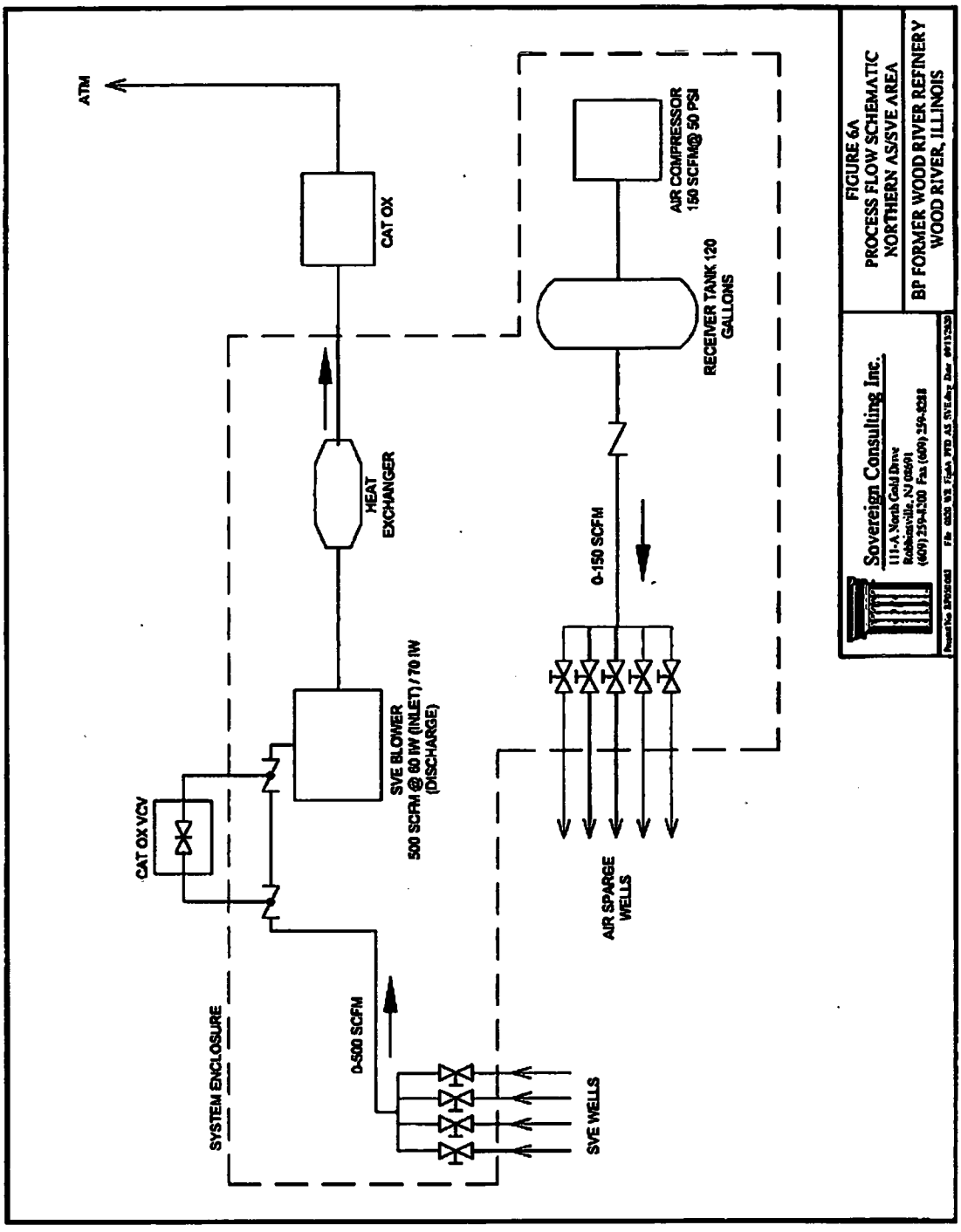


Figure E-6A-Process Flow Schematic Northern AS/SVE Area

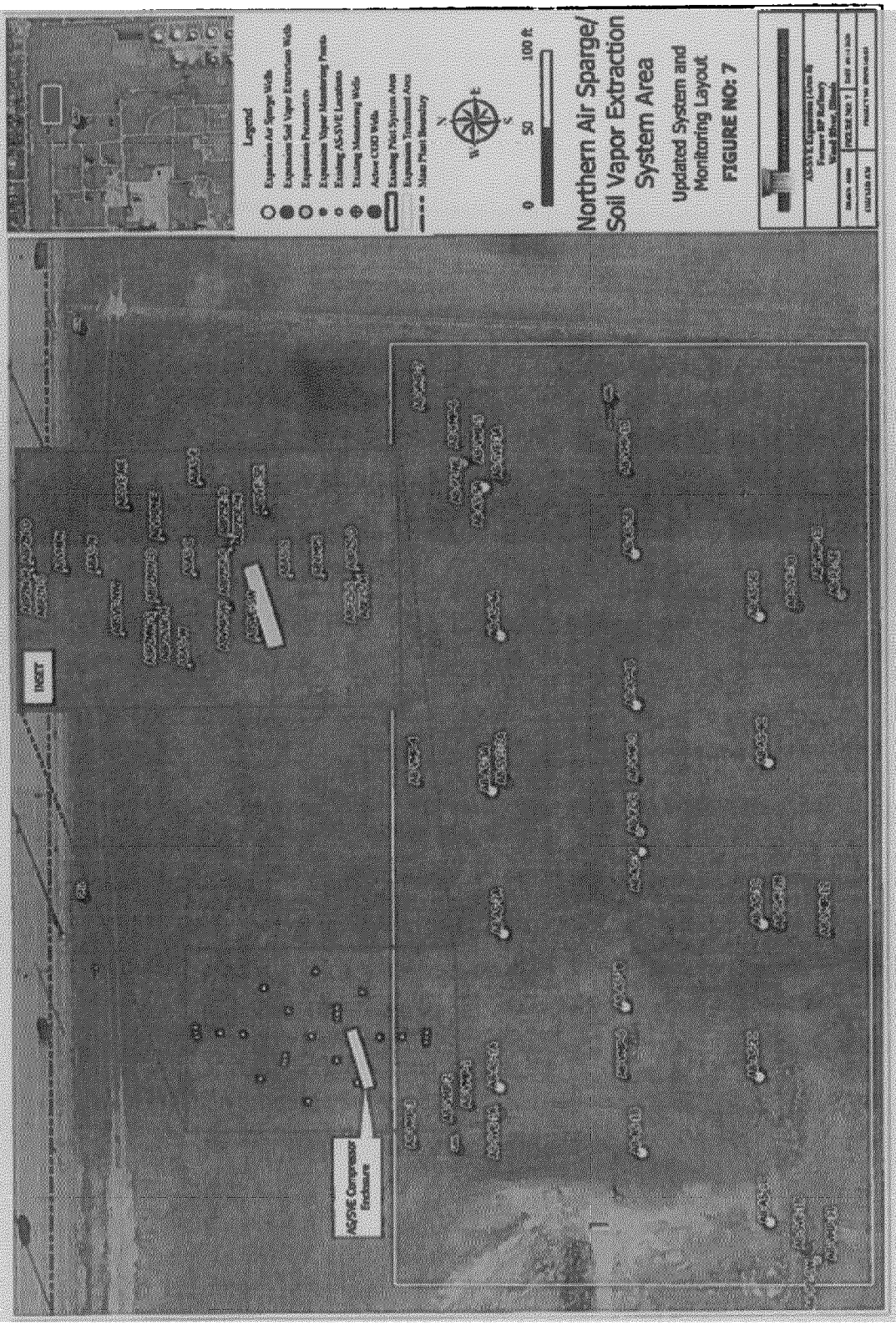


Figure E-7 – Northern Air Sparge/ Soil Vapor Extraction System Area

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT F

NORTHING AND EASTING WELL COORDINATES

Facility Well ID	IEPA Well ID	Northing	Easting
G-01R	G002	2315679.6730	798263.3670
B-5D	G005	2320442.8070	794103.4080
B-6	G006	2321445.3990	792326.8380
B-8D	G008	2318701.1380	794139.4760
B-9	G009	2317504.0380	797808.5810
C-1	G011	2316145.9890	798128.1810
C-3	G013	2315486.7910	797313.6600
C-6	G016	2315568.4280	796545.3270
C-7	G017	2316068.8140	796709.5230
C-10	G020	2316846.4770	796084.5010
C-11	G021	2316032.8980	795553.1050
C-13	G023	2316726.7590	794627.7530
G-5	G045	2319331.7120	798107.7350
G-6	G046	2319352.1710	797717.7080
G-8	G048	2317665.9870	794905.3140
G-9	G049	2317730.1180	794933.0350
B-4R	G04R	2319383.4870	796886.7270
G-10	G050	2316647.7000	797276.8380
G-15	G055	2319304.5810	798579.1090
G-17	G057	2314016.8910	797192.5450
G18	G058	2313697.9150	797669.3160
G-19	G059	2314720.3470	796603.7740
G-22	G062	2316138.2830	798781.4700
G-24	G064	2317405.0010	798759.2780
G-25	G065	2318431.6080	798763.5760
G-27	G067	2317282.7860	798854.8410
G-28	G068	2317437.6450	798858.2920
G-33	G073	2316629.9380	798762.8210
G-39	G079	2314655.5710	796217.3950
G-42	G082	2315061.8680	796341.7040
