BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

WASTE MANAGEMENT OF ILLINOIS, INC.,	)	
	)	
Petitioner,	)	
	)	PCB 25-9, 25-10
v.	)	(Permit Appeal – RCRA)
	)	(Consolidated)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
	)	
Respondent.	)	

NOTICE OF FILING

TO: Attached Service List Via Email

PLEASE TAKE NOTICE that on March 4, 2025, I caused to be filed with the Office of the Clerk of the Illinois Pollution Control Board by electronic filing the attached (1) Respondent's Certification of the Record on Appeal, copies of which are attached hereto, and (2) Record on Appeal R 000001-001533, via file transfer link and hereby served upon you.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,

By: /s/ Justin Bertsche____

Justin Bertsche
Assistant Attorney General
Office of the Illinois Attorney General
Environmental Bureau
69 W. Washington St., Ste. 1800
Chicago, IL 60602
(773) 505-5308
Justin.Bertsche@ilag.gov

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dn@nijmanfranzetti.com

Bradley Halloran
Illinois Pollution Control Board
60 E. Van Buren Street, Suite 630
Chicago, Illinois 60605
Brad.Halloran@illinois.gov

CERTIFICATE OF SERVICE

I, Justin Bertsche, an Assistant Attorney General, hereby certify that on the 4th of March 2025, I caused to be served the foregoing Notice of Electronic Filing and Respondent's Certification of the Record on Appeal, upon the parties named on the attached Service List via email and Record on Appeal R 000001-001533 via file transfer link.

/s/ Justin Bertsche____
Justin Bertsche
Assistant Attorney General
Office of the Illinois Attorney General
Environmental Bureau
69 W. Washington St., Ste. 1800
Chicago, IL 60602
(773) 505-5308
Justin.Bertsche@ilag.gov

Electronic Filing: Received, Clerk's Office 03/04/2025

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

WASTE MANAGEMENT OF ILLINOIS, INC.,	)	
	)	
Petitioner,	)	
	)	PCB 25-9, 25-10
v.	)	(Permit Appeal – RCRA)
	)	(Consolidated)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
	)	
Respondent.	)	

INDEX OF RECORD ON APPEAL

Respondent, ILLINOIS ENVIRONMENTAL PROTECTION AGENCY ("IEPA"), in accordance with the procedural rules of the Illinois Pollution Control Board ("Board") as set forth in 35 Ill. Adm. Code 105.116 and 105.212, files in this cause the Illinois EPA's Administrative Record of July 29, 2024 permit with conditions and July 30, 2024 final decision for Facility No. ILD074411745 concerning Waste Management of Illinois' ("WMI") closed hazardous waste management units 1 and 2 at its Laraway Recycling and Disposal Facility ("Laraway RDF"), which is attached and consists of the following documents as set out in the index below:

I. IEPA July 29, 2024 Permit with Conditions and July 30, 2024 Final Decision

   1. J. Cooperider (IEPA BOL) Letter to I. Johnson (WMI), Permit Approval with Conditions and Attachments for Laraway RDF, dated July 29, 2024 (R 000001-000207);

   2. J. Cooperider (IEPA BOL) Letter to I. Johnson (WMI), Final Decision and Attachments for Laraway RDF, dated July 30, 2024 (R 000208- 000239);

II. WMI Permit Modification Requests

   1. I. Johnson (WMI) Permit Modification Request Log No. B-141R-M-167 with Attachments and Supplemental Information, dated May 9, 2022 (R 000240-000295);

2. I. Johnson (WMI) Permit Modification Request Log No. B-141R-M-174 with Attachments and Supplemental Information, dated May 12, 2023 (R 000296-000356);

3. I. Johnson (WMI) Permit Modification Request Log No. B-141R-M-178 and Weaver Consultants Group Construction Acceptance Report Phase 9C and Phase 10B, dated January 22, 2024 (R 000357- 000819);

4. I. Johnson (WMI) Permit Modification Request Log No. B-141R-M-181 with Attachments and Supplemental Information, dated May 8, 2024 (R 000820-000886);

III. Agency Review Documents

A. IEPA BOL Permit Section RCRA Tracking Sheets

1. IEPA BOL Permit Section RCRA Tracking Sheets for Laraway RDF Submittal B-141R-M-167 (R 000887- 000890);

2. IEPA BOL Permit Section RCRA Tracking Sheets for Laraway RDF Submittal B-141R-M-174 (R 000891- 000893);

3. IEPA BOL Permit Section RCRA Tracking Sheets for Laraway RDF Submittal B-141R-M-178 (R 000894- 000896);

4. IEPA BOL Permit Section RCRA Tracking Sheets for Laraway RDF Submittal B-141R-M-181 (R 000897- 000908);

B. IEPA Memoranda, Correspondence, and Cost Estimates

1. S. Dial (IEPA) Memorandum to K. Lesko (IEPA) Discussing Laraway RDF's Cost Estimate Submittals, dated June 30, 2022 (R 000909- 000912);

2. Email Chain Between S. Dial (IEPA), D. Britton (IEPA), and K. Huser (IEPA) Discussing Laraway RDF's Cost Estimate Submittals, dated July 6 and 7, 2022 (R 000913- 000914);

3. Email Chain Between S. Dial (IEPA) and K. Rawe (IEPA) Cost Estimate Memorandum, dated July 18, 2022 (R 000915- 000916);

4. R. Dimayuga (IEPA) Memoranda and Attached Correspondence with I. Johnson (WMI), J. Roop (IEPA BOL), and D. Britton (IEPA) Discussing Laraway RDF's Cost Estimate Submittals, from May 31, 2023, to February 13, 2024 (R 000917-000938);

5. Environmental Justice Mapping for Laraway RDF, accessed on May 1, 2024 (R 000939);

6. Email Chain Between J. Roop (IEPA BOL) and D. Britton (IEPA) Discussing Laraway RDF's Financial Assurance, dated May 2, 2024, and July 19, 2024 (R 000940- 000941);

7. J. Roop (IEPA BOL) Review Notes Discussing Laraway RDF's Cost Estimate Submittals and Cost Estimate Tables, attorney client privileged communications between IEPA BOL and IEPA Department of Legal Counsel providing legal advice on interpretation of 35 Ill. Adm. Code Part 724 regulations, dated May 10, 2024, and July 29, 2024 (R 000942-000972);

8. S. Dial (IEPA) Memorandum to J. Roop (IEPA BOL) Discussing Laraway RDF's Cost Estimate Submittals, dated May 20, 2024 (R 000973- 000977);

9. E. Wagner (IEPA) Memoranda to J. Roop (IEPA BOL) Discussing Laraway RDF's Groundwater, dated June 18, 2024 (R 000978- 000987);

10. S. Dial (IEPA) Memorandum to J. Roop (IEPA BOL) Discussing Laraway RDF's Cost Estimate Submittals, dated July 17, 2024 (R 000988- 000992);

11. W. Sinnott (IEPA) Memorandum to J. Roop (IEPA BOL) Discussing Laraway RDF's Cost Estimate Submittals, dated July 19, 2024 (R 000993- 000997);

12. FACES Documentation for Laraway RDF, accessed on July 22, 2024 (R 000998);

13. RCRA Waste Codes and Laraway RDF Historic Hazardous Waste Acceptance (R 000999- 001022);

C. Notice of Deficiencies

1. J. Cooperider (IEPA BOL) Notice of Deficiencies Letter to I. Johnson (WMI), dated June 12, 2024 (R 001023-001025);

2. J. Cooperider (IEPA BOL) Notice of Deficiencies Letter to I. Johnson (WMI), dated July 3, 2024 (R 001026- 001028);

D. Laraway RDF's Annual Leachate Reports;

1. Laraway RDF's Annual Leachate Report, dated May 12, 2021 (R 001029- 001037);

2. Laraway RDF's Annual Leachate Report, dated April 22, 2022 (R 001038- 001046);

3. Laraway RDF's Annual Leachate Report, dated May 31, 2023 (R 001047- 001056);

4. Laraway RDF's Annual Leachate Report, dated May 15, 2024 (R 001057- 001066);

IV. Other Documents Reviewed

A. Guidance Documents and Position Paper

1. USEPA Memorandum, Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA, updated December 15, 2016 (R 001067- 001085);

2. ASTSWMO Position Paper, Post-Closure Care Beyond 30 Years at RCRA Subtitle C Facilities, dated July 20, 2022 (R 001086- 001087);

3. USEPA Memorandum, Implementing Climate Resilience in Hazardous Waste Permitting Under the Resource Conservation and Recovery Act (RCRA), dated June 5, 2024 (R 001088- 001093);

B. Other Agency Permit Decisions

1. J. Cooperider (IEPA BOL) Letter to Alton Steel, Inc., Permit Approval with Conditions and Attachments, dated September 26, 2023 (R 001094- 01213);

2. J. Cooperider (IEPA BOL) Letter to BP Products North American Inc./Riverfront Property, Permit Approval with Conditions and Attachments, dated September 29, 2023 (R 001214- 001381);

3. J. Cooperider (IEPA BOL) Letter to Peoria Disposal Company, Draft Permit Renewal, dated July 24, 2024 (R 001382- 001553).

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

/s/ Justin Bertsche____
Justin Bertsche
Assistant Attorney General
Office of the Illinois Attorney General
Environmental Bureau
69 W. Washington St., Ste. 1800
Chicago, IL 60602
(773) 505-5308
Justin.Bertsche@ilag.gov

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

WASTE MANAGEMENT OF ILLINOIS, INC.	)	
	)	
Petitioner,	)	
	)	PCB 25-09, 25-10
v.	)	(Permit Appeal - RCRA)
	)	(Consolidated)
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY,	)	
	)	
Respondent.	)	

CERTIFICATE OF RECORD ON APPEAL

I, John Roop, of the Illinois Environmental Protection Agency hereby certify that the Record on Appeal filed in the above-referenced matter and summarized in the attached Index of the Record on Appeal pursuant to 35 Ill. Adm. Code 105.116 and 105.212 (the "Index") is true and complete to the best of my knowledge, information, and belief.

John Roop 3/4/25

John Roop, P.E.
Environmental Protection Engineer IV
Bureau of Land/Permits Section/RCRA Unit
Illinois Environmental Protection Agency

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

217/524-3301

JUL 29 2024

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
9589 0710 5270 0389 7096 90

Waste Management of Illinois, Inc.
Attn: Ian Johnson, P.E.
21233 West Laraway Road
Joliet, Illinois 60436-9525

Waste Management of Illinois, Inc.
Attn: James Wilson
700 East Butterfield Road Suite 400
Lombard, Illinois 60148-5671

Re: 1970450002 – Will County
Laraway Recycling and Disposal Facility
ILD074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-178, and B-141R-M-181
RCRA Permit File – 24A
Permit Approval

Dear Mr. Johnson and Mr. Wilson:

This letter is in response to the following listed documents submitted by Mr. Ian Johnson, P.E., of Waste Management of Illinois, Inc. on behalf of Laraway Recycling and Disposal Facility (Laraway). In accordance with Title 35 Illinois Administrative Code (35 IAC) Part 703, the subject documents were submitted and reviewed as Class 1* permit modification requests and addressed the revision to the financial assurance cost estimate and the commissioning of municipal solid waste disposal cells Phase 9C / 10B.

Document	Dated	Received
	Log No. B-141R-M-167	
Original Application	May 9, 2022	May 11, 2022
Additional Information	May 31, 2023	June 2, 2023
	Log No. B-141R-M-174	
Original Application	May 12, 2023	May 18, 2023
Additional Information	July 26, 2023	July 28, 2023

IEPA- Division of Records Management
Releasable
OCT 17 2024
Reviewer: SAB

Document	Dated	Received
	Log No. B-141R-M-178	
Original Application	January 22, 2024	January 23, 2024
Additional Information	February 8, 2024	February 13, 2024
	Log No. B-141R-M-181	
Original Application	May 8, 2024	May 10, 2024
Additional Information	May 31, 2024 June 17, 2024 June 24, 2024 July 8, 2024	June 5, 2024 June 20, 2024 June 26, 2024 July 10, 2024

The subject permit modification requests included updated post-closure cost estimates and minor revisions to Laraway' s current RCRA Post-Closure Permit. The Illinois EPA has reviewed the information and hereby approves the subject submittals as a modification to the approved RCRA Permit (Permit) with the following conditions and modifications:

1. The Illinois EPA has evaluated the requirements for post-closure care, cost estimates, and financial assurance for Areas 1 and 2, the hazardous waste management unit(s), under 35 IAC Part 724. This evaluation has taken into consideration the financial risk to the Illinois EPA and citizens of Illinois, if the Illinois EPA would have to unexpectedly assume operation of the post-closure care at the facility. Such evaluation was performed pursuant to 35 IAC 703.241.

2. The Illinois EPA has determined that a rolling thirty (30)-year post-closure care cost estimate must be maintained by the facility, as required by 35 IAC 724.217(a) (1) and 35 IAC 703.282. This determination was also based on the Illinois EPA's review of: (1) the RCRA Post-Closure requirements; (2) requirements of 35 IAC 724.131, 724 Subpart G, 724.410, and 724 Subpart H; the information contained in the subject submittals. If any evidence shows that the estimated cost should be higher than the rolling 30-year cost estimate, then it should be adjusted to a higher number of years.

3. The proposed annual costs and one-time cost for post-closure care of Areas 1 and 2 in the updated cost estimate can be approved by the Illinois EPA. However, based on Conditions 1 and 2 above, the total post-closure care cost estimate for Areas 1 and 2 cannot be approved by the Illinois EPA. The Illinois EPA's evaluation of the requirements for post-closure care cost and financial assurance under 35 IAC Part 724 estimates as provided in Conditions 1 and 2 above has determined the total post-closure care estimate must reflect 30 years of post-closure care as required by 35 IAC 724.217.

A revised Permit is attached to this letter. Attachment A to this letter contains a summary of the changes made to the Permit. The information in the subject submittal has been incorporated into Laraway's approved permit application. Operations at Laraway must be in accordance with the revised Permit. Pursuant to 35 IAC 703.281 (a)(2), a notice of this modification shall be sent to all persons on the facility mailing list, maintained by the Illinois EPA in accordance with 35 IAC 705.163(a)(4), and the appropriate units of state and local government as specified in 35 IAC 705.163(a)(5). For a Class 1* modification, the notice must be made within ninety (90) days after the Illinois EPA approves the request.

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 Illinois Environmental Protection Act by filing a petition for a hearing within thirty-five (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
1021 North Grand Avenue East
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, Clerk
State of Illinois Center
100 West Randolph, Suite 11-500
Chicago, IL 60601-3233
312/814 3620

Work required by this letter, 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. 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.

For general questions regarding this Permit, please contact John Roop, P.E., by email at john.roop@illinois.gov or by phone at at 217/262-3071. For question regarding corrective action issues, please contact William Sinnott II by email at bill.sinnott@illinois.gov or by phone at 217/524-3310. For questions regarding solid waste groundwater issues, please contact Ed Wagner by email at ed.wagner@illinois.gov or by phone at 217/524-8964. For questions regarding hazardous waste groundwater issues, please contact Shawntay Dial by email at shawntay.dial@illinois.gov or by phone at 217/558-0177.

Sincerely,

(for JMC)

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:jjr/1970450002-RCRA-B141RM167-B141RM174-B141RM178-B141RM181-Approval.docx

Attachments: (1) Attachment A – Revisions to the Permit
(2) RCRA Post-Closure Permit

ATTACHMENT A

REVISIONS TO THE RCRA PERMIT

Laraway Recycling and Disposal Facility
Joliet, Illinois
STATE ID No: 1970450002
USEPA ID No: ILD074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-178, and B-141R-M-181

The following changes were made to the final permit:

Section III.B – Non-Hazardous Waste Landfill Unit Identification

Name of Constructed Area	Size (Acres)	Approval Date
Phase 9C / 10B	9.13	July 2024

Attachment D – Cost Estimate

I. HWMUs Post-Closure Care (In accordance with Condition I.F.1)

A. HWMUs Post-Closure Care (from Table I-2)	$16,456,185

II. Non-Hazardous Waste Landfill (In accordance with Condition III.K.6):

B. MSWLF Closure (from Table 13-1)	$9,524,326
C. MSWLF Post-Closure Care (from Table 13-2)	$4,709,258
D. Non-Hazardous Sub-Total	$14,233,584

III. South Stack Closure, Post-Closure Care, and Corrective Action Activities (In accordance with Condition V.K.1):

E. South Stack Closure (from Table 10-1)	$6,886,012
F. South Stack Post-Closure Care (from Table 11-2)	$5,553,746
G. Corrective Action (from Table 10-2)	$7,444,745
H. South Stack Sub-Total	$19,884,503

IV. Summary of Costs

I. HWMUs Post-Closure Care	$16,456,185
J. Non-Hazardous Sub-Total	$14,233,584
K. South Stack Sub-Total	$19,884,503
L. Grand Total	$50,574,272

Attachment F - Approved Permit Application Identification

127. Class 1* Permit Modification Requests, all approved on July XX, 2024.
Log No. B-141R-M-167 (2022 Cost Estimate) – Dated May 9, 2022
Log No. B-141R-M-174 (2023 Cost Estimate) – Dated May 12, 2023
Log No. B-141R-M-178 (Disposal Cell Phase
9C / 10B Construction Acceptance Report) – Dated January 22, 2024
Log No. B-141R-M-181 (2024 Cost Estimate) – Dated May 8, 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, INTERIM DIRECTOR

RCRA POST-CLOSURE PERMIT

1970450002 – Will County
ILD074411745
Waste Management of Illinois, Inc.
Laraway Recycling and Disposal Facility
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-178, and B-141R-M-181
RCRA Permit File – 24A

Issue Date: May 17, 2010
Effective Date: June 21, 2010
Expiration Date: June 21, 2020
Modification Date:

Waste Management of Illinois, Inc.
Attn: Ian Johnson, P.E.
21233 West Laraway Road
Joliet, Illinois 60436-9525
RCRA Permit File – 24A
Permit Approval

Waste Management of Illinois, Inc.
Attn: James Wilson
700 East Butterfield Road Suite 400
Lombard, Illinois 60148-5671

Dear Mr. Johnson and Mr. Wilson:

A modified RCRA Permit is hereby granted pursuant to the Illinois Environmental Protection Act (Act) and Title 35 Illinois Administrative Code (35 IAC) Parts 702, 703, 705, and 720 through 729 to Waste Management of Illinois, Inc. (WMI) for post-closure care of a waste management facility which was previously involved in the treatment and disposal of hazardous waste. This Permit also incorporates all previous and current non-hazardous waste disposal activities at the facility.

This Permit consists of the conditions contained herein (including those in any attachments and appendices), and applicable regulations contained in the Act and Title 35 IAC Parts 702, 703, 705, 720 through 729 and 811 through 812 in effect on the effective date of this Permit. The Act (415 ILCS 5/39) grants the Illinois Environmental Protection Agency (Illinois EPA) the authority to impose conditions on permits which are issued.

This Permit is issued based on the information submitted in the approved permit application identified in Attachment F of this Permit and any subsequent amendments. Any inaccuracies found in the information provided in the 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)).

Sincerely,

Jacqueline M. Cooperider (for JMC)

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:jjr/1970450002-RCRA-B141RM167-B141RM174-B141RM178-B141RM181-Approval.docx

RCRA POST-CLOSURE PERMIT

Issued To

Laraway Recycling and Disposal Facility
Joliet, Illinois
STATE ID No: 1970450002
USEPA ID No: ILD074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-178, and B-141R-M-181

RCRA POST-CLOSURE PERMIT
LARAWAY RECYCLING AND DISPOSAL FACILITY
JOLIET, ILLINOIS
STATE ID No: 1970450002
USEPA ID No: ILD074411745

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Table 5-8b – Interim Maximum Allowable Predicted Concentrations
Table 5-8c – Maximum Allowable Predicted Concentrations
Attachment 2 – Background Values
Attachment 3 – 40 CFR 258 Appendix II and 35 IAC 620.410 reduced list for Assessment Monitoring.
Attachment 4 – Intrawell Background Values

V.	Corrective Action for SWMUs	V-1 – V-24
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- Monitoring Well Construction Diagram
- Illinois EPA Boring Log
- Completion Report for Groundwater Monitoring Well
- Illinois EPA Groundwater Formatting Requirements

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Attachment C - Prediction Limit Test

Attachment D - Cost Estimates

Attachment E - Construction Certification

Attachment F - Approved Permit Application Identification

Attachment G - Groundwater Reporting Forms

Attachment H - Statistical Procedures Flowchart

Attachment I - Facility Plan

Attachment J - Illinois EPA Determinations Regarding Specific Permit Modification Requests

GENERAL FACILITY DESCRIPTION

LARAWAY RECYCLING AND DISPOSAL FACILITY

Joliet, Illinois

ILD074411745

I. General

The Laraway Recycling and Disposal Facility is owned and operated by WMI. It was a commercial facility involved in storage, treatment, and disposal of solid and hazardous waste. At the present time, the facility is only permitted to receive construction and demolition debris (including asbestos), non-hazardous permitted special waste, and non-hazardous permitted special waste that is managed as non-special waste pursuant to Sections 3.45(c)(2), 22.29 and/or 22.48 of the Act into permitted solid waste landfill units at the facility. Nearly all hazardous wastes handled at the facility were generated off-site by various industries.

The total property encompasses approximately 1,011 acres. Of the total, 110 acres were permitted for waste management in 1972 by the Illinois EPA's Division of Land Pollution Control (DLPC). Of that 110 acres, Landfill Areas 1 and 2 occupy about 55 acres of what was previously permitted for solid and hazardous waste disposal. An additional 700 acres were added by a facility expansion included in the renewal of the facility's Part B Permit in 2009 (Log B-141R).

This Permit covers three major areas of site activities as follows:

A. Post-Closure Care for closed Hazardous Waste Management Units (HWMUs)

There are two closed hazardous waste landfill units (Areas 1 and 2) at the facility. These units must receive post-closure care for at least 30 years after closure. This care includes inspections, monitoring, maintenance, and operation of the leachate and gas collection systems. Permit Sections I, II, and VIII deal with post-closure care requirements. The units subject to RCRA post-closure care are identified as the "closed RCRA Unit" on the Facility Plan drawing included as Attachment I of this Permit.

B. Non-hazardous Solid Waste Landfills

Pursuant to 35 IAC 807.105 and 705.127, and a request by the Permittee, this Permit replaces the previous State of Illinois Permit Number 1995-313-LFM, and consolidates all design, construction, operation, maintenance, monitoring, and closure requirements for the non-hazardous waste landfills at the facility. There is a total of 16 solid (non-hazardous waste) landfill units at the facility, identified by the Permittee as the Solid Waste Unit, and Phases 1 through 15. Permit Sections III and IV deal with requirements for design, construction, operation, monitoring, maintenance, and closure of these units.

C. Corrective Action Activities

Corrective action activities under this Permit focus primarily around two historical solid waste management units (SWMUs) identified by the Permittee as the North Stack and the South Stack. The location of the South Stack is indicated on the Facility Plan included as Attachment I to this Permit. Because the North Stack will be consolidated with the South Stack, the Facility Plan does not indicate the location of the North Stack. However, the current location of the North Stack closely corresponds with the area identified as the North Sedimentation Basin on the Facility Plan. These units consist of phospho-gypsum stacks created when the property was owned by Olin Corporation. Under this Permit, these units will be consolidated, and the combined unit will be provided with a cover system. In addition, the Permittee will be providing groundwater monitoring and corrective action for groundwater contamination associated with these units. Sections V, VI, and VII deal with Corrective Action Activities.

II. Site Description

The Laraway Recycling and Disposal Facility is located within the W 1/2 of the NE 1/4 and E 1/2 of the NW 1/4, Section 31, Township 35 North, Range 10 East of the 3rd Principal Meridian, Will County, Illinois. The Laraway Recycling Disposal Facility is located approximately two miles southwest of Joliet, Illinois. The Laraway Recycling and Disposal Facility's mailing address is:

Laraway Recycling and Disposal Facility
21233 West Laraway Road
Joliet, Illinois 60436-9525

Section I: POST-CLOSURE CARE FOR HWMUs

A. SUMMARY

Hazardous Waste Management Units (HWMUs) where waste is left in-place must receive post-closure care for at least 30 years after the date the certification of closure is approved in writing by the Illinois EPA. As Areas 1 and 2 were used for the disposal of hazardous waste after July 26, 1982, and had closure approved on September 10, 1992. Activities required during post-closure care include, but are not limited to, (1) maintenance of the final cover, (2) management of leachate, (3) monitoring of the groundwater, and (4) providing financial assurance for post-closure activities pursuant to 35 IAC Part 724.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the Area 1 and Area 2 hazardous waste landfills identified in Drawing B-1 of Submittal A.1 identified in Attachment F of this Permit, subject to the terms and conditions of this Permit.

2. Except for wastes exhumed from in and around Area 1 and Area 2 during corrective action activities, Area 1 and Area 2 are no longer permitted to accept hazardous or non-hazardous waste.

C. MONITORING, MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall conduct post-closure care for each HWMUs listed in Condition I.B.1 above beginning after closure of each unit on July 26, 1982.

2. Prior to the minimum 30 year post-closure care requirement is due to expire, the Illinois Pollution Control Board (Board) will extend or the Illinois EPA may propose extension of the post-closure care period if it finds that the extended period is necessary to protect human health and the environment (e.g., leachate or groundwater monitoring results indicate a potential for migration of waste at levels which may be harmful to human health and the environment).

3. The Illinois EPA may include restrictions upon the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, pursuant to the Uniform Environmental Covenants Act (EUCA), the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

4. Other than exhumation and re-deposition of wastes during corrective action activities, wastes removed from the unit as part of maintenance activities (e.g., gas or leachate well cleaning or replacement), or management of spill residuals from within the permitted waste limits, the Permittee shall not allow any use of the units designated in Section I.B which will disturb the integrity of the final cover, liners, any components of the containment system, or function of the facility's monitoring systems during the post-closure care period, unless such use is necessary to protect human health or the environment.

5. The Permittee shall implement the approved Post-Closure Plan contained in the approved permit application. All post-closure care activities must be conducted in accordance with the provisions of the approved Post-Closure Plan.

6. The Permittee must submit a permit application to authorize a change in the approved Post-Closure Plan. This request must be in accordance with applicable requirements of 35 IAC Parts 702, 703, and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.

7. The Illinois EPA may require a continuation of any of the security requirements during part or all of the post-closure period.

8. The Permittee shall maintain and monitor the groundwater monitoring system and comply with the other applicable regulations of 35 IAC Part 724 Subpart F (Groundwater Protection) during the post-closure period for both Area 1 and Area 2 landfills.

9. The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, and other events.

10. The Permittee shall comply with the following requirements for Area 1 and 2 landfills as follows:

a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, cracking, or other events. Corrective action for the cover shall be taken if problems, including, but not limited to, the following, occur:

i. Ponding
ii. cracks greater than one-inch wide
iii. gas problems
iv. odor problems
v. dead or stressed vegetation
vi. vegetation with taproots growing in areas not designed to accommodate such
vii. vector problems
viii. leachate pop outs or seeps

b. Operate the leachate collection system to its capacity to reduce the amount (head) of leachate in Areas 1 and 2. Removal of leachate must not be solely based on the ability to maintain the operation of the flare. WMI must continuously remove all pumpable leachate until the required maximum depth of one-foot of leachate above the invert of the landfill liner is achieved. Upon achieving the required depth, leachate must continue to be removed as necessary to maintain the required depth. In order to accurately determine leachate levels throughout the landfill, the Permittee must monitor and evaluate the leachate levels within the leachate monitoring wells identified in condition I.C.10.g on a monthly basis. If such evaluation reveals that the improved leachate collection system is incapable of achieving the required leachate depth throughout the landfill, the Illinois EPA may require the Permittee to further improve the leachate collection system so that it is capable of achieving the required leachate depth throughout the landfill.

c. Four representative samples of leachate from the co-disposal hill and the drum trenches shall be collected annually and analyzed individually (no compositing) for the constituents listed in 35 IAC Part 724, Appendix I. These samples shall be collected during the first quarter inspections. The four samples will be taken from a subset of the withdrawal points listed in condition I.C.10.f. The sample points must be selected such that the leachate from both Area 1 and Area 2 are represented each year. Also, as there is currently a total of 15 withdrawal points listed in Condition I.C.10.f, no one withdrawal point should be sampled more than once in a four-year period unless otherwise directed by Illinois EPA. The results of these analyses shall be submitted to the Illinois EPA by June 1 each year. Leachate levels observed in each withdrawal point, the amount of leachate removed from each withdrawal point each month, leachate levels observed in each of the Leachate Monitoring Wells and an evaluation of the effectiveness of the leachate removal system shall also be included with these submittals.

d. The annual Appendix I analysis required by Condition I.C.10.c, may be reduced by the Permittee through a permit application, in accordance with 35 IAC 703.280, to reduce the annual leachate monitoring list. The Reduced List will be based on a review of the four most recent full Appendix I analyses, and include all parameters detected in any of these four Appendix I analysis, along with their appropriate STORET for electronic data submittal. Starting the next sampling event after Illinois EPA approval, this reduced list will be used in lieu of the Appendix I analysis for three out of four years, with the fourth year reverting to a full Appendix I analysis. Any parameters not included on the existing Reduced List detected in the fourth-year Appendix I analysis shall be added to the Reduced list, by means of a permit application in accordance with 35 IAC 703.280, for all future Reduced List analyses. This cycle of three years of Reduced List, followed by one year of Appendix I analysis, will repeat for the remainder of the post-closure period.

e. Information required by Condition I.C.10.c and I.C.10.d must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in Attachment A. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

f. The following leachate withdrawal points will be used in leachate analysis required by conditions I.C.10.c and I.C.10.d. For purposes of electronic reporting, the points will be renamed as shown below.

Name in Application	Name for Electronic Reporting
DTM-1	L334
DTM-2	L335
DTM-3	L336
DTM-4	L337
DTM-5	L338
DTM-6	L339
DTM-7	L340
DTM-8	L341
DTM-9	L342
DTM-10	L343
PLER-1	L344
PLER-2	L345
PLER-3	L346
PLER-4	L347
PLER-6A	L348

g. The following Leachate monitoring wells will be used for purposes of the leachate level determination required by Condition I.C.10.b. For purposes of electronic reporting, the points will be renamed as shown below.

Name in Application	Name for Electronic Reporting
LW-1R	L321
LW-2R	L322
LW-3R	L323
LW-4R	L324
LW-5R	L325
LW-6R	L326
LW-7	L327
LW-8R	L328
LW-9	L329
LW-10R	L330
LW-11R	L331
LW-12R	L332
LW-13R	L333

h. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting form (LPC-592, a copy is provided in Attachment G) as a cover sheet for all leachate reports for identification purposes. The form is not to be used for permit applications.

i. Prevent run-on and run-off from eroding or otherwise damaging the final cover.

j. Maintain and monitor the groundwater monitoring system and comply with all other applicable requirements of 35 IAC Part 724 Subpart F.

k. Protect and maintain surveyed benchmarks used in complying with surveying and recordkeeping requirements.

D. NOTICES AND CERTIFICATION

1. If the Permittee or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, then must request a modification to this Post-Closure Permit in accordance with the applicable requirements in 35 IAC Parts 703, 705, and 724. The owner or operator must, at a minimum, demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 IAC 724.217.

2. No later than 60 days after establishing post-closure care period for each hazardous waste disposal unit has been completed, the Permittee shall submit to the Illinois EPA Bureau of Land Permit Section, by registered mail, a certification that the post-closure care for the hazardous waste disposal unit was performed in accordance with the specifications in the approved Post-Closure Plan. The certification must be signed by the owner or operator and a qualified Illinois licensed Professional Engineer. Documentation supporting the qualified Illinois licensed Professional Engineer's certification must be furnished to the Illinois EPA Bureau of Land Permit Section upon request until the Illinois EPA releases the Permittee from the financial assurance requirements for post-closure care.

3. A survey plat indicating the location and dimensions of Areas 1 and 2 and any other hazardous waste disposal units with respect to permanently surveyed benchmarks was prepared and certified by a professional land surveyor. The notes on the plat state the owner's and operator's obligation to restrict disturbance of Areas 1 and 2 in accordance with the applicable Subpart G regulations. These notes state:

a. The waste materials contained in Areas 1 and 2 are considered RCRA hazardous wastes. They include multiple hazardous waste codes from various industrial processes. See Table C-1 of Document F.1 of the approved permit application for a detailed list of waste codes received.

b. Any material removed from Areas 1 and 2 during future activities must be managed as a hazardous waste in accordance with 35 IAC Subtitle G: Waste Disposal.

c. The use of this area is restricted.

4. The Plat of Survey (P.I.N. numbers 7-31-100-002 and 7-31-200-008, Drawing 1) (PIN) were filed with the Will County Recorder's Office on August 16, 1993. The record data is included in Appendix 17 of Document F.1 of the approved permit application. The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

   a. The waste material in Areas 1 and 2 are considered a RCRA hazardous waste;

   b. Use of Areas 1 and 2 are restricted; and

   c. A survey plat and record of the type, location, and quantity of waste material in Areas 1 and 2 was filed with the Illinois EPA and the County Recorder.

E. SUBSURFACE GAS MANAGEMENT

1. The Permittee shall flare the subsurface gas generated at Area 1 as permitted by Illinois EPA Bureau of Air during the post-closure care period.

2. The Permittee shall operate the gas management system in accordance with Section I.5 of Document A.1 identified in Attachment F of this Permit.

3. A corrective action plan to modify the facilities existing gas control system shall be submitted to the Illinois EPA Bureau of Land Permit Section for approval if subsurface gas creates problems. Upon approval, the plan shall be implemented.

F. FINANCIAL ASSURANCE

1. The Permittee shall maintain financial assurance for post-closure care of Areas 1 and 2 of at least the amount shown in Attachment D, Section I. Financial Assurance shall be provided in accordance with Title 35 IAC Part 724 Subpart H.

G. 39(i) CERTIFICATION

1. The Permittee shall submit current 39(i) certifications and supporting documentation with all permit applications.

H. INSPECTION SCHEDULE

Post-closure inspections will be conducted quarterly during the post-closure period. Additional inspections will be performed following precipitation events in which two inches or more of precipitation are received at the site during a 24-hour period. If such precipitation events occur within one-month of one of the scheduled quarterly inspections, the precipitation event inspection will be substituted for the regular quarterly inspection. Findings made during each inspection will be recorded on the post-closure inspection log, included as Figure I-1 of the approved permit application or, on a similar log. Copies of all inspection logs will be kept at the landfill. Documentation of all repairs performed or replacements required to properly maintain the site will be kept with the inspection logs. General post-closure inspection procedures will include the following:

1. Visually inspect the perimeter fence and all gates. Check for fence integrity and note any areas of damage. Note the working condition of each gate and check to ensure that all locks and other security systems are in place and functioning.

2. Visually inspect the landfill cover and surrounding areas. Note any evidence of cover erosion, settling, or negative stress. Also note any unusual conditions such as odors, ponded water, or bubbling. Visually inspect the run-on/run-off control berms and ditches. Mark any areas requiring further inspection or repairs so arrangements can be made to efficiently effect all necessary repairs.

3. Visually inspect the gas risers and flares. Note any damage, malfunction, and/or clogging. Check liquid level in each riser and make arrangements for condensate removal.

4. Visually inspect each leachate collection riser and note any damage. Check and record the liquid level in each withdrawal riser for the co-disposal hill and each drum trench. If the liquid level is found to be above the maximum acceptable level identified in the approved permit application, make arrangements for leachate removal.

5. Inspect each groundwater well cover for damage. Check the well cap and well cover lock to ensure they are functioning and have not been tampered with. Note area around wells for erosion, settling or negative stress. The monitoring wells are also utilized as permanent benchmarks. Visually inspect each benchmark, report any missing benchmarks, and note any damage to the benchmarks.

6. Visually inspect any applicable safety and emergency equipment. Report missing and/or damaged equipment.

7. Visually inspect the groundwater remediation system each time water level measurements are obtained.

8. Inspect the components of the groundwater treatment process each day that the system is in operation or liquid is present in the tank.

9. Inspect the leachate collection tanks and associated secondary containment. Check for any accumulation of standing water (from precipitation) and arrange for removal. Check for evidence of leakage. Investigate all breaches within 24 hours of occurrence and correct the problem as soon as practicable. Inspections of the portable tanks are required on a weekly basis when there is material in the containers.

Arrangements shall be made to repair or replace any items in order to maintain the site at a condition equal to that in the application.

I. POST-CLOSURE MAINTENANCE

Maintenance activities will respond to the needs determined from the inspections. The following items will be repaired to original conditions described in the original Post-Closure Permit Application: slopes damaged by erosion; areas of settlement, subsidence, and displacement; run-on and run-off control structures; and the leachate collection and removal system. Wells will be repaired or replaced. The vegetative cover on the final cover will be: (1) mowed annually and (2) fertilized on an as-needed basis.

Section II: GROUNDWATER CORRECTIVE ACTION PROGRAM FOR HWMUs

A. SUMMARY

Hazardous constituents released from Area 1 and Area 2 have been detected in groundwater within the upper Silurian Dolomite. The contamination is located in the vicinity of the closed RCRA co-disposal landfill designated as "Area 1" and extends beyond the Point of Compliance. As a result, the Corrective Action Program detailed in this section must be implemented to remove the groundwater contamination and ensure compliance with the Groundwater Protection Standards. The Corrective Action Program is designed to meet the requirements of 35 IAC 724.200 and includes conditions pursuant to Section 39(d) of the Act to achieve compliance with additional State administrative rules.

The Corrective Action Program is comprised of a groundwater recovery and monitoring system for the areas which are currently contaminated (hereafter referred to as an "Observation Zone"), and a groundwater monitoring system for the areas which are not currently contaminated (hereafter referred to as "GMZ Boundary Wells"). The Program includes:

1. Establishment of a 35 IAC 620.250 Groundwater Management Zone (GMZ).

2. Extraction of contaminants dissolved in the groundwater through the pumping of well(s) located within the GMZ. This extraction is also designed to maintain hydraulic control of the flow of groundwater within the GMZ. The hydraulic control must prevent further off-site migration of contaminants from the boundaries of the facility and draw groundwater containing dissolved organic and inorganic contaminants, which had previously migrated off-site, back to the facility boundary.

3. Monitoring to ensure the effectiveness of the groundwater recovery system within the GMZ. This monitoring will involve: (a) evaluating the zone of influence of the groundwater recovery system and (b) groundwater sampling and analysis to monitor the reduction of contaminant concentrations.

4. Monitoring in a series of wells designated as GMZ Boundary Wells. This monitoring will determine if groundwater located outside the area of contamination is in compliance with the Groundwater Protection Standard and will identify additional hazardous constituents which may be present in the uppermost aquifer.

B. DEFINITIONS

As used herein, the words or phrases set forth shall have the following definitions:

1. "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 in the vicinity of the facility has been identified as a composite zone consisting of outwash sand and gravel deposits, where present and the underlying weathered, fractured, and/or jointed Silurian Dolomite.

2. "GMZ" refers to the three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site that is subject to corrective action or for which the owner/operator undertakes an adequate corrective action in a timely and appropriate manner and provides written confirmation to the Illinois EPA.

3. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the waste management area extending down into the uppermost aquifer underlying the regulated unit.

4. "Ft-bgs" refers to the number of feet below the ground surface.

5. "Ft-MSL" refers to the number of feet referenced to mean sea level (MSL).

6. "Detected" shall mean a concentration equal to or above the practical quantitation limit (PQL) listed in USEPA's SW-846 (Third Edition) for the application analytical methods specified in the approved Sampling and Analysis Procedures, which are incorporated by reference in Condition II.H of the Permit.

7. "Stick-up" refers to the height of the reference survey datum. This point is determined within $\pm$ 0.01 foot in relation to MSL, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall implement the 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 established in the previous Post-Closure Part B Permit for WMI's Laraway Recycling and Disposal Facility.

2. The compliance period when the groundwater protection standard applies is the number of years equal to the active life of the waste management area (including any waste management activity prior to permitting and the closure period). The compliance period for Area 1 and Area 2 has been defined as a minimum of 30 years following the issuance of the November 3, 1989, Post-Closure Permit.

3. The corrective action program shall continue during the compliance period until the Permittee demonstrates the groundwater protection standard has not been exceeded for three consecutive years. However, if the owner or operator is engaged in a corrective action at the end of the defined compliance period, the compliance period is extended until the owner/operator can demonstrate that the groundwater protection standard has not been exceeded for three consecutive years.

4. The Permittee shall carry out the corrective action program specified in this Permit on the groundwater beneath the Laraway Recycling and Disposal Facility. The uppermost aquifer in the vicinity of the Laraway Recycling and Disposal Facility has been defined as a composite zone consisting of outwash sand and gravel deposits, where present and the underlying weathered, fractured, and/or jointed Silurian Dolomite.

5. The Point of Compliance shall be postponed for the regulated unit until such time that the GMZ monitoring wells have attained the applicable concentration limits that comprise the groundwater protection standard found in Condition II.E and the GMZ expires. At that time, the facility must submit a proposal for establishment of a Point of Compliance which satisfies the regulatory requirements found in 35 IAC Part 724 Subpart F and reflects the current conditions of the facility.

D. WELL LOCATIONS AND CONSTRUCTION

1. The wells/piezometers, as identified in the tables below shall be maintained as part of the Corrective Action Program.

TABLE 1. Observation Zone -- GMZ wells located within the area of groundwater contamination. The geographic location of each well is shown in Figure E-1 of the approved permit application.