G32R	G084	2315809.4730	798824.7170
G-26R	G085	2319412.1830	797888.5090
H-20	G10L	2318428.6930	796675.2540
SWMU12-MW02	G111	2321150.8470	792075.9720
G-H1	G112	2320408.7820	792141.5070
G128	G128	2321505.0490	791869.4520
H-23	G13L	2317555.5600	796223.3910
H-24	G14L	2318100.0690	796149.0410

Facility Well ID	IEPA Well ID	Northing	Easting
H-26A	G16L	2317933.9290	795414.3950
H-28	G18	2318392.0710	798666.2510
H-29	G19	2317302.5480	798664.2160
C-12R	G22R	2316821.8910	795303.2200
RP-1	G301	2318950.2690	793678.5400
RP-3D	G303	2317187.1060	793125.3120
RP-4D	G304	2316844.8760	794402.4720
RP-5	G305	2317182.2120	794484.3180
RP-6	G306	2317650.7810	794478.4090
RP-7D	G307	2318033.2090	794439.6030
H-30R	G30R	2316949.7660	798660.8350
H-31R	G31R	2316452.9700	798645.6100
H32R	G32R	2315452.6910	797881.6690
H-33	G33	2315831.1310	795895.8320
H-34	G34	2317227.4270	795061.9100
H-37	G37	2319887.0480	791941.2110
H-39	G39	2318294.9450	793276.9050
B-17	G417	2317985.3380	796482.1650
G-5B	G5B	2319331.6770	798112.5710
RC-1	G601	2317016.0710	797966.4900
RC-2	G602	2317021.1740	797306.8430
RC-3	G603	2317054.1820	796580.3380
RC-4	G604	2316673.2710	797256.1700
RC-5	G605	2317658.7670	794911.5820
RC-6	G606	2316366.9220	798334.8220
RC-7	G607	2316841.2620	798360.1430
RC-8	G608	2317174.6960	798373.7870
RC-9	G609	2317389.3470	798157.0880
RC-10	G610	2317589.3950	798369.7090