Illinois EPA Well No.	Well Depth (Ft-bgs)	Boring Depth (Ft-bgs)	Ground Surface Elevation (Ft-MSL)	Top of Casing Elevation (Ft-MSL)	Well Screen Interval (Ft-MSL)
A128	51.0	57.0	622.35	625.60	581.35--571.35
R29S	45.5	46.0	623.24	625.44	582.74--577.74
R29D	55.5	58.0	622.91	624.61	572.41--567.41
G127	54.2	56.0	620.01	623.26	585.01--565.81
G130	61.0	61.0	624.52	627.37	583.83--564.62
G131	63.6	65.0	624.41	627.01	579.87--560.81
G167	39.0	39.5	605.30	607.80	576.30--566.72
G168	46.0	47.0	611.74	614.28	575.74--566.17
R4D2	59.0	59.0	620.16	620.56	567.16--561.66
R40S	38.5	39.5	619.01	621.76	585.71--580.51
EW-1$^{r(1)}$	N/A	N/A	N/A	N/A	N/A
EW-2$^{r(2)}$	54.5	54.5	620.06	620.56	586.66--567.77
EW-3$^{r(2)}$	65.5	65.5	623.18	623.68	579.18--559.18
EW-4^{r}	66.5	66.5	624.36	624.86	579.36--559.36
EW-5$^{r(2)}$	57.5	57.5	620.87	621.37	584.87--564.87
EW-6^{r}	63.5	63.5	623.96	624.46	581.96--561.96
EW-7$^{r(2)}$	58.5	58.5	621.77	622.21	584.71--564.71
EW-8$^{r(2)}$	57.5	57.5	622.14	622.64	586.14--566.14

r -- Denotes recovery well. Not required to be sampled.

(1) EW-1 is installed but is not being used at present time. If field conditions dictate, EW-1 may be redeveloped to correct silting problems or it may be replaced. Conversely, EW-1 may not be needed at all.

(2) Recovery well to be utilized as identified in the semi-annual reports to ensure control. The well must be maintained in accordance with the requirements of Condition II.D.9 in the event that additional hydraulic control becomes necessary.

TABLE 2. GMZ Boundary Wells -- GMZ wells outside the area of contamination. The geographic location of each well is shown in Figure E-1 of the approved permit application.

Illinois EPA Well No.	Well Depth (Ft-bgs)	Boring Depth (Ft-bgs)	Ground Surface Elevation (Ft-MSL)	Top of Casing Elevation (Ft-MSL)	Well Screen Interval (Ft-MSL)
G101	20.2	20.6	591.15	593.26	576.15--571.15
G105	50.2	50.5	622.84	625.65	577.84--572.84
G109	48.0	48.0	617.57	619.99	574.79--569.79
R112*	49.0	50.0	613.03	615.97	574.07--564.07
R114**	43.5	43.5	624.65	627.25	591.65--581.85
R122	44.0	45.0	620.52	625.72	586.52--576.52
G123	51.4	53.0	619.73	622.68	587.53--568.33
G124	45.6	47.0	618.36	620.86	587.16--572.76
G125	50.5	52.0	618.94	623.24	587.24--568.44
G126	50.6	52.0	619.12	621.07	587.62--568.52
G132	60.7	62.0	620.76	623.26	579.26--560.06
G133	60.0	61.5	622.11	625.01	581.81--562.11
R134	50.0	50.5	623.30	625.05	583.30--573.30
G135	60.8	61.5	622.11	625.16	580.41--561.31
G136	61.0	62.0	621.96	624.93	584.96--560.96
G137	58.1	61.0	621.23	623.88	587.13--563.13
G138	59.0	62.0	621.63	624.63	587.43--562.63
R139	36.6	38.0	620.83	622.68	589.05--584.05
G142	49.8	50.0	618.57	621.77	588.07--568.77
R143	41.0	40.0	N/A	N/A	592.57--577.57
R144	40.0	40.5	618.07	621.67	588.07--578.07
G145	61.0	63.0	618.50	621.32	587.17--557.57
G146	53.5	57.0	618.04	620.79	583.74--564.54
G147u**	54.1	57.0	617.38	620.38	584.37--565.27
G148u	50.4	51.0	618.08	620.77	581.89--567.59
R149u**	51.0	52.90	633.85	636.64	587.75--582.95
G169	55.5	56.0	618.61	621.39	573.11--563.53
G53S	39.0	39.0	624.79	627.84	591.29--585.79
G53D	59.5	64.0	624.73	627.88	570.73--565.23
G1A5	42.18	44.0	616.40	619.41	584.53--574.53

* -- Denotes background monitoring well
** -- Denotes monitoring well used only for groundwater elevation measurements
U -- Denotes upgradient monitoring well
-- Denotes monitoring point to be added to the program. Information necessary to meet the requirements of Condition II.D.7 and appropriate revisions to the approved permit application must be submitted as a Class 1* permit application pursuant to 35 IAC 703.280.

2. Written approval from the Illinois EPA must be obtained prior to changes being made to the facility's Groundwater Recovery System. The Permittee shall submit a proposal for the installation and addition, or replacement, or for the removal, of any Groundwater Recovery System well, located within the GMZ as it is currently defined in Condition II.D.1 (Table 1) above. This proposal shall be in the form of a Class 1* permit application.

3. This Permit may be modified by the Permittee or the Illinois EPA in accordance with 35 IAC 705.128 if information becomes available that the current well spacing is not adequate to detect contamination from the hazardous waste management areas to the uppermost aquifer.

4. Construction of each new or replacement monitoring well/piezometer shall be in accordance with the "Cross-Section of Typical Monitoring Well" diagram contained in Attachment A to this Permit, unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed shall be continuously sampled and logged on an Illinois EPA approved boring logs as provided in Attachment A to this Permit.

5. The Permittee shall notify the Illinois EPA within 30 days in writing if any of the wells identified in Condition II.D.1 are damaged, the structural integrity has been compromised, or if as a result of poor construction and/or development, have become consistently dry or unserviceable. A proposal for the replacement of the subject well shall accompany this 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 and 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.

6. Should any well become consistently dry or unserviceable, a replacement well shall be provided within 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 wells are replaced. A well which is more than 10-feet from the existing well and which does not monitor the same geologic zone shall be approved by the Illinois EPA and designated as a new well. If the facility determines that a replacement well will be a dry well, then it must submit for Illinois EPA approval either a proposal to install a new monitoring well or a proposal not to replace the well with appropriate rationale.

7. The Permittee shall submit boring logs, construction diagrams, and data sheets from the installation and development of each new or replacement well to the Illinois EPA at the address below within 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 77 IAC Part 920 and the approved Illinois EPA procedures to the Illinois EPA at the address below within thirty 30 days of the date that the well is plugged and abandoned. All information shall be submitted to the appropriate Agencies.

   Illinois Environmental Protection Agency
   Bureau of Land -- #33
   Permit Section
   1021 North Grand Avenue East
   P.O. Box 19276
   Springfield, Illinois 62794-9276

8. All wells/piezometers shall be clearly identified on the protective casing and shall be equipped with protective caps and locks. Monitoring wells/piezometers located in high traffic areas must be protected with bumper guards.

9. All wells/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.

E. GROUNDWATER PROTECTION STANDARD, WASTE CONSTITUENTS and FIELD PARAMETERS

1. The Permittee shall determine groundwater quality at groundwater monitoring wells identified in Condition II.D.I semi-annually. The concentration limits listed for the following hazardous and non-hazardous constituents comprise the Groundwater Protection Standard, hereafter referred to as List E1.

LIST E1 (Groundwater)

Constituent	STORET	Concentration Limit (ug/L, except as noted)
ORGANICS (Total Concentration)		
Chloroethane	34311	ND
Chloromethane	34418	ND
Dichlorodifluoromethane	34668	1,400
1,1-Dichloroethane	34496	700
1,2-Dichloroethane	34531	5 (1)
1,1-Dichloroethylene	34501	7 (2)
cis-1,2-Dichloroethylene	77093	70 (2)
trans-1,2-Dichloroethylene	34546	100 (2)
1,2-dichloropropane	34541	5
p-Dioxane	81582	7.7
Tetrachloroethylene	34475	5 (1)
Trichloroethylene	39180	5 (1)
1,1,1-Trichloroethane	34506	200 (2)
1,1,2-Trichloroethane	34511	5 (2)
Trichlorofluoromethane	34488	2,100
Vinyl Chloride	39175	2 (1)
Chloride	00940	200 mg/L
Inorganics (Unfiltered)		
Arsenic	01002	10
Barium	01007	1,000
Chromium	01034	70
Lead	01051	7.5

LIST E1 (Groundwater) (Continued)

Constituent	STORET	Concentration Limit (ug/L, except as noted)
Inorganics (Filtered)		
Arsenic	01000	PQL
Barium	01005	117.2
Chromium	01030	10.33
Lead	01049	PQL

NOTES: (1) In addition to meeting the individual concentration limit in the tables above, the following equation must be satisfied in order to protect against liver tumors.

$$\frac{[\text{1,2-dichloroethane}]}{0.005\ \text{mg/L}} + \frac{[\text{tetrachloroethylene}]}{0.005\ \text{mg/L}} +$$

$$\frac{[\text{trichloroethylene}]}{0.005\ \text{mg/L}} + \frac{[\text{vinyl chloride}]}{0.002\ \text{mg/L}} \leq 1.0$$

(2) In addition to meeting the individual Class in groundwater recommendations indicated in the tables above, the following equation must be satisfied in order to protect against liver toxicity.

$$\frac{[\text{cis-1,2-dichloroethylene}]}{0.07\ \text{mg/L}} + \frac{[\text{trans-1,2-dichloroethylene}]}{0.1\ \text{mg/L}} +$$

$$\frac{[\text{1,1-dichloroethylene}]}{0.007\ \text{mg/L}} + \frac{[\text{1,1,1-trichlorothane}]}{0.2\ \text{mg/L}} +$$

$$\frac{[\text{1,1,2-trichloroethane}]}{0.005\ \text{mg/L}} \leq 1.0$$

ND: Not Determined.

Insufficient data were available upon which to base a concentration limit. If the chemical(s) is/are still detected after all other concentration limits have been achieved, then the Illinois EPA will establish appropriate concentration limits at that time.

BG: Background

2. The following hazardous constituents comprise the routine monitoring list for the Observation Zone wells identified below in Subsection II.F.1, hereafter this list is referred to as List E2:

LIST E2 (Groundwater)

Hazardous Constituent	STORET	Concentration Limit (ug/L)
ORGANICS		
Chloroethane	34311	ND
Chloromethane	34418	ND
1,2-dichloropropane	34541	5
trans 1,2-Dichloroethylene	34546	100
Dichlorodifluoromethane	34668	1,400
p-Dioxane	81582	7.7
Trichlorofluoromethane	34488	2,100
INORGANICS (UNFILTERED)		
Arsenic	01002	10
Barium	01007	1,000
Chromium	01034	70
Lead	01051	7.5
INORGANICS (FILTERED)		
Arsenic	01000	PQL
Barium	01005	117.2
Chromium	01030	10.33
Lead	01049	PQL

3. The following parameters comprise the annual waste constituent list, hereafter referred to as List E3.

LIST E3 (Groundwater)

Hazardous Constituent	STORET	PQL (ug/L)
Toluene	34010	5
Benzene	34030	2
Chlorobenzene	34301	2
Methylene Chloride	34423	5
Methyl ethyl ketone	81595	10
Ethyl benzene	78113	2
Xylene	81551	5
Acetone	81552	100
Isobutanol	77033	50
ortho-Dichlorobenzene	34536	10
Carbon disulfide	77041	5
Pyridine	77045	5
Hexachloropropene	70304	10
Hexachlorophene	73575	50
Kepone	81281	20
Cadmium	01027	5
Mercury	71900	2
Iron*	01045	1,000

*Statistical evaluation of this parameter is not equivalent this time.

4. The following parameters comprise the field parameter list, hereafter referred to as List E4:

LIST E4 (Groundwater)

Field Parameter	STORET	Units
Specific Conductance at 25°C	00094	umhos/cm
pH	00400	(S.U.)
Temperature of Water Sample	00011	°F
Depth to Water (below land surface)	72019	Feet
Depth to Water (below measuring point)	72109	Feet
Elevation of Casing Measuring Point (MSL)	72110	Feet
Elevation of Groundwater Surface (MSL)	71993	Feet
Elevation of Well Bottom (MSL)	72020	Feet
Turbidity	00076	NTU
Oxidation Reduction Potential	00090	Millivolts

5. Pursuant to 35 IAC 724.194(a), the appropriate concentration limits that comprise the Groundwater Protection Standard are either: (1) background concentration; (2) 35 IAC 724.194 Table 1; or (3) an alternate concentration limit such as an appropriate 35 IAC Part 620 Groundwater Quality Standard or submit the information required by 35 IAC 724.194 (b). Total (unfiltered) values shall be used for comparison to the 35 IAC Part 620 Groundwater Quality Standards. The following procedures may be used to change the established concentration limits (see List E1 above) or to propose a concentration limit when a constituent that is not currently part of the Groundwater Protection Standard (see List E1 above) is detected:

   a. To establish background of a constituent for the purpose of establishing the concentration limit, the following procedures shall be followed:

      Background shall be established on data obtained from the quarterly sampling of each background well for one-year. Background shall be proposed to the Illinois EPA for approval within 45 days of receipt of the fourth quarter analytical results. For those monitoring parameters or constituents not detected above the PQL during background gathering, the background values shall be established as the appropriate 35 IAC Part 620 Groundwater Quality Standard or the laboratory PQL, whichever is lower.

   b. 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 in accordance with 35 IAC 724.194 (b).

(1) If the hazardous constituent has a standard listed in 35 IAC Part 620, the facility may also need to apply for an adjusted standard as outlined in Section 28.1 of the Act as part of the alternate concentration limit demonstration.

(2) If the hazardous constituent does not have a 35 IAC Part 620 standard, the alternate quality standard proposed by the Permittee must be approved by the Illinois EPA.

F. CORRECTIVE ACTION PROGRAM

1. Observation Zone (GMZ Wells Within the Area of Contamination)

a. The wells identified in Condition II.D.1, Table 1, are the wells that make up the Observation Zone. The Permittee shall implement, at these wells, the corrective measures detailed in Appendix 9 of the approved permit application, with the following conditions:

(1) Groundwater extraction from the pumping wells shall be maintained to ensure that groundwater flow is adequately controlled in the aquifer(s).

(2) Changes in the pumping rate must be explained in the annual report. Extended periods of "downtime" greater than monthly shall be reported to the Illinois EPA.

(3) Hydraulic head measurements shall be made semi-annually during the compliance period. This data shall be used to evaluate the long-term seasonal trends of water-table surfaces when subjected to the pumping stress of the gradient and source control systems, and to determine the size of the resulting capture zone.

(4) Flow rate data shall be recorded on a weekly basis. The flow rate shall be calculated from the cumulative discharge data of each well as measured by its cumulative flowmeter. The semi-annual report shall present the weekly flowmeter data for the semi-annual period, and the flow rate calculated from this data. Flow rate data shall be calculated as the average volume pumped in gallons per minute for each well during each weekly measurement period, as well as the average flow rate for the semi-annual reporting period.

b. Upon initiation of the groundwater recovery system (detailed in Condition II.F.1.a above) and when hydraulic control of the contaminated groundwater areas is achieved, a three-dimensional region containing groundwater within the uppermost aquifer is established as a GMZ pursuant to 35 IAC 620.250. The geographic location of the GMZ is defined by the wells listed in Condition II.D.1. Tables 1 and 2.

The GMZ shall apply to the constituents comprising the Groundwater Protection Standard listed in Condition II.E above. The GMZ shall remain in place as long as corrective actions are being conducted in a timely and appropriate manner. The GMZ shall expire upon the groundwater meeting the Groundwater Protection Standard. The Illinois EPA shall review the on-going adequacy of controls and continued management at the facility if constituents, as specified in 35 IAC 620.450(a)(4)(B), remain in groundwater following completion of the corrective action.

c. The Permittee shall demonstrate the effectiveness of the groundwater recovery system by monitoring groundwater from wells identified in Condition II.D.1, Table 1. The effectiveness shall be evaluated semi-annually in accordance with the procedures outlined in Sections E-8 and E-9 of the approved permit application and the following conditions:

(1) Monitoring wells listed in Condition II.D.1, Table 1, shall be sampled according to the schedule as noted on the table.

(2) Samples collected during the fourth quarter of each year shall be analyzed for List E2 and List E4 identified in Condition II.E above.

(3) Samples collected during the second quarter of each year shall be analyzed for Lists E1, E3, and E4. The detection limits utilized in this analysis shall at a minimum meet the concentration limit specified in List E1; and analysis for the List E3 waste constituents shall, at a minimum, meet the Groundwater Quality Standard listed in 35 IAC Part 620, or the PQLs identified in List E3, whichever is lowest.

(4) The hydraulic effects of the extraction system must be determined semi-annually at each well listed in Condition II.D.1, Table 1. To evaluate the hydraulic effects, scaled potentiometric maps with the zone of influence and capture created by the extraction system shall be developed. The pumping rate shall also be identified on the potentiometric maps.

(5) Sampling and analytical procedures utilized in the Groundwater Recovery System shall be in accordance with Condition II.H, below.

2. GMZ Boundary Wells

a. The Permittee shall determine whether the Groundwater Protection Standard has been exceeded and whether groundwater has been degraded below established background values within the GMZ boundary (non-contaminated) wells. The wells identified in Condition II.D.1, Table 2, shall be used for this evaluation. These wells shall be evaluated semi-annually during the compliance period.

b. Samples collected during the fourth quarter of each year shall be analyzed for List E1 and List E4 identified in Condition II.E.

c. Samples collected during the second quarter of each year shall be analyzed for Lists E1, E3, and E4. The detection limits utilized in this analysis shall at a minimum shall meet the concentration limit specified in List E1; and analysis for the List E3 waste constituents shall, at a minimum, meet the Groundwater Quality Standard listed in 35 IAC Part 620, or the PQLs identified in List E3, whichever is lowest.

d. Sampling and analytical procedures shall be in accordance with Condition II.H below.

3. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer at least annually from the wells listed in Condition II.D, Tables 1 and 2, excluding the groundwater extraction wells. The groundwater flow rate must be reported as a minimum and maximum range.

G. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to MSL at each well each time groundwater is sampled in accordance with Condition II.J.3. Groundwater elevation measurements are not required from recovery wells.

2. The Permittee shall determine the surveyed elevation of stick-up, referenced to MSL, when a well is installed (with as-built diagrams) and every two years (during the first semi-annual sampling event), or whenever the elevation changes, beginning with the first groundwater sampling event required by this Permit.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be determined at least annually at wells not equipped with dedicated pump systems. The mandatory measurement shall be taken during the first semi-annual sampling event in Conditions II.J.2 described below. For wells containing dedicated pump systems, the mandatory measurement shall be taken in accordance with Condition II.J.5 below.

H. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall use the following techniques and procedures when obtaining and analyzing samples from the groundwater monitoring wells described in Condition II.D.1 above:

1. Samples shall be collected by the techniques described in Section E.8.d(3) of the approved permit application.

2. Samples shall be preserved, shipped, and handled in accordance with the procedures specified in Section E.8.d(3) of the approved permit application.

3. Samples shall be analyzed according to the procedures specified in Section E.8.d(3) of the approved permit application.

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Section E.8.d(3) of the approved permit application.

I. STATISTICAL PROCEDURES

1. The Permittee shall evaluate the quality of groundwater samples acquired during the semi-annual sampling events identified above in Condition II.F.

   a. Observation Zone wells (see Subsection II.F.1.c.(1)) shall be evaluated according to the following procedures:

      During each fourth quarter sampling event, the Permittee shall conduct the p-dioxane evaluation discussed in Section E.8.d.5 of the approved permit application.

   b. GMZ Boundary Wells (see Subsection II.F.2.a) shall be evaluated according to the following procedures:

(1) The concentration of each hazardous constituent which comprise the Groundwater Protection Standard (List E1) shall be compared to their respective Concentration Limit. If a parameter exceeds its Concentration Limit specified in Condition II.E above, the Permittee shall follow the procedures specified in Conditions II.J.11 and/or II.J.13.

(2) Constituents detected below the PQL shall be determined to be showing no change and no action is necessary.

2. The Permittee shall evaluate the results of the annual analyses required by Condition II.F.1.c.(3) and II.F.2.c. by:

a. Comparing the list of substances found in samples to the list of hazardous constituents contained in List E3. If a given constituent is found above the PQL in the sample, collected from a well, the Permittee may resample within 30 days. This sample shall be analyzed for the constituent(s) detected above the PQL in the initial sample.

(1) If the constituent(s) of concern is (are) again detected above the PQL or the Permittee does not resample, the Permittee shall conclude that the constituent(s) of concern is (are) in the groundwater and follow the procedures in condition II.J.11 and/or II.J.13 below.

(2) If the constituents of concern is (are) not detected in the resample, the Permittee will not be required at that time to continue sampling for the particular constituent(s).

b. Comparing the concentration of the samples from the GMZ Boundary wells to the Concentration Limits of the Groundwater Protection Standard identified in Condition II.E, List E3. If this comparison indicates a constituent exceeds its Concentration Limit, the Permittee shall follow the procedures specified in Condition II.J.11 and/or II.J.13 below.

c. Determining the concentration trend at each well to identify areas that may have increasing contamination and to evaluate the effectiveness of the extraction system for reducing the concentration of contaminants within the Observation Zone.

(1) GMZ Boundary Wells shall be evaluated as follows:

i. Constituents detected below the PQL shall be determined to be showing no change and no action is necessary.

ii. Constituents detected above the PQL shall be plotted on graphs which show historical concentration versus time. Plots indicating a trend that has a positive or greater than 1.0 slope shall be reported, as part of Condition II.J.10 below, as a potential area of increasing contamination. In addition, the report shall contain an evaluation on whether the corrective actions are operating effectively and whether adjustments or additional remedial actions are necessary based on the concentration trend.

(2) Observation Zone Wells shall be evaluated as follows:

Constituents detected above the PQL shall be compared to the historical data for each well and submitted as part of Condition II.J.10 below. The comparison shall include graphs which show the concentration versus time. The information shall be used to evaluate whether all constituents comprising the groundwater protection standard are being adequately remediated. This evaluation shall include an assessment of the current corrective actions and whether adjustments or additional remedial actions are necessary.

3. The Permittee shall evaluate the effectiveness of the groundwater extraction system to hydraulically capture and withdraw the off-site plume of groundwater contamination. The information required by Condition II.F.1.a, II.F.1.c and II.F.2 shall be used for this evaluation. This evaluation shall be conducted semi-annually. If the evaluation indicates the off-site plume of contamination is not completely captured by the current extraction system design and present pumping rate status conditions, the Permittee shall submit within 30 days of the semi-annual evaluation proper notification or modification (see Conditions II.F.1.a.(2) and II.F.1.a.(3)) to achieve capture of the groundwater contamination.

J. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions II.E, II.F, II.G, II.H, and II.I into the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions II.E, II.F, II.G, II.H, and II.I shall be collected during the second and fourth quarters of each calendar year, as identified in the Table below. The results of the groundwater quality analyses conducted on the samples shall be submitted in accordance with this schedule.

Sampling event of calendar year:	Samples to be collected in the months of:	Results submitted to Illinois EPA by the following:
Second Quarter	April-May	July 15
Fourth Quarter	October-November	January 15

3. Groundwater surface elevation data measured pursuant to Condition II.G.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in Condition II.J.2 above.

4. The Permittee shall report the surveyed elevation as required by Condition II.G.2 of the top of well casing "stick-up", referenced to MSL in accordance with the following schedule:

   a. For wells identified in Condition II.D.1 above, every two years (during the second quarter sampling event), or at the request of the Illinois EPA, or whenever elevation changes.

   b. For any new well, at the time of installation and reported in the as-built diagrams, subsequent measurements shall be made every two years (during the second quarter sampling event), or at the request of the Illinois EPA, or whenever the elevation changes.

5. Elevation of the bottom of each monitoring well identified in Condition II.D.1 as referenced to MSL, is to be reported when maintenance activities are conducted in accordance with Condition II.J.6 below. The measurement will be taken during the first semi-annual sampling event and reported by July 15 of that year. Total well depths will continue to be measured annually for wells that are not equipped with dedicated pump systems.

6. The Permittee shall maintain all equipment associated with groundwater monitoring wells. Dedicated pumps found in monitoring wells identified in Condition II.D.1 must be removed, inspected, and repaired if necessary every five years. Information regarding the inspection and maintenance of pumps must be reported by July 15 of that year.

7. Information required by Conditions II.F.1.c.(2), II.F.1.c.(3), II.F.2.b, II.F.2.c, II.G.2, and II.G.3 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment A, in accordance with the schedule found in Condition II.J.2. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

8. 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 copy of the LPC-592 must accompany the submittal. However, the Permittee must submit one original and a minimum of two copies of each notice or report submitted to the Illinois EPA. The form is not to be used for permit applications.

9. The Permittee shall report all information to the Illinois EPA in a form which can be easily reviewed. The report must present data in tabular form and must include drawings and text (as necessary) which accurately describe and support all conclusions. In addition, the forms included as Attachment G shall be completed and accompany each submittal.

10. The Permittee shall submit a written report to the Illinois EPA annually which discusses the effectiveness of the Corrective Action Program and place it in the operating record for the facility. At a minimum, the report must:

    a. Address the information requirements in Conditions II.E, II.F, II.G, II.H, and II.I and contain the information specified in Section E.9 of the approved permit application.

    b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ, including the information required by Condition II.F.

11. If the Permittee determines pursuant to Condition II.I.1.b above that any Concentration Limits specified in the Groundwater Protection Standard are being exceeded at any monitoring well within the GMZ Boundary wells, the Permittee shall:

    a. Notify the Illinois EPA of this finding in writing within seven days. The notification must indicate what Concentrations Limits have been exceeded.

    b. Within 90 days of the date that the increase is discovered, submit to the Illinois EPA a permit application for the Corrective Action Program meeting the requirements of 35 IAC 724.200. The permit application must at a minimum include the following information:

        1. A detailed description of corrective actions that will achieve compliance with the Groundwater Protection Standard.

        2. A plan for a groundwater monitoring program that will demonstrate the effectiveness of the corrective action. Such a groundwater monitoring program may be based on a compliance monitoring program.

12. If the Permittee determines that groundwater flow is not being adequately controlled, the Permittee shall:

    a. Notify the Illinois EPA in writing within seven days of the date that the determination is made:

    b. Take actions necessary to regain the control of groundwater flow as required by Condition II.I.3.

    c. Submit a written report to the Illinois EPA within 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 permit application to the Illinois EPA within 60 days describing any changes which must be made to the Corrective Action Program to ensure that the groundwater flow is adequately controlled.

13. If the Permittee determines, pursuant to Condition II.I.1.b or II.I.2.b that the groundwater Concentration Limits in Condition II.E are being exceeded at any of the GMZ Boundary Wells, the Permittee may demonstrate that a source other than a regulated unit caused the contamination or that the detection is an artifact caused by an error in sampling, analysis or statistical evaluation, or natural variation in groundwater. In making a demonstration under this condition, the Permittee shall:

    a. Notify the Illinois EPA in writing within seven days that it intends to make a demonstration under this condition;

    b. Within 90 days, submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the standard to be exceeded or that the apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation;

    c. Within 90 days, submit to the Illinois EPA a permit application to make any appropriate changes to the corrective action monitoring system at the facility, and;

    d. Continue to monitor in accordance with Condition II.F.

14. If the Permittee determines that additional constituents not currently part of the Groundwater Protection Standard are present in the groundwater pursuant to Condition II.I.2.a.(1) above, the Permittee shall:

    a. Report the concentration of these additional constituents detected in the groundwater to the Illinois EPA within seven days after completion of the analyses, and;

    b. Add the additional constituents to the monitoring list of the Groundwater Protection Standard, Lists E1 and E2, and establish the concentration limit for each additional constituent following procedures in Condition II.E.5 above.

15. The Permittee shall submit to the Illinois EPA documentation associated with the groundwater extraction system maintenance procedures. The documentation must be submitted in semi-annual groundwater reports in accordance with the schedule found in Condition II.J.2. The documentation must include, at a minimum, the following:

    a. A brief description of the qualifications of personnel performing the maintenance procedures;

    b. Dates of inspection and/or service, identification of wells or specific well system components inspected and/or serviced, average times servicing the system (including re-circulation times and down-times), and future maintenance frequency and schedule;

    c. Problems observed, such as excessive biofouling and/or scaling, structural damage to wells or well system components, malfunctions in equipment (valves, container housing, lines, etc.). This should include a brief discussion of any field observation made during the maintenance event and proposed procedures to address any problems, if necessary;

    d. Values for the field parameters: conductivity, temperature, redox potential (Eh), and pH for comparison of water quality before and after cleaning events;

    e. Supporting data confirming that groundwater quality returns to a natural level subsequent to the completion of the maintenance procedures (water must be pumped from the well until the water quality is essentially the same as prior to the treatment;

f. Identification of all cleaning compounds used for well maintenance, including, but not limited to, a discussion and supporting documentation regarding: (1) mixture concentrations, amounts, and injection rates; (2) general procedures used in the application of chemical compounds that are utilized to maintain the system; and (3) a performance evaluation. If the cleaning technique involves the application of acidic compounds, a total concentration of 15% (2-3 times zone volume) should not be exceeded.

16. In accordance with 35 IAC 620.250(c), a review of the GMZ must take place no less often then every five years and the results shall be presented to the Illinois EPA in a written report.

K. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the corrective action program no longer satisfies the requirements of 35 IAC Part 724 Subpart F the Permittee must, within 90 days, submit a permit application to the Illinois EPA Bureau of Land to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 IAC 705.128 if there is cause for such modification, as defined in 35 IAC 702.184. Causes for modification identified in this section include, but are not limited to, alteration to the permitted facility; additional information which would have justified the application of different permit conditions at the time of issuance; and new regulations.

Section III: NON-HAZARDOUS WASTE LANDFILLS

A. SUMMARY OF PROCEDURAL ISSUES

As requested by the Permittee and in accordance with 35 IAC 705.127, this Permit consolidates design, construction, operation, maintenance, monitoring, and closure requirements for the solid waste landfills at the referenced facility. Since this consolidated Permit constitutes issuance of a State of Illinois permit within a RCRA hazardous waste Permit, this section clarifies how permit modifications related to the solid waste units will be conducted.

Modifications to Sections III and IV of this Permit will be submitted by the Permittee and acted upon by Illinois EPA in accordance with the modification procedures of 35 IAC 703.280. A completed form LPC-PA23 must accompany all permit applications. Design and implementation of these modifications will otherwise be in accordance with 35 IAC Parts 811 and 812, pursuant to 35 IAC 813.104.

B. UNIT IDENTIFICATION

The units covered by this section include the Solid Waste Unit (existing, approximately 32 acres), Phases 1 through 15 (to be completed, approximately 163 acres total), and the expansion areas (approximately 93 acres total) as identified in the Facility Plan included as Attachment I of this Permit. Invert elevations shall be as shown on Drawing GT-1 of the approved permit application. Final grades shall be as shown on Drawing GT-2 of the approved permit application.

Construction and operation of the 32-acre Solid Waste Unit was previously permitted by Illinois EPA under Permit No. 1995-313-LFM (dated May 22, 1996) and all associated modifications (the last modification, Modification 14, was approved by Illinois EPA on December 4, 2009). Operational activities at the Solid Waste Unit continued under Modification 14 until June 21, 2010, the date that this RCRA Permit for the Laraway facility became effective. Since that date, operation of the Solid Waste Management Unit has been carried out in accordance with this RCRA Permit.

As noted above, there are 15 additional solid waste landfill phases to be constructed and operated at this facility. Construction and operation of these additional phases (which cover approximately 163 acres) and expansion areas (which cover approximately 93 acres) are to be carried out in accordance with the terms and conditions of this RCRA Permit. To date, Illinois EPA has approved the construction efforts for the following portions of the facility and allowed the Permittee to place waste in them:

Name of Constructed Area	Size (Acres)	Approval Date
First Interim Horizontal Overlay	2.69	November 10, 2010
Phase 1A West	4.00	March 4, 2011
Phase 1B	4.62	August 19, 2011
Phase 1C	1.96	November 10, 2011
Phase 2	8.14	November 10, 2011
Phase 3 West	9.90	December 5, 2012
Second Interim Horizontal Overlay	0.59	December 5, 2012
Phase 3 East	6.63	September 18, 2013
Phase 4 West	9.40	February 7, 2014
Phase 4 East	6.08	September 26, 2014
Phase 5 North	4.53	September 26, 2014
Phase 5 South and Phase 6	9.66	October 13, 2015
Phase 7	7.10	February 27, 2017
Phase 8A	11.20	December 11, 2017
Phase 9A	10.59	April 4, 2019
Phase 8B/9B/10A	14.09	February 3, 2020
Phase 11A	6.72	August 12, 2020
Phases 12A, 13A, and 14A	21.84	June 4, 2021
11B and 12B	10.06	April 15, 2022
Phase 9C / 10B	9.13	July 2024

The horizontal overlays mentioned above lie within the footprint of the Solid Waste Unit. These overlays allowed the final contours of the Solid Waste Unit to tie into the additional 15 solid waste landfill phases. In addition, it must be noted that a 3.98-acre solid waste landfill known as Trench 11 is also present at this facility. This unit accepted solid waste incinerator ash for disposal and was certified closed by Illinois EPA on November 29, 1990.

C. CONSTRUCTION QUALITY ASSURANCE

1. All necessary surface drainage control facilities shall be constructed prior to other disturbance in any area.

2. No part of any unit shall be placed into service or accept waste until a construction acceptance report for all the activities listed below has been submitted to and approved by the Illinois EPA. A completed construction or certification form identical to that found in Attachment E must accompany this report.

a. Preparation of the subgrade and foundation to design parameters;

b. Installation of the compacted earth liner;

c. Installation of the geosynthetic liner;

d. Installation of the leachate drainage, collection, and management systems; and,

e. Construction of ponds, ditches, lagoons, and berms.

3. The Permittee shall designate an independent third-party contractor as the Construction Quality Assurance (CQA) Officer(s). The CQA Officer(s) shall be a qualified Illinois licensed Professional Engineer who is independent from and not under the control or influence of the operator, any employee of the operator, or any other corporation, company or legal entity that is a subsidiary, affiliate, parent corporation, or holding corporation associated with the operator.

4. The CQA Officer(s) designated pursuant to Condition III.C.3 shall personally be present during all construction and testing that is subject to CQA certification pursuant to 35 IAC 811.503(a). If the CQA Officer(s) is unable to be present as required, then the CQA officer(s) shall comply with the requirements of 35 IAC 811.503(b).

5. If the clay portion of the liner is exposed to freezing conditions, it must be recertified. If necessary, damaged portions of the liner shall be reconstructed, retested, and recertified. The designated CQA Officer(s) shall then certify that the clay portion of the liner and all necessary repairs to the leachate drainage layer meet the required design standards. This certification must be provided to the Illinois EPA prior to disposal of waste on the subject portion of the liner. If operating authorization has not yet been issued for that area, the recertification shall be included in the construction acceptance report.

6. Pursuant to 35 IAC 811.505(d), upon completion of construction of each major phase, the CQA Officer(s) shall submit a construction acceptance report to the Illinois EPA. The acceptance report shall be submitted before the structure is placed into service and shall contain the following:

a. A certification by the CQA Officer(s) that the construction has been prepared and constructed in accordance with the engineering design;

b. As-built drawings; and

c. All daily summary reports.

7. Applications for operating authorization shall not be made for areas of less than 1.5-acre increments of constructed liner.

8. All stakes and monuments marking property boundaries and the permitted area shall be maintained, inspected annually, and surveyed no less frequently than once in five years by a professional land surveyor. Any missing or damaged stakes or monuments discovered shall be replaced and resurveyed.

9. All standards for testing the characteristics and performance of materials, products, systems, and services shall be those established by the American Society for Testing and Materials (ASTM) unless otherwise stated in the permit application.

D. OPERATING CONDITIONS

1. Pursuant to 35 IAC 811.107(a) and 811.107(b), throughout the operating life of this landfill, waste shall not be placed in a manner or at a rate which results in unstable internal or external slopes, or interference with construction, operation, or monitoring activities.

2. The operator of this solid waste facility shall not conduct the operation in a manner which results in any of the following:

a. Refuse in standing or flowing waters;

b. Leachate flows entering Waters of the State;

c. Leachate flows exiting the landfill confines (i.e., the facility boundaries established for the landfill in a permit or permits issued by the Illinois EPA);

d. Open burning of refuse in violation of Section 9 of the Act;

e. Uncovered refuse remaining from any previous operating day or at the conclusion of any operating day, unless authorized by permit;

f. Failure to provide final cover within time limits established by Board regulations;

g. Acceptance of wastes without necessary permits;

h. Scavenging as defined by Board regulations;

i. Deposition of refuse in any unpermitted (i.e., without an Illinois EPA approved significant modification authorizing operation) portion of the landfill;

j. Acceptance of a special waste without a required manifest and identification record;

k. Failure to submit reports required by permits or Board regulations;

l. Failure to collect and contain litter from the site by the end of each operating day; or

m. Failure to submit any cost estimate or any financial assurance mechanism by the site as required by the Act or Board regulations.

3. Moveable, temporary fencing shall be used to prevent blowing litter when the refuse is above the natural ground line.

4. At the end of each day of operation all exposed waste shall be covered with:

a. Clean soil, at least six inches thick (i.e., conventional daily cover); or

b. An alternate daily cover (ADC) as described below.

5. Hydro-fix, Soil Seal, plastic panels, plastic tarps, air-dried sludge generated at the Metropolitan Water Reclamation District of Greater Chicago (MWRDGC), clean construction or demolition debris (CCDD), contaminated soil, processed street sweepings, and processed scrap shredder waste are approved as ADC pursuant to 35 IAC 811.106(b) and 812.111(b). Use of these materials as ADC shall be subject to the specific performance-based criteria and the following conditions:

a. If any materials other than those approved by this Permit are to be used, their use must be approved by this Illinois EPA through the permitting process.

b. All ADC must meet the requirements of 35 IAC 811.106(b)(1) through (4) at all times.

c. Conventional daily cover in accordance with 35 IAC 811.106(a) shall be used if weather or other conditions adversely affect the ability of the ADC to prevent problems with blowing dust, litter, fire, odors, or vectors.

d. Plastic panels and plastic tarps shall be anchored adequately to prevent wind damage. If the ADC is torn during or after placement, it must be repaired immediately, or the damaged area must be covered with six inches of daily cover soil. If tires are used as weights for the ADC, they shall be converted tires, in accordance with 35 IAC Part 848: Management of Used and Waste Tires.

e. The condition of the ADC shall be inspected at the beginning of each shift to determine if its integrity or continuity has been damaged by sun exposure, wind, or physical contact. If the inspection reveals that the structural integrity or continuity has been damaged or if uncovered refuse is observed in the covered areas, the damaged or uncovered areas shall be repaired immediately to restore a continuous uniform cover over the waste. If any problems develop from covering the waste with a particular ADC, the use of the offending cover shall immediately cease until the cause of the problem is determined and necessary corrective action taken. A record of the inspection and subsequent corrective action taken shall be made available to the Illinois EPA or its delegate upon request.

f. When an ADC is applied, the operator shall keep a record including a description of the weather conditions, the type of ADC used, and its performance. A summary of this information shall be provided with this facility's annual reports.

g. Plastic panels and plastic tarps which have been used as ADC may not be reused for any purpose (including road underlayment and erosion control) outside of permitted disposal boundaries.

h. When an ADC reaches the end of its useful life and can no longer meet the requirements of 35 IAC 811.106(b)(1) through (4), it shall be removed and/or replaced with six inches of cover soil or an approved ADC.

i. When using scrap shredder waste as ADC:

(1) The landfill operator is responsible for:

(a) Ensuring that scrap shredder waste, which is used as ADC, remains in the landfill and is not released or dispersed by wind or other action; and

(b) Complying with all applicable Federal, State, and local laws and regulations.

(2) The landfill operator must ensure that all scrap shredder waste used as ADC: i) is generated at shredding facilities that have operating plans in place to remove components that may contain PCBs (polychlorinated biphenyls) and other contaminants, and ii) is produced in adherence with the operating plans. Such operating plans must include the following concerning recyclable metals processing and components which may contaminate waste from shredding recyclable metals (such as lead acid batteries, fuel tanks, or components that contain or may contain PCBs in a closed system such as a capacitor or ballast):

(a) Procedures for inspecting recyclable metals when received to assure that such components are identified;

(b) A list of equipment and removal procedures to be used to assure proper removal of such components;

(c) Procedures for safe storage of such components after removal and any waste materials;

(d) Procedures to assure that such components and waste materials will only be stored for a period long enough to accumulate the proper quantities for off-site transportation;

(e) Identification of how such components and waste materials will be managed after removal from the site to assure proper handling and disposal;

(f) Procedures for sampling and analyzing waste intended for disposal or off-site handling as a waste; and

(g) A demonstration, including analytical reports, that any waste generated is not a hazardous waste and will not pose a present or potential threat to human health or the environment.

(3) The following conditions apply to the use of scrap shredder waste as ADC:

(a) When scrap shredder waste is used as ADC, it must be applied in a continuous layer at least six inches thick;

(b) Scrap shredder waste from the Pielet Brothers site in Summit, Illinois cannot be used as ADC;

(c) Only scrap shredder waste that was generated after the effective date of, and in compliance with, the PCB Mega Rule (63 FR 35383), promulgated on June 29, 1998, can be used as ADC;

(d) Only scrap shredder waste that may be accepted for disposal at a RCRA Subtitle D landfill and used in compliance with 40 CFR Part 761 can be used as ADC;

(e) Once applied as ADC, scrap shredder waste shall not be removed;

(f) Areas where scrap shredder waste is used as ADC must be covered with either conventional soil daily cover or additional waste within a 24-hour period of initial placement;

(g) Scrap shredder waste may be stockpiled in roll-off boxes or tarped piles in an area of the landfill where a bottom liner, leachate drainage layer, and leachate collection system that complies with the applicable standards in 35 IAC Part 811 is present;

(h) Scrap shredder waste may not be stockpiled in areas of the landfill that have received final cover. In addition, the elevation of the top of the stockpiled scrap shredder waste cannot exceed the permitted final waste elevations at that location;

(i) No more than 10,000 cubic yards of scrap shredder waste may be stockpiled at any one time. In addition, scrap shredder waste cannot be stockpiled for more than 30 days;

(j) A record regarding the stockpiling of scrap shredder waste must be maintained which includes the following information for each stockpile: the generator's name and waste profile number; the stockpile location; the quantity of scrap shredder waste received; the dates of receipt; the quantity of scrap shredder waste removed from the stockpile each day; and the date(s) that scrap shredder waste was removed from the stockpile;

(k) If scrap shredder waste becomes displaced by winds or other weather conditions, it will be repaired, and any displaced material collected and disposed; and

(l) A log must be maintained which includes, but is not limited to, the date and amount of scrap shedder waste used (in cubic yards) as ADC. These logs must be maintained in the operating record for the facility and be available for the Illinois EPA's inspection report upon request.