RC-11	G611	2317919.3640	798321.7330
RC-12	G612	2318326.6020	798335.2680
RC-13	G613	2317136.7880	795587.8480
RC-14	G614	2317659.8050	795257.5300
RC-15	G615	2317812.4390	795006.7230
RC-16	G616	2316988.7800	795311.7320
RC-17	G617	2316517.6020	797774.1780
RC-18	G618	2316620.1360	797976.4530
RC-19	G619	2316679.6860	798115.2650
RC-20	G620	2316673.3790	797366.0800
RC-H-29	G629	2317403.7210	798663.8640
G-29R	G69R	2317835.9950	798880.4770

Facility Well ID	IEPA Well ID	Northing	Easting
G-31	G71L	2318022.9480	798666.1450
G-34	G74L	2318878.5220	798776.9620
G-35	G75L	2318335.5340	798849.9300
G-36	G76L	2318005.7010	798852.2200
G-37	G77L	2317535.8570	798767.0950
H-3	G83L	2316856.7180	798243.9080
H-4	G84L	2317395.0430	798262.1620
H-6	G86L	2318343.7720	798335.5420
H-7	G87L	2315843.9780	797583.0780
H-9	G89L	2316801.1780	797725.1370
M-1D	G91	2320805.0380	793634.6680
H-11	G91L	2318078.0000	797797.7740
M-2D	G92	2320963.8860	793234.9600
H-12	G92L	2318520.0740	797772.2940
M-3D	G93L	2321139.3660	792810.7060
H-16	G96L	2318043.8500	797261.2130
H-17	G97L	2318509.0470	797205.0340
H-18	G98L	2315593.1660	796997.6950
H-19	G99L	2317507.8130	796699.9450
H-31B	H31B	2316448.2440	798648.0050
G-2D	R042	2319932.2010	793607.1120
G-23R	R063	2317101.3500	798768.1600
G-4DR	R083	2320117.5960	792916.8810
H-21R	R11L	2316250.0960	796182.4280
RP-2D	R302	2318146.3020	792164.0310
H36R	RG36	2318906.9170	796630.9950