6. The following conditions shall apply when air-dried sludge generated at MWRDGC is used as ADC:

a. MWRDGC sludge to be used as ADC will be non-hazardous and a minimum thickness of six inches of material will be applied as ADC on the same day that it is received. Air-dried sludge will not be stockpiled for use as ADC. Any excess material beyond that needed at the end of the day of operation to cover waste receipts will be disposed as a waste.

b. Air-dried sludge with obnoxious odors or with debris will not be used as ADC.

c. Each load of air-dried sludge used as ADC will be inspected to ensure that its use as ADC will not generate odors and will prevent the threat of fires. A log of these inspections including the date, generator name, locations, and sludge quantity (in cubic yards or tons) will be maintained in site records.

d. Air-dried sludge used as ADC will be handled and used in a manner that does not cause violations of the Act or Regulations. This includes management of any runoff from areas covered with sludge as leachate to prevent a threat of pollution to Waters of the State.

e. If the air-dried sludge becomes eroded after placement, it will be repaired immediately, or the damaged area will be covered with six inches of daily cover soil or an approved ADC.

f. Air-dried sludge will not be removed after use as an ADC.

7. No later than 60 days after placement of the final lift of waste in any area, the area shall receive a final cover system meeting the design specifications contained in the approved permit application.

8. Asbestos debris from construction-demolition shall be managed in accordance with the National Emission Standards for Hazardous Air Pollutants (NESHAP) regulations.

9. Management of Unauthorized Waste

a. Landscape waste found to be mixed with municipal solid waste (MSW) will be removed the same day and transported to a facility that has an operating permit to compost and/or transfer landscape waste in accordance with the Act, Title V, Section 21.

b. Lead-acid batteries will be removed the same day and transported either to a facility which recycles such waste or a facility permitted to store or treat lead acid batteries.

c. Potentially infectious medical waste (PIMW) found to be mixed with municipal waste shall be managed in accordance with 35 IAC Subtitle M.

d. Tires found to be mixed with MSW shall be removed and managed in accordance with 35 IAC Part 848.

e. White good components mixed with MSW shall be removed and managed in accordance with Section 22.28 of the Act.

f. This facility is prohibited from disposing any waste containing PCBs in a concentration greater than allowed by the Toxic Substance Control Act (TSCA).

g. No liquid waste (special or non-special) as determined by the Paint Filter Test shall be disposed unless the waste is from a household or is in a small container similar in size to that normally found in household waste and the container was designed for use other than storage. The prohibition applies to on-site generated wastes except for leachate or gas condensate that is specifically approved for recirculation into the landfill by permit. However, minor amounts of liquid resulting from precipitation (rain, sleet, hail, or snow) during transport and disposal operations shall not be construed as a violation of this condition.

h. After the unauthorized waste has been removed, a thorough cleanup of the affected area will be made according to the type of unauthorized waste managed. Records shall be kept for three years and will be made available to the Illinois EPA.

i. In accordance with Subsection (b) of Section 1-83 of the Consumer Electronics Recycling Act (415 ILCS 151), beginning January 1, 2019, *no person may knowingly cause or allow the disposal of a CED (covered electronic device), or any other computer, computer monitor, printer, television, electronic keyboard, facsimile machine, videocassette recorder, portable digital music player, digital video disc player, video game console, electronic mouse, scanner, digital converter box, cable receiver, satellite receiver, digital video disc recorder, or small-scale server in a sanitary landfill.*

10. If it is required for the facility to be open beyond normal operating hours to respond to emergency situations, a written record of the date(s), times, and reason the facility was open shall be made part of the operating record for the facility. The Illinois EPA-Field Operation Section Regional Office, and when applicable, the county authority responsible for inspections of this facility per a delegation agreement with the Illinois EPA shall be notified no later than 5:00 p.m. the next business day following the acceptance of waste outside the specified operating hours.

11. Road building materials for roads at the facility may be stockpiled on-site in the amount estimated to be needed within the next construction season provided they are managed in accordance with 35 IAC 811.108(c)(1).

12. Non-hazardous refractory brick from Suncoke Energy in Indiana was approved for storage and use as internal access road material in Permit Modification B-141R-M-135. The refractory brick may only be used within the permitted waste footprint where runoff would be collected in the leachate collection system and only on internal areas and not outer final slopes. This material shall not be stockpiled outside the permitted waste footprint or any area where runoff is not collected in the leachate collection system. This material shall not be stockpiled and/or stored beyond permitted waste elevations.

13. Equipment shall be maintained and available for use at the facility during all hours of operation to allow proper operation of the landfill. If breakdowns occur that would prevent proper facility operation, back-up equipment shall be brought to the site.

14. All utilities, including but not limited to heat, lights, power, communications equipment, and sanitary facilities necessary for safe, efficient, and proper operation of the landfill shall be available at the facility at all times.

15. Waste shall be deposited at the fill face and compacted upward into the fill face unless precluded by extreme weather conditions or for reasons of safety. Waste may be pushed down operational slopes if there is at least five-feet of compacted waste or material over the liner.

16. The operator shall implement methods for controlling dust so as to prevent wind dispersal of particulate matter off-site.

17. The facility shall be constructed and operated to minimize the level of equipment noise audible outside the facility. The facility shall not cause or contribute to a violation of 35 IAC Parts 900 through 905.

18. The operator shall implement measures to control the population of disease and nuisance vectors.

19. The operator shall institute fire protection measures in accordance with the proposed fire safety plan.

20. The operator shall implement methods to prevent tracking of mud by hauling vehicles onto public roadways.

21. Access to the active area and all other areas within the boundaries of the solid waste unit and solid waste unit expansion shall be controlled by use of fences, gates, and natural barriers to prevent unauthorized entry at all times.

22. A permanent sign shall be maintained at the facility entrance containing the information required under 35 IAC 811.109(b)(1) through (5).

23. Washing of landfill operating equipment with a low volume, high pressure, washer is hereby approved, subject to the following conditions:

    a. The spent spray from washing landfill operating equipment is leachate, as defined in 35 IAC 810.103, and shall be managed as such; and

    b. This activity shall be limited to the active disposal areas of the landfill.

24. Operating hours are those hours during which waste may be accepted. For this facility, the operating hours shall be limited to 6:00 a.m. to 4:30 p.m., Monday through Saturday. Adequate lighting shall be provided for outdoor activities at the landfill occurring before sunrise or after sunset.

    At certain times, it will be necessary or appropriate to begin waste acceptance at 4:00 a.m. and continue on a 24-hour basis. These extended hours will be implemented as circumstances warrant. Will County's Solid Waste Director or designee will be notified in writing (or by Facsimile) in advance of the extended hours a minimum of 24 hours for in county needs, and 72 hours for out of county needs. Further, during each 24-hour period of extended operation, the Permittee must cease waste disposal activities for a period sufficient to meet the daily cover requirements of Condition III.D.4

25. The operator shall implement a load checking program that meets the requirements of 35 IAC 811.323. If regulated hazardous waste or other unauthorized wastes are discovered; Illinois EPA shall be notified no later than 5:00 p.m. on the business day after it is detected. The load checker shall prepare a report describing the results of each inspection. A summary of these reports shall be submitted to Illinois EPA as part of the facility's annual report.

26. The Permittee may use air-dried sludge as ADC, intermediate cover, and in the final protective layer of the final cover system. For this purpose, the Permittee may use only air-dried sludge generated and managed by MWRDGC. Prior to use as a soil alternative, the Permittee shall ensure the sludge meets the criteria of Board Adjusted Standard AS95-4. Stockpiling of the sludge at the facility for future use is prohibited within 24 hours of receipt of the facility, the Permittee shall ensure that the sludge is either used as a soil alternative or managed properly as waste.

E. SPECIAL WASTE

1. Disposal of Special Waste

a. The Permittee is authorized to accept non-hazardous special waste that meets the definition of industrial process waste or pollution control waste as found in Section 3.235 and 3.335, respectively, of the Act, in accordance with the following requirements:

i. The waste is analyzed in accordance with the requirements described below and complies with the acceptance criteria in the approved waste analysis plan;

ii. The waste is delivered by an Illinois licensed special waste hauler or an exempt hauler as defined in 35 IAC 809.211; and

iii. The waste is accompanied by a manifest, if required.

b. The Permittee shall obtain a completed Special Waste Preacceptance Form, and a preacceptance analysis from each generator for each waste to be accepted. In addition, the Annual Generator Special Waste and Recertification for Disposal of Special Waste form, which certifies the waste has not changed since the last analysis, must be completed and included in the operating record. These forms may be found on the Illinois EPA's website. A complete laboratory analysis must be provided with the exceptions listed below.

Analysis shall be conducted using SW-846 or other USEPA approved test methods. The waste shall be reanalyzed at least every five years and must identify the actual concentration of each chemical constituent and state of each physical parameter. In all cases a copy of the lab analysis (on lab letterhead and signed by a responsible party such as the person conducting the analysis or his/her supervisor) must be included in the operating record with the Special Waste Preacceptance Form (Profile Identification Sheet). The analysis may not be greater than one-year old at the time the initial load of waste is accepted at the facility. A new analysis is required if the composition of the waste changes (normal variations in waste composition are expected and are not included in this requirement). All waste must be analyzed as follows:

i. The Permittee shall obtain the following lab analyses to determine the concentrations of the following parameters.

1. Paint Filter Test
2. Flash point
3. Sulfide (reactive)
4. Cyanide (reactive)
5. Phenol (total)
6. pH
7. Toxicity Characteristic Constituents

ii. The Permittee shall obtain analysis for reactive sulfides and cyanides. For waste containing 250 ppm or greater reactive cyanide or 500 ppm or greater reactive sulfide it is presumed hazardous pursuant to 35 IAC 721.123(a)(5) unless specific information shows it does not present danger to human health or the environment is provided. Analysis for total sulfide and/or cyanide may be substituted for reactive concentrations if they are equal to or less than 10 ppm. For wastes containing greater than 10 ppm reactive cyanide or reactive sulfide, the Permittee shall not accept the waste unless the generator provides a signed and dated statement indicating that none of the following have occurred:

1) The waste has never caused injury to a worker because of H_2S and/or HCN generation;

2) That the OSHA workplace air concentration limits for H_2S and/or HCN have not been exceeded in areas where the waste is generated, stored, or otherwise handled; or

3) That air concentrations of H_2S and/or HCN, above 10 ppm, have not been encountered in areas where the waste is generated, stored, or otherwise handled.

iii. The Permittee shall obtain analysis for phenols. If the total phenol concentration is greater than 1,000 ppm, the waste will be required to be drummed and labeled, unless justification that this precaution is not necessary is provided. The justification must demonstrate skin contact is unlikely during transport or disposal.

iv. The Permittee shall obtain metals and organics analysis. Either procedure may be utilized (i.e., total or TCLP), but any constituent whose total concentration exceeds the TCLP limit specified in 35 IAC721.124 must be analyzed using the TCLP test and the results reported, unless an alternative test has been approved by the Illinois EPA. TCLP test methods must be in accordance with SW-846-1311.

v. EXCEPTIONS:

1) The generator may certify that the eight pesticides (D012, D013, D014, D015, D016, D017, D020, and D031) would not reasonably be expected to be present in their waste based on the nature of the generator's business.

2) Petroleum contaminated media and debris from LUST sites subject to corrective action regulation under 35 IAC Parts 731 or 732 are temporarily exempt from complete TCLP analysis and the generator may limit analyses to flashpoint, paint filter test, and total and/or TCLP lead.

3) For off-specification, unused, or discarded, commercial or chemical products, a safety data sheet (SDS) to determine the hazardous constituents present may be provided in lieu of analytical results. The SDS must have been updated since the adoption of the Toxicity Characteristic Leaching Procedures and TCLP organic parameters by USEPA effective on September 25, 1990.

vi. Pursuant to 35 IAC 722.111 the generator of a solid waste is required to determine if the waste is hazardous and comply with all applicable hazardous waste regulations. For any waste that has been determined to be hazardous, the results of quality assurance testing for the treatment program, taken at an appropriate frequency to demonstrate the waste is no longer hazardous, must be obtained. Verification that the waste meets the land disposal restrictions must also be documented. These requirements are in addition to the other standard special waste test requirements.

vii. Notwithstanding the exception for manufactured gas plant waste contained in 35 IAC 721.124(a), no manufactured gas plant waste shall be disposed in a non-hazardous waste landfill, unless: i) the waste has been tested in accordance with subsection (d) of this condition, and ii) the analysis has demonstrated that the waste does not exceed the regulatory levels for any contaminant given in the table contained in 35 IAC 721.124(b).

c. An individual waste stream permit is no longer required by this Illinois EPA for this facility. Therefore, a waste stream permit number will no longer be required on the manifest when shipping waste to this facility as authorized by this Permit.

d. Special waste generated due to an emergency situation may be disposed without complete TCLP analysis if:

i. The Permittee ensures that the generator has received an incident number from the Illinois Emergency Management Agency at 1/800/782-7860 within Illinois or 1/217/782-7860 outside of Illinois; and

ii. The Permittee receives authorization from the Emergency Response Unit at 1/217/782-3637; and

iii. The waste is analyzed for the chemical constituents required by the Emergency Response Unit.

e. The Permittee shall conduct the following analysis for waste received in labeled containers in lab packs including commingled wastes are subject to the following requirements:

i. Compatibility review in accordance with the procedures identified in USEPA document EPA-600/2-80-076.

ii. SDS review to determine the hazardous constituents present and appropriate USEPA hazardous waste class.

f. RCRA empty containers received as a special waste are subject to conditions which state:

i. Containers have a rated capacity of less than 110 gallons only.

ii. Containers which formerly held 'P' listed hazardous waste or TSCA regulated quantities of PCBs or empty compressed gas cylinders are not allowed under this Permit.

iii. All containers must meet the definition of empty as described in 35 IAC 721.107(b).

iv. Additionally, where possible, a copy of the SDS for products last contained will be obtained and kept on file.

v. For drums, at least one end must be removed and the drums must be crushed flat.

g. The Special Waste Preacceptance Form, which can be found at the Illinois EPA's website, shall be utilized for the special waste profile identification requirements of 35 IAC 811.404(a).

h. The Annual Generator Special Waste Recertification for Disposal Special Waste form, which can be found on the Illinois EPA's website, shall be utilized for the special waste recertification requirements of 35 IAC 811.404(b).

i. The operator shall retain all special waste records until the end of the post-closure period in accordance with 35 IAC 811.405.

2. Solidification of Special Waste

a. Waste solidification shall take place in a mixing chamber equipped with secondary containment systems equivalent to the protection provided by a five-foot thick clay liner having a permeability no greater than 1.00×10^{-7} cm/sec or; a leakproof, inspectable containers, placed over the area of the landfill, that has both a certified liner and an operating leachate collection system.

b. All special waste generators which send liquid waste to this facility for treatment and disposal must have an Illinois EPA generator number.

c. Only non-hazardous wastes as defined in 35 IAC 722.111 may be received for treatment at this facility.

d. This Permit approves the use of coal combustion fly ash as a reagent in the solidification process. Any reagent or absorbent used must not be a hazardous waste. Use of other materials and/or waste other than coal combustion fly ash shall be subject to Illinois EPA approval.

e. The following conditions are applicable to any waste stream containing a liquid phase(s) (fails paint filter):

i. Each phase must be analyzed for total organic halogen (TOX) using the test method specified in 35 IAC Part 729. Any waste containing 10,000 ppm or greater of TOX must be analyzed to determine the specific constituents and their concentrations, that make up TOX. These constituents and their concentration should be reported on the lab analysis report. Any liquid containing multiple phases must include individual analyses for each phase.

ii. The pre-acceptance bench-scale documentation must include a description of the solidification method used successfully, including test results demonstrating that the solidified waste passes the paint filter test.

iii. If a waste is used to solidify the liquid (i.e., two or more wastes are mixed) all required testing must be performed on the solidified waste product. Otherwise, all testing (except paint filter) may be performed on the waste before solidification and a statement from the generator may be accepted certifying that the additives used have been evaluated and there is no reason to believe they would cause the waste to become hazardous.

f. The Permittee shall not perform solidification if the waste analysis plan determines incompatibility of the waste and reagent.

g. The following information shall be documented in the facility's operating record for each load of liquid waste received for solidification:

i. Date the load was received;

ii. Manifest number associated with the waste load;

iii. Waste name;

iv. Volume of waste received;

v. Generator name, location, and Illinois EPA generator number or hauler number, if not a special waste;

vi. Results of all analysis conducted on the load of waste;

vii. Type of reagent used to solidify the waste;

viii. Documentation that the (solidified) waste does not exhibit hazardous characteristics as defined in 35 IAC Part 721 Subpart C, e.g., result of the compatibility test done in accordance with the facility's waste analysis plan.

h. Each load of the solidified waste shall be sampled and tested by the paint filter test described in 35 IAC 729.320 prior to disposal. No waste that yields fluid may be disposed.

i. When necessary, the operator shall perform a complete TCLP analysis on solidified waste to demonstrate that no hazardous waste has been produced during the solidification process.

j. Storage of liquid waste received for solidification shall be limited to the containment area and to the time periods described in Log No. 2003-343. Such storage shall not result in the amount of stored liquid waste exceeding the capacity of the containment area.

k. This Permit allows the storage of coal combustion fly ash to be used in the solidification process for a maximum period of seven days. However, storage shall not contribute to a violation of Section 21(a), Section 12, or Section 9 of the Act.

l. Coal combustion fly ash shall be stored, covered, and protected from precipitation events.

m. All wash water generated from the solidification unit shall be managed in the same manner as leachate.

n. The solidification unit may be operated from 6:00 a.m. to 6:00 p.m. Monday through Saturday.

o. In the event of a spill, such materials and equipment necessary must be available on-site in order to prevent leachate migration from the contaminated area.

p. Waste solidification activities shall cease upon closure and shall not occur during the post-closure care period of the landfill.

q. All waste that has been solidified at the landfill shall be disposed of within the landfill and shall not be taken for disposal at other sites.

F. RECORDKEEPING

1. Information developed by the operator but not yet forwarded to the Illinois EPA in a quarterly or annual report shall be kept at or near the facility for inspection by the Illinois EPA upon request during normal working hours.

2. Information and observations derived from load checking inspections shall be recorded in writing and retained at the facility for at least three years.

3. Every person who delivers special waste to a special waste hauler, every person who accepts special waste from a special waste hauler, and every special waste hauler shall retain a copy of the special waste transportation record as a record of each special waste transaction. These copies shall be retained for three years and shall be made available at reasonable times for inspection and photocopying by the Illinois EPA pursuant to Section 4(d) of the Act.

4. The operator shall retain copies of any special waste profile identification sheets, special waste recertifications, certifications of representative samples, special waste laboratory analyses, special waste analysis plans, and any waivers of requirements, at the facility. During the post-closure care period, these records are to be maintained at the office of the site operator.

5. Inspections of the closed landfill shall be conducted in accordance with the approved post-closure care plan. Records of field investigations, inspections, sampling, and corrective action taken are to be maintained at the site and made available to Illinois EPA personnel. During the post-closure care period, those records are to be maintained at the office of the site operator.

6. The owner or operator shall record and retain near the facility in an operating record or in some alternative location specified by the Illinois EPA, the information submitted to the Illinois EPA pursuant to 35 IAC Parts 812 and 813, as it becomes available. At a minimum, the operating record shall contain the following information, even if such information is not required by 35 IAC Parts 812 or 813:

   a. Any location restriction demonstration required by 35 IAC 811.302, 812.109, and 812.303;

   b. Inspection records, training procedures, and notification procedures required by 35 IAC 811.323;

   c. Any municipal solid waste landfill (MSWLF) unit design documentation for placement of leachate or gas condensate in a MSWLF unit required by 35 IAC 811.107(m) and 811.309(f);

   d. Any demonstration, certification, monitoring results, testing, or analytical data relating to the groundwater monitoring program required by 35 IAC 811.319, 811.320, 811.324, 811.325, 811.326, 812.317, 813.501, and 813.502;

   e. Closure and post-closure care plans and any monitoring, testing, or analytical data required by 35 IAC 811.110, 811.111, 812.114(h), 812.115, and 812.313;

   f. Any cost estimates and financial assurance documentation required by 35 IAC Part 811 Subpart G; and

   g. Gas monitoring results and any remediation plans required by 35 IAC 811.310 and 811.311.

G. GENERAL CONDITIONS

1. This Permit is issued with the expressed understanding that no process discharge to Waters of the State or to a sanitary sewer will occur from these facilities except as authorized by a permit issued by the Bureau of Water.

2. If changes occur which modify any of the information the Permittee has used in obtaining a permit for this facility, the Permittee shall notify the Illinois EPA. Such changes would include but not be limited to any changes in the names or addresses of both beneficial and legal titleholders to the herein-permitted site. The notification shall be submitted to the Illinois EPA within 15 days of the change and shall include the name or names of any parties in interest and the address of their place of abode; or, if a corporation, the name and address of its registered agent.

3. Current, valid Prior Conduct Certification pursuant to 35 IAC Part 745 is required for all landfill operators of landfills that require a permit.

4. Landfill Operator Certification pursuant to 68 IAC Part 870 is required for operation of a landfill.

5. The Permittee shall submit current 39(i) certifications and supporting documentation with all applications for a permit.

H. SURFACE WATER CONTROL

1. Runoff from disturbed areas to Waters of the State shall be permitted by the Illinois EPA in accordance with 35 IAC Part 309 and meet the requirements of 35 IAC Part 304 unless permitted otherwise.

2. All surface water control structures other than temporary diversions for intermediate phases shall be operated until the final cover is placed and erosional stability is provided by the final protective layer of the final cover system.

3. Runoff from undisturbed areas resulting from precipitation events less than or equal to the 25-year, 24-hour precipitation event shall be diverted around disturbed areas where possible and not commingled with runoff from disturbed areas.

I. LEACHATE MANAGEMENT/MONITORING

1. Pursuant to 35 IAC 811.309(h)(3), leachate from this MSWLF shall be collected and disposed beginning as soon as it is first produced and continuing for at least 30 years after closure except as otherwise provided by 35 IAC 811.309(h)(4) and (h)(5). Collection and disposal of leachate may cease only when the conditions described in 35 IAC 811.309(h)(2) have been achieved. Leachate removed from this landfill shall be treated at an Illinois EPA permitted facility in accordance with the leachate management plan.

Attachment 2 of the October 15, 2014, submittal (Log No. B-141R-M-94) shows the location of the solid waste leachate collection tanks. The subject tanks must be double walled unless they are located in within a compacted low permeability soil containment area as described Section 5.3.6. of the approved permit application.

2. Pursuant to 35 IAC 811.307(a) and (b), 811.308(a) and (h), and 811.309(a), leachate shall be pumped from the side slope riser sump(s) before the level of leachate rises above the invert of the collection pipe(s) at its lowest point(s). Leachate removal as such shall be performed throughout the period that the leachate collection/management system must be operated in accordance with Section 5 of the approved permit application.

   During a monitoring event, if the facility recognizes that the leachate level at an extraction point is above the invert of the collection pipe(s) at its lowest point(s), leachate must be pumped below the required maintenance level as soon as possible.

3. The Leachate Monitoring Program for this facility shall use the leachate collection risers identified as L301 through L320 on Drawing Number 17 for the Solid Waste Expansion contained in the approved permit application.

4. Pursuant to 35 IAC 811.309(g), 722.111, and Part 721 Subpart C, leachate monitoring (i.e., sampling, measurements, and analysis) must be conducted in accordance with the Permit for this facility. The concentrations or values for the parameters contained in List L1 (below) must be determined on a semi-annual basis and the results must be submitted with the groundwater reports.

   Each year, the Permittee shall collect a representative leachate sample (LREP – composite of all active leachate) and have it tested for the parameters contained in List L2.

   Condition III.I.5. presents the sampling, testing, and reporting schedules in tabular form. Leachate monitoring at each monitoring point shall continue as long as groundwater monitoring at this landfill is necessary pursuant to 35 IAC 811.319(a)(1)(C).

LIST L1

Leachate Monitoring Parameters	STORET
pH (S.U.)	00400
Elevation Leachate Surface (ft. MSL)	71993
Bottom of Well Elevation (ft. MSL)	72020
Leachate Level from Measuring Point (ft.)	72109
Arsenic (total)	01002
Barium (total)	01007
Cadmium (total)	01027
Iron (total)	01045
Ammonia Nitrogen -- N (mg/L)	00610
Biochemical Oxygen Demand (BOD_5) (mg/L)	00310
1,1,1,2-Tetrachloroethane	77562
1,1,1-Trichloroethane	34506
1,1,2,2-Tetrachloroethane	34516
1,1,2-Trichloroethane	34511
1,1-Dichloroethane	34496
1,1-Dichloroethylene	34501
1,1-Dichloropropene	77168
1,2,3-Trichlorobenzene	77613
1,2,3-Trichloropropane	77443
1,2,4-Trichlorobenzene	34551
1,2,4-Trimethylbenzene	77222
1,2-Dibromo-3-Chloropropane	38760
1,2-Dichloroethane	34531
1,2-Dichloropropane	34541
1,3,5-Trimethylbenzene	77226
1,3-Dichloropropane	77173
1,3-Dichloropropene	34561
Trans-1,4-Dichloro-2-Butene	73547
1-Propanol	77018
2,2-Dichloropropane	77170
2,4,5-TP (Silvex)	39760
2,4-Dichlorophenol	34601
2,4-Dichlorophenoxyacetic Acid (2,4-D)	39730
2,4-Dimethylphenol	34606
2,4-Dinitrotoluene	34611
2,4-Dinitrophenol	34616
2,6-Dinitrotoluene	34626
2-Chloronaphthalene	34581

LIST L1 (Continued)

Leachate Monitoring Parameters	STORET
2-Chlorophenol	34586
2-Hexanone	77103
2-Propanol (Isopropyl Alcohol)	81310
3,3-Dichlorobenzidine	34631
4,4-DDD	39310
4,4-DDE	39320
4,6-Dinitro-O-Cresol	34657
4-Bromophenyl Phenyl Ether	34636
4-Chlorophenyl Phenyl Ether	34641
4-Methyl-2-Pentanone	78133
4-Nitrophenol	34646
Acenaphthene	34205
Acetone	81552
Alachlor	77825
Aldicarb	39053
Aldrin	39330
Aluminum	01105
Anthracene	34220
Antimony	01097
Atrazine	39033
Benzene	34030
Benzo (a) Anthracene	34526
Benzo (a) Pyrene	34247
Benzo (b) Fluoranthene	34230
Benzo (ghi) Perylene	34521
Benzo (k) Fluoranthene	34242
Beryllium (total)	01012
Beta – BHC	39338
Bicarbonate (mg/L as $CaCO_3$)	00425
Bis (2-Chloro-1-Methylethyl) Ether	73522
Bis (2-Chloroethoxy) Methane	34278
Bis (2-Chloroethyl) Ether	34273
Bis (2-Ethylhexyl) Phthalate	39100
Bis(Chloromethyl) Ether	34268
Boron	01022
Bromobenzene	81555
Bromochloromethane	77297
Bromodichloromethane	32101

LIST L1 (Continued)

Leachate Monitoring Parameters	STORET
Bromoform	32104
Bromomethane	34413
Butanol	77034
Calcium (mg/L)	00916
Carbofuran	81405
Carbon Disulfide	77041
Carbon Tetrachloride	32102
Chemical Oxygen Demand (COD) (mg/L)	00335
Chlordane	39350
Chloride (mg/L)	00940
Chlorobenzene	34301
Chloroethane	34311
Chloroform	32106
Chloromethane	34418
Chromium (total)	01034
Chrysene	34320
Cis-1,2-Dichloroethylene	77093
Cobalt (total)	01037
Copper (total)	01042
Cyanide (mg/L)	00720
DDT	39300
Delta – BHC	46323
Di-N-Butyl Phthalate	39110
Di-N-Octyl Phthalate	34596
Dibenzo (a,h) Anthracene	34556
Dibromochloromethane	32105
Dibromomethane	77596
Dichlorodifluoromethane	34668
Dichloromethane	34423
Dieldrin	39380
Diethyl Phthalate	34336
Dimethyl Phthalate	34341
Endosulfan I	34361
Endosulfan II	34356
Endosulfan Sulfate	34351
Endrin	39390
Endrin Aldehyde	34366
Ethylbenzene	78113

LIST L1 (Continued)

Leachate Monitoring Parameters	STORET
Ethylene Dibromide (EDB)	77651
Fluoranthene	34376
Flourene	34381
Fluoride (mg/L)	00951
Heptachlor Epoxide	39420
Heptachlor	39410
Hexachlorobenzene	39700
Hexachlorobutadiene	39702
Hexachlorocyclopentadiene	34386
Hexachloroethane	34396
Indeno (1,2,3-cd) Pyrene	34403
Iodomethane	77424
Isopropylbenzene	77223
Lead (total)	01051
Lindane	39782
Magnesium (total) (mg/L)	00927
Manganese (total)	01055
Mercury (total)	71900
Methoxychlor	39480
Methyl Ethyl Ketone	81595
Naphthalene	34696
Nickel (total)	01067
Nitrate-Nitrogen (mg/L)	00620
Nitrobenzene	34447
Oil. Hexane Soluble (or Equivalent) (mg/L)	00550
or	00552
Parathion	39540
Pentachlorophenol	39032
Phenanthrene	34461
Phenols	32730
Polychlorinated Biphenyls	39516
Potassium (mg/L)	00937
Pyrene	34469
Selenium	01147
Silver (total)	01077
Specific Conductance (umhos/cm)	00094
Sodium (mg/L)	00929
Styrene	77128

LIST L1 (Continued)

Leachate Monitoring Parameters	STORET
Sulfate (mg/L)	00945
Temperature of Leachate Sample (°F)	00011
Tert-Butylbenzene	77353
Tetrachloroethylene	34475
Tetrahydrofuran	81607
Thallium	01059
Toluene	34010
Total Organic Carbon (TOC) (mg/L)	00680
Total Dissolved Solids (TDS) (mg/L)	70300
Total Suspended Solids (TSS) (mg/L)	00530
Toxaphene	39400
Trans-1,2-Dichloroethylene	34546
Trans-1,3-Dichlorpropene	34699
Trichloroethylene	39180
Trichlorofluoromethane	34488
Vinyl Acetate	77057
Vinyl Chloride	39175
Xylene	81551
Zinc (total)	01092
m-Dichlorobenzene	34566
m+p-Xylene	61283
n-Butylbenzene	77342
n-Nitrosodimethylamine	34438
n-Nitrosodiphenylamine	34433
n-Nitrosodipropylamine	34428
n-Propylbenzene	77224
o-Chlorotoluene	38680
o-Dichlorobenzene	34536
o-Nitrophenol	34591
o-Xylene	77135
p-Chlorotoluene	77277
p-Cresol	77146
p-Dichlorobenzene	34571
p-Isopropyltoluene	77356
sec-Butylbenzene	77350

LIST L2

RCRA Parameters for Leachate and Condensate

RCRA PARAMETERS	STORET
Ignitability	
Flashpoint, Pensky-Martens Closed Cup (°F)	00497
Corrosivity	
pH (S.U.)	00400
Reactivity	
Reactive Cyanide	99040
Reactive Sulfide	99042

Toxicity	Total Concentration (ug/L)	TCLP Concentration (mg/L)
Arsenic	01002	99012
Barium	01007	99014
Cadmium	01027	99016
Chromium	01034	99018
Lead	01051	99020
Mercury	71900	99022
Selenium	01147	99024
Silver	01077	99026
Endrin	39390	99028
Lindane	39782	99030
Methoxychlor	39480	99032
Toxaphene	39400	99034
2,4-D	39730	99036
2,4,5-TP Silvex	39760	99038
Benzene	34030	99128
Carbon tetrachloride	32102	99050
Chlordane	39350	99148
Chlorobenzene	34301	99096
Chloroform	32106	99149
o-Cresol	77152	99150
m-Cresol	77151	99151
p-Cresol	77146	99152
Cresol	79778	99153
1,4-Dichlorobenzene	34571	99154
1,2-Dichloroethane	34531	99155

LIST L2 (Continued)

RCRA Parameters for Leachate and Condensate

Toxicity	Total Concentration (ug/L)	TCLP Concentration (mg/L)
1,1-Dichloroethylene	34501	99156
2,4-Dinitrotoluene	34611	99157
Heptachlor (and its epoxide)	39410 and 39420	99158
Hexachlorobenzene	39700	99159
Hexachloro-1,3-Butadiene	39702	99160
Hexachloroethane	34396	99161
Methyl Ethyl Ketone	81595	99060
Nitrobenzene	34447	99062
Pentachlorophenol	39032	99064
Pyridine	77045	99066
Tetrachloroethylene	34475	99068
Trichloroethylene	39180	99076
2,4,5-Trichlorophenol	77687	99078
2,4,6-Trichlorophenol	34621	99080
Vinyl Chloride	39175	99162

Notes for all leachate monitoring parameters:

a. Flashpoint shall be reported in degrees Fahrenheit. The parameters for reactivity shall be reported in parts per million.

b. The Permittee shall obtain metals and organics analysis. Either procedure may be utilized (i.e., total or TCLP), but any constituent whose total concentration exceeds the TCLP limit specified in 35 IAC 721.124 must be analyzed using the TCLP test and the results reported, unless an alternative test has been approved by the Illinois EPA. TCLP test methods must be in accordance with SW-846-1311.

c. The test methods for leachate monitoring shall be those approved in the USEPA's Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846), Third Edition or the equivalent thereof.

d. All parameters shall be determined from unfiltered samples.

e. The monitoring results should be reported in ug/L units unless otherwise indicated.

5. The schedule for leachate sample collection and submission of monitoring data is illustrated below:

Sampling Period	Sampling Points / Lists	Report Due Date
Oct-Nov 2022	L303, L304, L305, L315, L316/L1, LREP/L2	January 15, 2023
April-May 2023	L306, L307, L308, L309, L317/L1	July 15, 2023
Oct-Nov 2023	L310, L311, L312, L318 L319/L1, LREP/L2	January 15, 2024
April-May 2024	L313, L314, L301, L302/L1	July 15, 2024
Oct-Nov 2024	L303, L304, L305, L315 L316/L1, LREP/L2	January 15, 2025
April-May 2025	L306, L307, L308, L309 L317/L1	July 15, 2025

L1 - Leachate Monitoring Parameters
L2 - Annual RCRA Leachate Parameters
LREP – Reporting Label for Representative Leachate Sample (collected annually)

As new leachate monitoring points are placed into service, the Permittee shall propose revisions, to this schedule in the form of a permit application in accordance with Condition III.A.

6. The leachate monitoring data must be submitted in an electronic format. The information is to be submitted as fixed-width text files. Additional guidance for submittal of groundwater data in electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

7. Pursuant to 35 IAC 722.111 it is the responsibility of the operator to determine if leachate generated by the development and operation of this facility is a hazardous waste.

J. LANDFILL GAS MANAGEMENT/MONITORING

1. The landfill gas monitoring and management plan described in the approved permit application is approved. The gas probe installation schedule should be done in accordance with Table 10-13 that was revised on September 2014 (Log No. B-141R-M-94). In addition, the gas probes should be constructed in accordance with Drawing No. 24 of the February 2008 drawing application set.

2. The gas monitoring probes both inside and outside the waste boundary shall be monitored for the following parameters:

   a. Methane;

   b. Pressure;

   c. Nitrogen*;

   d. Oxygen; and

   e. Carbon Dioxide

   *NOTE: For routine monitoring, Nitrogen may be reported as the net remaining volume fraction after the other measured constituents have been accounted for.

3. The ambient air monitoring devices shall be used to test the air downwind of the landfill for methane.

4. All buildings within the facility boundaries shall be monitored continuously for methane.

5. Gas monitoring (ambient air monitoring, perimeter gas monitoring, and continuous air monitoring) shall begin 60 days after the acceptance of MSW or putrescible non-hazardous special waste, shall continue for at least 30 years after closure and may be discontinued only after the conditions described in 35 IAC 811.310(c)(4) have been achieved.

6. Sampling and testing of the gas monitoring probes and ambient air monitoring shall be performed at least monthly throughout the remaining operating life and during the first five years after its closure of the unit. Then during the remainder of the post-closure care period, this monitoring frequency may be reduced to quarterly.

7. In the event of any of the occurrences listed below, the operator shall, within two business days notify the Illinois EPA in writing of an observed exceedance, implement the requirements of 35 IAC 811.311 to ensure the protection of human health, and within 180 days of the occurrence, submit to the Illinois EPA a permit application in accordance with Condition III.A. either proposing a gas collection/management system or demonstrating that the facility is not the cause of the occurrence.

   a. A methane concentration greater than 50% of the lower explosive limit in air is detected in any of the below ground monitoring devices outside the waste boundary;

   b. A methane concentration greater than 50% of the lower explosive limit in air is detected during ambient air monitoring;

   c. A methane concentration greater than 25% of the lower explosive limit in air is detected in any building on or near the facility; or

   d. Malodors attributed to the unit are detected beyond the property boundary.

8. The gas probes shall be inspected at least monthly for structural integrity and proper operation.

9. The results from gas monitoring for each calendar year shall be submitted to the Illinois EPA in the annual report required by 35 IAC 813.504.

10. At the end of the post-closure care period, the gas monitoring probes shall be decommissioned. The probes outside the waste boundary shall be decommissioned using the method described in the Illinois EPA monitoring well plugging procedure guidance. In decommissioning the probes within the waste boundaries, the pipes shall be cut off at least two-feet below the low permeability layer and plugged. Then the low permeability layer, the protective layer, and the vegetation shall be restored in the excavated areas.

11. This Permit does not relieve the Permittee of the responsibility of complying with the provisions of the State of Illinois Rules and Regulations, 35 IAC Subtitle B, Air Pollution Control, Chapter 1. The Illinois EPA Bureau of Air Permit Section has indicated that the facility requires an Air Pollution Control Construction Permit, pursuant to 35 IAC 201.142. If you have any questions regarding these requirements, contact the Illinois EPA Bureau of Air Permit Section.

12. The proposal to conduct controlled burning of the landfill final cover system vegetation requires an open burn permit from the Illinois EPA Bureau of Air Permit Section.

K. CLOSURE/POST CLOSURE CARE AND FINANCIAL ASSURANCE

1. The facility shall be closed in accordance with the approved permit application. Upon completion of closure activities, the operator shall notify the Illinois EPA that the site has been closed in accordance with the approved closure plan.

2. Inspections of the closed landfill shall be conducted in accordance with the approved post-closure care plan. Records of field investigations, inspections, sampling, and corrective action taken are to be maintained at the site and made available to Illinois EPA personnel. During the post-closure care period, these records are to be maintained at the office of the site operator.

3. If necessary, the soil over the entire planting area shall be amended with lime, fertilizer, and/or organic matter. On side slopes, mulch or some other form of stabilizing material is to be provided to hold seed in place and conserve moisture.

4. The minimum post-closure care period for this MSW and non-hazardous and non-putrescible special waste landfill is 30 years. No later than 60 days after the post-closure care period has been completed, the operator shall notify the Illinois EPA, by registered mail, a certification that the post-closure care was performed in accordance with the specifications in the approved permit application. The certification must be signed by the Owner or Operator and a qualified Illinois licensed Professional Engineer. Documentation supporting the qualified Illinois licensed Professional Engineer's certification must be furnished to Illinois EPA Bureau of Land Permit Section upon request until Illinois EPA releases the Permittee from financial assurance requirements for post-closure care.

5. The operator shall provide financial assurance for closure and post-closure care pursuant to 35 IAC 811.700(b). However, financial assurance shall be required only for those areas for which authorization to operate has been obtained or is being requested.

6. The total cost estimate for closure and post-closure care for this facility is as indicated in Attachment D, Section II of this Permit. The owner or operator shall maintain financial assurance equal to or greater than the current cost estimate at all times in accordance with 35 IAC 811.701(a).

7. The operator shall increase the total amount of financial assurance so as to equal the current cost estimate within 90 days of an increase in the current cost estimate in accordance with 35 IAC 811.701(b).

8. The owner or operator shall adjust the cost estimates for closure, post-closure, and corrective action for inflation on an annual basis during the following time periods:

   a. The active life of the unit for the closure cost;

   b. The active life and post-closure care period for the post-closure cost; and

   c. Until any corrective action program is completed in accordance with 35 IAC 811.326, for the cost of corrective action. Each year, no later than June 1 of that year, the owner and operator shall submit a permit application in accordance with Condition III.A. This request shall provide an update to the cost estimate or a certification that there are no changes to the current cost estimates.

9. This Permit conceptually approves the use of controlled burning as an activity during the post-closure period to manage final cover system vegetation. Prior to the use of controlled burning management activities, the owner/operator shall submit a permit application in accordance with Condition III.A to the Illinois EPA. The request shall contain specific protocol to be followed for the preparation, operation, and completion of the controlled burning of the final cover system vegetation. The controlled burning of final cover system vegetation shall not be undertaken until approved by the Illinois EPA.

L. REPORTING REQUIREMENTS

1. The annual certification shall be submitted to the Illinois EPA during operation and for the entire post-closure monitoring period. The certification shall be signed by the operator or duly authorized agent, shall be filed each year by May 1 of the following year and shall state:

   a. All records required to be submitted to the Illinois EPA pursuant to 35 IAC 858.207 and 858.308, as applicable, have been timely and accurately submitted; and

   b. All applicable fees required by the Act have been paid in full.