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

ILLINOIS EPA NO. 1191150001

USEPA NO. ILD980700967

RCRA CORRECTIVE ACTION PERMIT LOG NO. B-147R2

ATTACHMENT G

WATER WELL SURVEY GUIDANCE FOR RCRA FACILITIES

In order to determine the impacts and potential impacts to potable water supply wells from soil, soil gas, or groundwater contamination, 35 IAC 1600, Subpart B establishes the minimum standards and requirements for performing water well surveys to ensure these wells are accurately identified and located. All Solid Waste permitted facilities, RCRA permitted facilities, and facilities pursuing RCRA closure, where exceedances of the applicable 35 IAC Part 620 groundwater quality standards (or in the case of RCRA closure, 35 IAC Part 742, Tier 1 groundwater remediation objectives), have the potential to impact potable water supply wells, must determine the existence and location of potable water supply wells as described in 35 IAC Part 1600 and this procedure. This procedure applies to projects that require the location of potable water wells to be identified as part of site investigation, corrective action activities, or Right to Know evaluation.

In order to meet these requirements, the facility in question must submit maps that identify the following:

1. All private, semi-private and non-community water system wells located at the property where the release occurred or within 200 feet of the property boundary where the release occurred;

2. All community water system wells located at the property where the release occurred or within 2,500 feet of the property boundary where the release occurred; and

3. All wellhead protection areas in which all or any portion of the property where the release occurred is located within that zone or area.

The facility must submit verification that all of the below sources have been investigated and the water well survey data (electronic, paper or physical) from these sources have been included on the map. This information shall be obtained from the following sources:

- Illinois State Geological Survey
- Illinois State Water Survey
- Illinois EPA Division of Public Water Supplies
- Illinois Department of Public Health
- County and Municipal Health Departments
- Local water supply entity (i.e., public water districts, public water supply companies), if data is not included in the previous listed sources.

If it is determined that groundwater contamination exceedances of the applicable 35 IAC Part 620, groundwater quality standards (or in the case of RCRA closure the 35 IAC Part 742, Tier 1, groundwater remediation objectives), are measured or modeled to migrate off-site, the area of the water well survey must be expanded based on the measured and/or modeled groundwater plume.

NOTE: If contamination at a remediation site cannot be modeled due to geological constraints (i.e. bedrock), the information requested above shall be collected inside a survey area to be determined by the Illinois EPA on a site-by-site basis.

Documentation of the results of the water well survey or the expanded water well survey, must include the following information:

- Map(s) to appropriate scale showing the location of community water supply wells, potable water supply wells, and all applicable wellhead protection areas of the wells identified in the survey. The location of the measured and modeled contamination plume shall also be shown on the map(s) if the measured or modeled plume extends off-site.

- Tables of potable water supply wells and their respective wellhead protection areas.

- Narrative to supplement the map(s) and table(s) identified above. This includes the person(s) contacted as part of the survey, that person's title, sources of information used, field observations, etc.

- Certification by a Licensed Professional Engineer or Licensed Professional Geologist that the entities listed above have been contacted as part of the well survey and the information obtained is included in the map(s), table(s) and narrative.

When data sources as identified above do not appear to have adequately identified the location of potable wells or site-specific conditions warrant, additional investigation may be required. Such conditions include, but are not limited to:

- The local water supply entity does not bill a residence/business located within the search area, and the other record searches do not show a potable well on the property; or

- The water well survey does not appear to identify an accurate number of potable wells for the area when the locational information is compared to aerial photography or local zoning maps which identify residential and commercial structures.

The additional investigation must include, at a minimum, notification in the form of written communication to properties within the water well survey area and may include a physical well survey (e.g. face-to-face interviews with property owners, a reconnaissance survey looking for wellheads, etc.)