2. The annual report for each calendar year shall be submitted to the Illinois EPA by May 1 of the following year pursuant to 35 IAC 813.504. The annual report shall include:

   a. Information relating to monitoring data from the leachate collection system, groundwater monitoring network, gas monitoring system, and any other monitoring data specified in this Permit, including:

      i. Summary of monitoring data for the calendar year;

      ii. Dates of submittal of comprehensive monitoring data to the Illinois EPA during the calendar year;

      iii. Statistical summaries and analysis of trends;

      iv. Changes to the monitoring program; and

      v. Discussion of error analysis, detection limits and observed trend.

   b. Proposed activities:

      i. Amount of waste expected in the next year;

      ii. Structures to be built within the next year; and

      iii. New monitoring stations to be installed within the next year.

   c. Any permit modifications affecting operation of the facility.

d. The signature of the operator or duly authorized agent as specified in 35 IAC 815.102.

3. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate, Facility and Gas Reporting Form" (LPC-592) as a cover sheet for any notices or reports required by Sections III and IV of this Permit for identification purposes. One copy of the LPC-592 form must accompany each report; however, except for electronically formatted data, the Permittee must submit one original and a minimum of two copies of each report you submit to the Illinois EPA. For permit applications, Form LPC-PA23 should be used instead of LPC-592.

4. All certifications, logs, reports, plan sheets, and groundwater and leachate monitoring data, required to be submitted to the Illinois EPA by the Permittee shall be mailed to the following address:

Illinois Environmental Protection Agency
Permit Section
Bureau of Land #33
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

Except for electronic groundwater and leachate monitoring data, the operator shall provide the Illinois EPA with the original and two (2) copies of all certifications, logs, reports, and plan sheets required by this Permit.

M. STANDARD CONDITIONS

1. The construction or development of facilities covered by this Permit shall be done in compliance with applicable provisions of Federal laws and regulations, the Act, and Rules and Regulations adopted by the Illinois Pollution Control Board.

2. There shall be no deviations from the approved plans and specifications unless a written request for modification of the project, along with plans and specifications as required, shall have been submitted to the Illinois EPA and a permit modification issued.

3. The Permittee shall allow any agent duly authorized by the Illinois EPA upon the presentation of credentials:

a. to enter at reasonable times the Permittee's premises where actual or potential effluent, emissions, or noise sources are located or where any activity is to be conducted pursuant to this Permit.

b. to have access to and copy at reasonable times any records required to be kept under the terms and conditions of this Permit.

c. to inspect at reasonable times, including during any hours of operation of equipment constructed or operated under this permit, such equipment or monitoring methodology or equipment required to be kept, used, operated, calibrated, and maintained under this Permit.

d. to obtain and remove at reasonable times samples of any discharge or emission of pollutants.

e. to enter reasonable times and utilize any photographic, recording, testing, monitoring, or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this Permit.

4. The issuance of this Permit:

a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located;

b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities;

c. does not release the Permittee from compliance with other applicable statutes and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances, and regulations;

d. does not take into consideration or attest to the structural stability of any units or parts of the project;

e. in no manner implies or suggests that the Illinois EPA (or its officers, agents, or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

5. These standard conditions shall prevail unless modified by special conditions.

6. The Illinois EPA may file a complaint with the Board for modification, suspension, or revocation of a permit:

   a. upon discovery that the permit application contained misrepresentations, misinformation, or false statements or that all relevant facts were not disclosed; or

   b. upon finding that any standard or special conditions have been violated; or

   c. upon any violation of the Act or any Rule or Regulation effective thereunder as a result of the construction or development authorized by this Permit.

Section IV: GROUNDWATER MONITORING FOR NON-HAZARDOUS WASTE LANDFILLS

1. The groundwater monitoring program must be capable of determining background groundwater quality hydraulically upgradient of and unaffected by the units and to detect, from all potential sources of discharge, any releases to groundwater within the facility. This Illinois EPA reserves the right to require installation of additional monitoring wells as may be necessary to satisfy the requirements of this Permit.

2. The groundwater monitoring wells shall be constructed and maintained in accordance with the requirements of 35 IAC 811.318(d) and designs approved by the Illinois EPA.

3. Groundwater monitoring wells shall be maintained in the locations shown in Attachment 2 of Log No. B-141R-M-155 and as modified by the final Expansion detection monitoring network in Figure 6-1 and Table 6-1 of the May 26, 2022, Addendum to Log No. B-141R-M-125. The anticipated installation and abandonment of wells associated with the planned phasing depicted in Figure 1-4 of Log No. B-141R-M-125 will occur as shown in Table 6-2 of the May 26, 2022, Addendum to Log No. B-141R-M-125.

4. Within 60 days of installation of any groundwater monitoring well, boring logs compiled by a qualified geologist, well development data, and as-built diagrams shall be submitted to the Illinois EPA utilizing the "Well Completion Report" form found in Attachment A to the Permit. For each well installed pursuant to this Permit, one form must be completed.

5. Groundwater monitoring wells shall be easily visible, labeled with their Illinois EPA monitoring point designations, and fitted with padlocked protective covers.

6. In the event that any well becomes consistently dry or unserviceable and therefore requires replacement, a replacement well shall be installed within 10-foot of the existing well. The Illinois EPA shall be notified in writing at least 15 days prior to the installation of all replacement wells. A well that is more than 10-foot from the existing well or which does not monitor the same geologic zone is considered to be a new well and must be approved via a permit application.

7. All borings, wells, and piezometers not used as monitoring points shall be abandoned in accordance with the standards in 35 IAC 811.316 and the decommissioning and reporting procedures contained in 77 IAC Part 920. In the event specific guidance is not provided by 77 IAC Part 920, the enclosed Illinois EPA monitoring well plugging procedures shall be followed.

8. Groundwater sampling and analysis shall be performed in accordance with the requirements of 35 IAC 811.318(e) and the specific procedures and methods approved by the Illinois EPA.

9. The following monitoring points are to be used in the groundwater detection monitoring program for this facility:

Upgradient Wells

Applicant Designation	Illinois EPA Designation
R122	+R1221
G52S	+G52S
G53S	+G53S1
R113	++R113
R111	++P111
R112	++P1121
R114	++P114
R149	+R149
G265	++G1B1
G266	++G1B2
G1B4	++G1B4

Upgradient Wells to be Installed in Accordance with the Monitoring Well Installation Schedule

Applicant Designation	Illinois EPA Designation
G280	G280

Zone of Attenuation Wells

Applicant Designation	Illinois EPA Designation
G117	P117
R173	R173
G228	G174
G229	G175
G230	G176
G240	G186
G241	G187
G242	G188
G243	G189
G244	G190
G245	G191
G247	G193
G248	G194
G249	G195
G250	G196
G251	G197
G252	G198
G253	G199
G254	G1A0
G255	G1A1
G256	G1A2
G257	G1A3
G1A4	G1A4
G259	G1A51
G1A6	G1A6
G1A7	G1A7
G1A8	G1A8
G1A9	G1A9
G1B0	G1B0

Zone of Attenuation Wells to be Installed in Accordance with the Monitoring Well Installation Schedule

Applicant Designation	Illinois EPA Designation
G256	G256
G257	G257
G258	G258
G259	G2811
G260	G260
G261	G261
G262	G262
G263	G263
G1A10	G282
G1A11	G283
G264	G264
G267	G267
G268	G268
G269	G269
G270	G270
G271	G271
G272	G272
G274	G274
G275	G275
G276	G276
G277	G277
G278	G278
G279	G279

Compliance Boundary Well(s)

Applicant Designation	Illinois EPA Designation
G246	G192

Compliance Boundary Well to be Installed in Accordance with the Monitoring Well Installation Schedule

Applicant Designation	Illinois EPA Designation
G273	G273

Notes:

+ – Represents a monitoring point upgradient of the original solid waste unit only.

++ – Represents a monitoring point upgradient of the entire solid waste unit

S – Wells ending in "S" represent monitoring points screened within the glacial till.

– Represents a monitoring point being DELETED from the monitoring program.

(1) – Represents a monitoring point to be sampled in the HWMU GMZ Boundary and Solid Waste Unit Detection Monitoring programs.

R – Wells beginning with "R" represent a replacement well

P – Wells beginning with "P" represent a piezometer used for monitoring water level elevations only.

% – Represents NEW monitoring point added to the program

Monitoring Well Installation and Abandonment Schedule

Landfill Phase[1]	Estimated Installation[2]	Wells to be Installed[2,3]	Wells to be Abandoned[3]	Installation / Abandonment Approval Log No.
11	2022	G256	----------	----------
12	2023	G257	----------	----------
13	2024	G258	----------	----------
14	2025	G281(G259), G260, G264,	G1A5(G259)	----------
15	2026	G261, G262, G263, G282(G1A10), G283(G1A11)	----------	----------
16	2027	----------	G186(G240), G289(G241)	----------
17	2028	G280, G277, G278, G279	----------	----------
18	2029	G267 G268	P117(G117), R173, G174(G228), G175(G229), G189(G243)	----------
19	2030	---	G176(G230), G188(G242)	----------
20	2031	----------	----------	----------
21	2032	G269, G270, G271, G272, G273, G274, G275, G276	----------	----------

Notes:

1 – Landfill phasing sequence shown on Figure 1-4: Expanded Solid Waste Unit Phasing of Log No. B-141R-M-125.

2 – In the event of any conflict between estimated landfill phase development and actual landfill phase development, wells will be installed a minimum of one-year prior to placement of waste in the phase.

3 – Well identifiers based on Illinois EPA IDs, facility IDs noted when ID differs.

10. The monitoring program, approved by Permit No. 1995-313-LFM, shall continue for a minimum period of 30 years after closure and shall not cease until the conditions described in 35 IAC 811.319(a)(1)(C) have been achieved. The operator shall collect samples from all of the monitoring points listed in Condition IV.9, test the samples for the parameters listed in Condition IV.12 (Lists G1 and G2), and report the results to the Illinois EPA, all in accordance with the schedule in Condition IV.17.

11. The applicable groundwater quality standards (AGQSs) and the maximum allowable predicted concentrations (MAPCs), as listed in Condition IV.12 below, are subject to the following conditions:

a. Temperature and the field parameters involving depth or elevation are not considered groundwater constituents and do not need AGQSs.

b. For constituents which have not been detected in the groundwater, the PQL shall be used as the AGQS.

c. MAPCs are only applicable to those wells within the zone of attenuation.

d. AGQSs are only applicable to upgradient/background and compliance boundary wells.

12. The AGQS values are calculated using four consecutive quarters of groundwater monitoring data and employing the statistical method described in Section 5.6 of Volume 1 to the application, Log No. 1995-313. The well specific AGQS/MAPC values documented in Tables 5-8(a), (b), and (c) of the additional information to Log No. 1996-254 and in Log Nos. B-141R-M-93, B-141R-M-118, B-141R-M-120, B-141R-M-138, B-141R-M-143, B-141R-M-148, B-141R-M-149, B-141R-M-151, B-141R-M-155, and the additional information to B-141R-M-155 are hereby incorporated into this Permit and included as Attachments 1 and 4 to Section IV.

LIST G (Groundwater)

GROUNDWATER MONITORING PARAMETER	STORET
Elevation of Bottom of Well (ft. MSL)	72020

(Annually without dedicated pumps; every five years with dedicated pumps or whenever the pump is pulled)

LIST G1 (Groundwater)

FIELD PARAMETERS	STORET
pH (S.U.)	00400
Specific Conductance (umhos/cm)	00094
Temperature of Water Sample (°F)	00011
Depth to Water (ft. below land surface)	72019
Depth to Water (ft. below measuring point)	72109
Elevation of Measuring Point (Top of Casing Ft-MSL)	72110
Elevation of Groundwater Surface (Ft-MSL)	71993
Turbidity (NTU)	00076
Oxidation Reduction Potential (millivolts)	00090

LIST G1 (Groundwater) (Continued)

INDICATOR PARAMETERS	STORET
Ammonia (as Nitrogen; Dissolved) mg/L	00608
Arsenic (Dissolved) ug/L	01000
Boron (Dissolved) ug/L	01020
Cadmium (Dissolved) ug/L	01025
Chloride (Dissolved) mg/L	00941
Chromium (Dissolved) ug/L	01030
Cyanide (Total) mg/L	00720
Lead (Dissolved) ug/L	01049
Magnesium (Dissolved) mg/L	00925
Mercury (Dissolved) ug/L	71890
Nitrate (as Nitrogen, Dissolved) mg/L	00618
Sulfate (Dissolved) mg/L	00946
Total Dissolved Solids (TDS, 180°C; Dissolved) mg/L	70300
Zinc (Dissolved) ug/L	01090

NOTE:

i. All parameters with the "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45-micron filter. All other parameters shall be determined from unfiltered samples.

ii. MAPCs and AGQSs are given in ug/L except as otherwise noted. Also, the monitoring results should be reported in ug/L units unless otherwise indicated.

iii. List G1 interwell AGQS background values and MAPC values are included in Attachments 1 and 2 of Section IV. Applicable intrawell background values are provided in Attachment 4 of Section IV.

LIST G2 (Groundwater)

PARAMETERS	STORET
Acetone	81552
Acrylonitrile	34215
Benzene	34030
Bromobenzene	81555
Bromochloromethane (chlorobromomethane)	77297
Bromodichloromethane	32101
Bromoform (Tribromomethane)	32104
n Butylbenzene	77342
sec Butylbenzene	77350
tert Butylbenzene	77353
Carbon Disulfide	77041
Carbon Tetrachloride	32102
Chlorobenzene	34301
Chloroethane (Ethyl Chloride)	34311
Chloroform (Trichloromethane)	32106
o Chlorotoluene	38680
p Chlorotoluene	77277
Dibromochloromethane	32105
1,2 Dibromo 3 Chloropropane	38760
1,2 Dibromoethane (Ethylene Dibromide)	77651
1,2-Dichlorobenzene (o-Dichlorobenzene)	34536
1,3-Dichlorobenzene (m-Dichlorobenzene)	34566
1,4-Dichlorobenzene (p-Dichlorobenzene)	34571
trans 1,4 Dichloro 2 Butene	73547
Dichlorodifluoromethane	34668
1,1 Dichloroethane	34496
1,2 Dichloroethane	34531
1,1 Dichloroethylene	34501
cis 1,2 Dichloroethylene	77093
trans 1,2 Dichloroethylene	34546
1,2 Dichloropropane	34541
1,3 Dichloropropane	77173
2,2 Dichloropropane	77170
1,1 Dichloropropene	77168
1,3 Dichloropropene	34561
cis 1,3 Dichloropropene	34704
trans 1,3 Dichloropropene	34699
Ethylbenzene	78113

LIST G2 (Groundwater) (Continued)

PARAMETERS	STORET
Hexachlorobutadiene	39702
2 Hexanone (Methyl Butyl Ketone)	77103
Isopropylbenzene	77223
p Isopropyltoluene	77356
Methyl Bromide (Bromomethane)	34413
Methyl Chloride (Chloromethane)	34418
Methylene Bromide (Dibromomethane)	77596
Dichloromethane	34423
Methyl Ethyl Ketone	81595
Methyl Iodide (Iodomethane)	77424
4 Methyl 2 Pentanone	78133
Naphthalene	34696
Oil (Hexane Soluble) (mg/L)	00552
n Propylbenzene	77224
Styrene	77128
1,1,1,2 Tetrachloroethane	77562
1,1,2,2 Tetrachloroethane	34516
Tetrachloroethylene	34475
Tetrahydrofuran	81607
Toluene	34010
Total Phenolics	32730
1,2,3 Trichlorobenzene	77613
1,2,4 Trichlorobenzene	34551
1,1,1-Trichloroethane	34506
1,1,2-Trichloroethane	34511
Trichloroethylene	39180
Trichlorofluoromethane	34488
1,2,3 Trichloropropane	77443
1,2,4 Trimethylbenzene	77222
1,3,5 Trimethylbenzene	77226
Vinyl Acetate	77057
Vinyl Chloride	39175
Xylenes	81551

NOTE:

i. All parameters with the "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45-micron filter. All other parameters shall be determined from unfiltered samples.

ii. MAPCs and AGQSs are given in ug/L except as otherwise noted. Also, the monitoring results should be reported in ug/L units unless otherwise indicated.

iii. List G2 interwell AGQS background values and MAPC values are included in Attachments 1 and 2 of Section IV.

13. Pursuant to 35 IAC, 811.319(a)(4)(A), any of the following events shall constitute an observed increase only if the concentrations of the constituents monitored can be measured at or above the PQL:

a. The concentration of any constituent in List G1 of Condition IV.12 shows a progressive increase over eight consecutive quarters.

b. The concentration of any constituent monitored in accordance with List G1 or List G2 of Condition IV.12 exceeds the MAPC at an established monitoring point within the zone of attenuation. MAPC values in Attachment 1 of Section IV are not applicable to parameters within the zone of attenuation wells having an established intrawell value.

c. The concentration of any organic constituent in List G2, monitored in accordance with Condition IV.12 exceeds the preceding measured concentration at any established monitoring point.

d. The concentration of any constituent monitored at or beyond the edge of the zone of attenuation (compliance boundary) exceeds its AGQS, or pursuant to 35 IAC 811.320(d) any constituent monitored at an upgradient well, exceeds its AGQS.

e. The concentration of any constituent monitored in accordance with List G1 or List G2 of Condition IV.12 exceeds the intrawell value at an established monitoring point. Intrawell values replace MAPC values.

The comparison of groundwater concentrations to values b, d, and e above to determine an observed increase will be based on exceedances of both interwell and intrawell AGQS values, if there is an intrawell value established for the parameter as listed in Attachment 4 of Section IV.

14. For each round of sampling described in Condition IV.10, the operator must determine if an observed increase has occurred within 90 days of the initial sampling date. If an observed increase is identified, the operator must also notify the Illinois EPA in writing and follow the confirmation procedures of 35 IAC 811.319(a)(4)(B). Furthermore, the operator must complete the confirmation procedures within 180 days of the initial sampling event.

15. Upon confirmation of a monitored increase and within 180 days of the initial sampling date, the operator shall submit a permit application to meet the requirements of 35 IAC 703.280 to demonstrate an alternate source per 35 IAC 811.319(a)(4)(B)(ii) or begin an assessment monitoring program in order to determine whether the solid waste disposal facility is the source of the contamination and to provide information needed to carry out a groundwater impact assessment in accordance with 35 IAC 811.319(b).

16. In the event that an alternative source demonstration is denied, pursuant to 35 IAC 813.105, the operator must commence sampling for the constituents listed in 35 IAC 811.319(b)(5), and submit an assessment monitoring plan as a permit application to meet the requirements of 35 IAC 703.280, both within 30 days after the dated notification of Illinois EPA denial. The operator must sample the well or wells that exhibited the confirmed increase.

17. The schedule for sample collection and submission of all groundwater monitoring results at wells P111, P112, P114, P117, R122, R113, R149, G52S, G53S, R173, G174, G175, G176, G186, G187, G188, G189, G190, G191, G192, G193, G194, G195, G196, G197, G198, and G1B4 in detection monitoring is as follows:

Sampling Quarter	Sampling Due	Report Due Date
April-May (Second)	Lists G, G1, and G2	July 15
Oct-Nov (Fourth)	Lists G1 and G2	January 15

Groundwater elevations are to be measured on a quarterly basis.

G - Well Depth
G1 - Routine Groundwater Parameters
G2 - Semi-annual Groundwater Parameters

All remaining wells must be sampled in accordance with the following schedule:

Sampling Quarter	Sampling Due	Report Due Date
Jan-Feb (First)	List G1	April 15
April-May (Second)	List G, G1, & G2	July 15
July-Aug (Third)	List G1	October 15
Oct-Nov (Fourth)	List G1 & G2	January 15

In the event a confirmed significant change in groundwater quality due to the facility has occurred at a well approved for semi-annual monitoring, groundwater monitoring at the affected monitoring well(s) will immediately return to the quarterly monitoring schedule for sampling collection and submission of all groundwater monitoring results as provided in the Condition IV.17 quarterly monitoring schedule, for all monitored constituents, until the Illinois EPA approves the return to semi-annual monitoring.

18. Elevation of stick-up is to be surveyed and reported to the Illinois EPA:

    a. When the well is installed (with the as-built diagrams),

    b. Every two years thereafter, or

    c. Whenever there is reason to believe that the elevation has changed.

19. Annually, the operator shall prepare an evaluation of the groundwater flow direction and the hydraulic gradients at the facility using the groundwater surface elevations (STORET 71993) determined for each monitoring event. This assessment shall be submitted with the monitoring results due on July 15.

20. All monitoring points shall be maintained in accordance with the approved permit application such that the required samples and measurements may be obtained.

21. Background concentrations which exhibit a statistically significant change shall be adjusted and updated in accordance with 35 IAC 811.320(d)(1) and submitted to the Illinois EPA as a modification request appropriate to meet the requirements of 35 IAC 703.280.

22. Issuance of this Permit does not constitute agreement or approval of all the input parameters and assumptions utilized in the contaminant transport model.

23. Information required by Conditions IV.10 and IV.17 must be submitted in an electronic format. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA website. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

ATTACHMENT 1

Laraway RDF
Illinois EPA Permit No. 1995-313-LFM
Revised: Log No. B-141R-M-155

Site No. 1970450002
Approved: Log No. 1996-254

Table 5-8a
MAPCs

Illinois EPA Well No.			R173	G174	G175	G176
Facility Well No.			R173	G228	G229	G230
Constituent	Units	STORET				
Distance from ZOA	Feet	-------	72	77	71	68
Ammonia (Dissolved)	mg/L	00608	0.3	0.3	0.2	0.2
Arsenic (Dissolved)	ug/L	01000	27.5	28.0	27.4	20.0
Boron (Dissolved)	ug/L	01020	567.8	578.6	565.7	559.2
Cadmium (Dissolved)	ug/L	01025	55.0	56.0	54.8	54.2
Chloride (Dissolved)	mg/L	00941	769.7	769.8	769.7	769.7
Chromium (Dissolved)	ug/L	01030	46.4	46.4	46.3	46.3
Cyanide (Total)	mg/L	00720	0.0550	0.0560	0.0548	0.0542
Iron (Dissolved)	ug/L	01046	7,277	7,415	7,249	7,166
Lead (Dissolved)	ug/L	01049	6.9	7.0	6.8	6.8
Magnesium (Dissolved)	mg/L	00925	255.6	263.5	254	249.3
Manganese (Dissolved)	ug/L	01056	217,350	221,466	216,527	214,057
Mercury (Dissolved)	ug/L	71890	2.7	2.8	2.7	2.7
Nitrate as N (Dissolved)	m/L	00618	7.4	7.8	7.4	7.1
Phenols	ug/L	32730	13.7	14.0	13.7	13.5
Sulfate (Dissolved)	mg/L	00946	1,475	1,513	1467	1,444
Total Dissolved Solids	mg/L	70300	4,011	4,113	3,990	3,928
Total Organic Carbon	mg/L	00680	16.8	17.1	16.7	16.5
Zinc (Dissolved)	ug/L	01090	68.7	70.0	68.5	67.7

Table 5-8b
Interim MAPCs

Illinois EPA Well No.			R173	G174	G175	G176
Facility Well No.			R173	G228	G229	G230
Constituent	Units	STORET				
Distance from ZOA	Feet	-------	72	77	71	68
Benzo (a) Pyrene	ug/L	34247	0.3	0.3	0.3	0.3
Dalapon	ug/L	38432	1.4	1.4	1.4	1.4
Dinoseb	ug/L	81287	1.4	1.4	1.4	1.4
Endothall	ug/L	38926	132.5	140.1	137.0	135.4
Hexachlorocyclopentadiene	ug/L	34386	68.7	70.0	68.5	67.7
Picloram	ug/L	39720	1.4	1.4	1.4	1.4
Simazine	ug/L	39055	5.5	5.6	5.5	5.4

MAPC = Slope * Derived Source Concentration * Distance From ZOA + AGQS

Table 5-8c
MAPCs

Illinois EPA Well No.			G186	G187	G188	G189
Facility Well No.			G244	G241	G242	G243
Constituent	Units	STORET				
Distance from ZOA	Feet	--------	20	35	80	35
Ammonia (as N; Dissolved)	mg/L	00608	2.04	2.07	2.16	2.07
Arsenic (Dissolved)	ug/L	01000	24	27	36	27
Boron (Dissolved)	ug/L	01020	496	558	744	558
Cadmium (Dissolved)	ug/L	01025	41	42	44	42
Chloride (Dissolved)	mg/L	00941	768.8	769.0	769.9	769.0
Chromium (Dissolved)	ug/L	01030	46.3	46.3	46.4	46.3
Cyanide (Total)	mg/L	00720	0.048	0.054	0.072	0.054
Lead (Dissolved)	ug/L	01049	6	7	9	7
Magnesium (Dissolved)	mg/L	00925	173.4	197.1	268.2	197.1
Mercury (Dissolved)	ug/L	71890	2	3	4	3
Nitrate as N (Dissolved)	mg/L	00618	3.7	4.7	8.0	4.7
Sulfate (Dissolved)	mg/L	00946	1,073	1,189	1,537	1,189
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	2,943	3,251	4,175	3,251
Zinc (Dissolved)	ug/L	01090	60	68	90	68

Illinois EPA Well No.			G190	G191	G193	G194
Facility Well No.			G244	G245	G247	G248
Constituent	Units	STORET				
Distance from ZOA	Feet	--------	62	58	52	58
Ammonia(as N; Dissolved)	mg/L	00608	2.13	2.12	2.11	2.12
Arsenic (Dissolved)	ug/L	01000	32	32	30	32
Boron (Dissolved)	ug/L	01020	670	653	628	653
Cadmium (Dissolved)	ug/L	01025	43	43	43	43
Chloride (Dissolved)	mg/L	00941	769.5	769.5	769.4	769.5
Chromium (Dissolved)	ug/L	01030	46.3	46.3	46.3	46.3
Cyanide (Total)	mg/L	00720	0.065	0.063	0.061	0.063
Lead (Dissolved)	ug/L	01049	8	8	8	8
Magnesium (Dissolved)	mg/L	00925	239.8	233.5	224.0	233.5
Mercury (Dissolved)	ug/L	71890	3	3	3	3
Nitrate as N (Dissolved)	mg/L	00618	6.7	6.4	6.0	6.4
Sulfate (Dissolved)	mg/L	00946	1,398	1,367	1,320	1,367
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	3,805	3,723	3,600	3,723
Zinc (Dissolved)	ug/L	01090	81	79	76	79

MAPC = Slope * Derived Source Concentration * Distance From ZOA + AGQS

Table 5-8c (Continued)

			MAPCs			
Illinois EPA Well No.			**G195**	**G196**	**G197**	**G198**
Facility Well No.			**G249**	**G250**	**G251**	**G252**
Constituent	Units	**STORET**				
Distance from ZOA	Feet	--------	50	60	41	5
Ammonia (as N; Dissolved)	mg/L	00608	2.100	2.120	2.083	2.010
Arsenic (Dissolved)	ug/L	01000	30	32	28	21
Boron (Dissolved)	ug/L	01020	620	661	583	434
Cadmium (Dissolved)	ug/L	01025	43	43	42	40
Chloride (Dissolved)	mg/L	00941	769.3	769.5	769.2	768.5
Chromium (Dissolved)	ug/L	01030	46.3	46.3	46.3	46.3
Cyanide (Total)	mg/L	00720	0.060	0.064	0.056	0.042
Lead (Dissolved)	ug/L	01049	8	8	7	5
Magnesium (Dissolved)	mg/L	00925	220.8	236.6	206.6	149.7
Mercury (Dissolved)	ug/L	71890	3	3	3	2
Nitrate as N (Dissolved)	mg/L	00618	5.8	6.6	5.2	2.6
Sulfate (Dissolved)	mg/L	00946	1,305	1,382	1,236	958
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	3,559	3,764	3,374	2,636
Zinc (Dissolved)	ug/L	01090	75	80	71	53

Illinois EPA Well No.			**G199**	**G1A0**	**G1A1**	**G1A2**
Facility Well No.			**G253**	**G254**	**G255**	**G256**
Constituent	Units	**STORET**				
Distance from ZOA	Feet	--------	55	63	39	5
Ammonia (as N; Dissolved)	mg/L	00608	2.1	2.1	2.1	2.0
Arsenic (Dissolved)	ug/L	01000	31	33	28	21
Boron (Dissolved)	ug/L	01020	641	674	574	434
Cadmium (Dissolved)	ug/L	01025	43	43	42	40
Chloride (Dissolved)	mg/L	00941	769.4	769.6	769.1	768.5
Chromium (Dissolved)	ug/L	01030	46.3	90.4	46.3	46.3
Cyanide (Total)	mg/L	00720	0.06	0.07	0.06	0.04
Lead (Dissolved)	ug/L	01049	8	8	7	5
Magnesium (Dissolved)	mg/L	00925	228.7	241.4	203.4	149.7
Mercury (Dissolved)	ug/L	71890	3	3	3	2
Nitrate as N (Dissolved)	mg/L	00618	6.2	6.8	5.0	2.6
Sulfate (Dissolved)	mg/L	00946	1,344	1,405	1,220	958
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	3,662	3,826	3,333	2,636
Zinc (Dissolved)	ug/L	01090	78	82	70	53

MAPC = Slope * Derived Source Concentration * Distance From ZOA + AGQS

Table 5-8c (Continued)

			MAPCs			
Illinois EPA Well No.			**G1A3**	**G1A4**	**G1A5**	**G1A6**
Facility Well No.			**G257**	**G1A4**	**G259**	**G1A6**
Constituent	Units	**STORET**				
Distance from ZOA	Feet	-------	22	16.11	30.36	51.15
Ammonia (as N; Dissolved)	mg/L	00608	2.0	2.0	2.1	2.1
Arsenic (Dissolved)	ug/L	01000	24	23	26	30
Boron (Dissolved)	ug/L	01020	504	480	539	625
Cadmium (Dissolved)	ug/L	01025	41	41	42	43
Chloride (Dissolved)	mg/L	00941	768.8	768.7	769.0	769.3
Chromium (Dissolved)	ug/L	01030	46.3	58	68	82
Cyanide (Total)	mg/L	00720	0.05	0.05	0.05	0.06
Lead (Dissolved)	ug/L	01049	6	6	7	8
Magnesium (Dissolved)	mg/L	00925	176.6	167.3	189.8	222.6
Mercury (Dissolved)	ug/L	71890	2	2	3	3
Nitrate as N (Dissolved)	mg/L	00618	3.8	3.4	4.4	5.9
Sulfate (Dissolved)	mg/L	00946	1,089	1,043	1,153	1,314
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	2,984	2,864	3,156	3,583
Zinc (Dissolved)	ug/L	01090	61	58	65	76

Illinois EPA Well No.			**G1A7**	**G1A8**	**G1A9**	**G1B0**
Facility Well No.			**G1A7**	**G1A8**	**G1A9**	**G1B0**
Constituent	Units	**STORET**				
Distance from ZOA	Feet	--------	63.09	49.23	49.98	54.61
Ammonia (as N; Dissolved)	mg/L	00608	2.1	2.1	2.1	2.1
Arsenic (Dissolved)	ug/L	01000	33	30	30	31
Boron (Dissolved)	ug/L	01020	674	617	620	639
Cadmium (Dissolved)	ug/L	01025	43	42	43	43
Chloride (Dissolved)	mg/L	00941	769.6	769.3	769.3	769.4
Chromium (Dissolved)	ug/L	01030	90	81	81	84
Cyanide (Total)	mg/L	00720	0.07	0.06	0.06	0.06
Lead (Dissolved)	ug/L	01049	8	7	8	8
Magnesium (Dissolved)	mg/L	00925	241.5	219.6	220.8	228.1
Mercury (Dissolved)	ug/L	71890	3	3	3	3
Nitrate as N (Dissolved)	mg/L	00618	6.8	5.8	5.8	6.2
Sulfate (Dissolved)	mg/L	00946	1,406	1,299	1,305	1,341
Total Dissolved Solids (TDS; 180°C; Dissolved)	mg/L	70300	3,828	3,543	3,559	3,654
Zinc (Dissolved)	ug/L	01090	82	75	75	77

MAPC = Slope * Derived Source Concentration * Distance From ZOA + AGQS

ATTACHMENT 2
Background Values

Laraway RDF
Illinois EPA Permit No. 1995-313-LFM

Site No. 1970450002
Approved: Log No. 2007-506

FIELD PARAMETERS	Units	STORET	MAPC	AGQS
pH	(S.U.)	00400	5 – 8	5 – 8
Specific Conductance	(µmhos/cm)	00094		
INDICATOR PARAMETERS		**STORETS**	**MAPC**	**AGQS**
Ammonia (as Nitrogen; Dissolved)	mg/L	00608		2.0
Arsenic (Dissolved)	ug/L	01000		20
Boron (Dissolved)	ug/L	01020		413
Cadmium (Dissolved)	ug/L	01025		40
Chloride (Dissolved)	mg/L	00941		768.4
Chromium (Dissolved)	ug/L	01030		46.3
Cyanide (Total)	mg/L	00720		0.04
Iron (Dissolved)	ug/L	01046		5,290
Lead (Dissolved)	ug/L	01049		5
Magnesium (Dissolved)	mg/L	00925		141.8
Manganese (Dissolved)	ug/L	01056		158,080
Mercury (Dissolved)	ug/L	71890		2
Nitrate as N (Dissolved)	mg/L	00618		2.2
Phenols (Total Recoverable)	ug/L	32730		10
Sulfate (Dissolved)	mg/L	00946		919
Total Dissolved Solids (TDS, 180°C; Dissolved)	mg/L	70300		2,533
Total Organic Carbon (TOC; Total)	mg/L	00680		12.21
Zinc (Dissolved)	ug/L	01090		50

UNFILTERED PARAMETERS (totals)	Units	STORET	MAPC	AGQS
Acetone	ug/L	81552	100	100
Acrylonitrile	ug/L	34215	5	5
Alachlor	ug/L	77825	1	1
Aldicarb	ug/L	39053	1.5	1.5
Aldrin	ug/L	39330	0.1	0.1
Aluminum	ug/L	01105	200	200
Ammonia (as N)	mg/L	00610	2	2
Antimony	ug/L	01097	6	6
Arsenic	ug/L	01002	20	20
Atrazine	ug/L	39033	1.5	1.5
Barium	ug/L	01007	110	110
Benzene	ug/L	34030	5	5
Benzo(a)Pyrene	ug/L	34247		0.20
Beryllium	ug/L	01012	4	4
Bis(2-Ethylhexyl)Phthalate	ug/L	39100	50	50
BOD	mg/L	00310	8	8
Boron	ug/L	01022	410	410
Bromobenzene	ug/L	81555	10	10
Bromochloromethane (chlorobromomethane)	ug/L	77297	10	10
Bromodichloromethane	ug/L	32101	5	5
Bromoform (Tribromomethane)	ug/L	32104	5	5
Bromomethane (Methyl Bromide)	ug/L	34413	10	10
n-Butylbenzene	ug/L	77342	10	10
sec-Butylbenzene	ug/L	77350	10	10
tert-Butylbenzene	ug/L	77353	10	10
Cadmium	ug/L	01027	5	5
Calcium	mg/L	00916	288.37	288.37
Carbofuran	ug/L	81405	20	20
Carbon Disulfide	ug/L	77041	5	5
Carbon Tetrachloride	ug/L	32102	5	5
Chemical Oxygen Demand (COD)	mg/L	00335	90.18	90.18
Chlordane	ug/L	39350	1	1
Chloride	mg/L	00940	184.18	184.18
Chlorobenzene	ug/L	34301	5	5

(Continued)

UNFILTERED PARAMETERS (totals)	Units	STORET	MAPC	AGQS
Chloroethane (Ethyl Chloride)	ug/L	34311	10	10
Chloroform (Trichloromethane)	ug/L	32106	5	5
Chloromethane (Methyl Chloride)	ug/L	34418	10	10
o-Chlorotoluene	ug/L	38680	10	10
p-Chlorotoluene	ug/L	77277	10	10
Chromium	ug/L	01034	70	70
Chlorodibromomethane (Dibromochloromethane)	ug/L	32105	5	5
Cobalt	ug/L	01037	70	70
Copper	ug/L	01042	20	20
p-Cresol	ug/L	77146	10	10
Cyanide	mg/L	00720	0.04	0.04
Dalapon	ug/L	38432		1
DDT	ug/L	39300	0.1	0.1
Dibromomethane (Methylene Bromide)	ug/L	77596	10	10
m-Dichlorobenzene (1,3 Dichlorobenzene)	ug/L	34566	10	10
o-Dichlorobenzene (1,2 Dichlorobenzene)	ug/L	34536	10	10
p-Dichlorobenzene (1,4 Dichlorobenzene)	ug/L	34571	10	10
Dichlorodifluoromethane	ug/L	34668	10	10
Dichloromethane (Methylene Chloride)	ug/L	34423	5	5
Dieldrin	ug/L	39380	10	10
Dinoseb (DNBP)	ug/L	81287		1
Endothall	ug/L	38926		100
Endrin	ug/L	39390	1	1
Ethylbenzene	ug/L	78113	5	5
Ethylene Dibromide (EDB) (1,2-Dibromo ethane)	ug/L	77651	10	10
Fluoride	mg/L	00951	0.45	0.45
Heptachlor	ug/L	39410	0.2	0.2

(Continued)

UNFILTERED PARAMETERS (totals)	Units	STORET	MAPC	AGQS
Heptachlor Epoxide	ug/L	39420	0.1	0.1
Hexachlorobutadiene	ug/L	39702	10	10
Hexachlorcyclopentadiene	ug/L	34386		50
Iron	ug/L	01045	5,290	5,290
Iodomethane (Methyl Iodide)	ug/L	77424	1	1
Isopropylbenzene	ug/L	77223	10	10
p-Isopropyltoluene	ug/L	77356	10	10
Lead	ug/L	01051	5	5
Lindane	ug/L	39782	0.1	0.1
Magnesium	mg/L	00927	158.08	158.08
Manganese	ug/L	01055	120	120
Mercury	ug/L	71900	2	2
Methoxyclor	ug/L	39480	10	10
Naphthalene	ug/L	34696	200	200
Nickel	ug/L	01067	40	40
Nitrate-Nitrogen	mg/L	00620	7.27	7.27
Oil Hexane Soluble or Equivalent	mg/L	00552	6,000	6,000
Parathion	ug/L	39540	10	10
Pentachlorophenol	ug/L	39032	50	50
Phenols	ug/L	32730	10	10
Picloram	ug/L	39720		1
Polychlorinated Biphenyls	ug/L	39516	1	1
Potassium	mg/L	00937	5	5
n-Propylbenzene	ug/L	77224	10	10
Selenium	ug/L	01147	20	20
Silver	ug/L	01077	25	25
Simazine	ug/L	39055		4
Sodium	mg/L	00929	343.59	343.59
Styrene	ug/L	77128	5	5
Sulfate	mg/L	00945	771.01	771.01
TOC	mg/L	00680	12.21	12.21
Tetrachloroethylene (Perchloroethylene)	ug/L	34475	2.5	2.5
Tetrahydrofuran	ug/L	81607	40	40
Thallium	ug/L	01059	2	2
Toluene	ug/L	34010	5	5

(Continued)

UNFILTERED PARAMETERS (totals)	Units	STORET	MAPC	AGQS
Toxaphene	ug/L	39400	2	2
Trichloroethylene (Trichloroethene)	ug/L	39180	2.5	2.5
Trichlorofluoromethane	ug/L	34488	10	10
Vanadium	ug/L	01087	80	80
Vinyl Acetate	ug/L	77057	5	5
Vinyl Chloride	ug/L	39175	2	2
Xylenes	ug/L	81551	10	10
m-p Xylene	ug/L	61283	10	10
o-Xylene	ug/L	77135	10	10
Zinc	ug/L	01092	50	50
1,1,1,2-Tetrachloroethane	ug/L	77562	5	5
1,1,1-Trichloroethane (Methylchloroform)	ug/L	34506	5	5
1,1,2,2-Tetrachloroethane	ug/L	34516	5	5
1,1,2-Trichloroethane	ug/L	34511	5	5
1,1-Dichloroethane	ug/L	34496	5	5
1,1-Dichloroethylene	ug/L	34501	5	5
1,1-Dichloropropene	ug/L	77168	10	10
1,2,3-Trichlorobenzene	ug/L	77613	10	10
1,2,3-Trichloropropane	ug/L	77443	10	10
1,2,4-Trichlorobenzene	ug/L	34551	10	10
1,2,4-Trimethylbenzene	ug/L	77222	10	10
1,2-Dibromo-3-Chloropropane (DBCP)	ug/L	38760	10	10
Trans-1,4-Dichloro-2-Butene	ug/L	73547	5	5
cis-1,2-Dichloroethylene	ug/L	77093	10	10
trans-1,2-Dichloroethylene	ug/L	34546	10	10
1,2-Dichloroethane	ug/L	34531	5	5
1,2-Dichloropropane (Propylene Dichloride)	ug/L	34541	5	5
1,3,5-Trimethylbenzene	ug/L	77226	10	10
1,3-Dichloropropane	ug/L	77173	10	10
1,3-Dichloropropene	ug/L	34561	5	5
cis-1,3-Dichloropropene	ug/L	34704	1	1
trans-1,3-Dichloropropene	ug/L	34699	1	1
2,2-Dichloropropane	ug/L	77170	10	10

(Continued)

UNFILTERED PARAMETERS (totals)	Units	STORET	MAPC	AGQS
2,4,5-TP (Silvex)	ug/L	39760	2	2
2,4-Dichlorophenoxyacetic Acid (2,4-D)	ug/L	39730	10	10
2-Butanone (Methyl Ethyl Ketone)	ug/L	81595	100	100
2-Hexanone (Methyl Butyl Ketone)	ug/L	77103	50	50
2-Propanol	ug/L	81310	1,000	1,000
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	78133	50	50
1-Propanol	ug/L	77018	1,000	1,000

ATTACHMENT 3

40 CFR 258 Appendix II and 35 IAC 620.410 reduced list for Assessment Monitoring.

Laraway RDF
IEPA Permit No. 1995-313-LFM

Site No. 1970450002
Approved: Log No. 2007-410, B-141R, and B-141R-M-121

1,1-Dichloroethane
1,1-Dichloroethene
1,2-Dichloroethane
1,2-Dichloroethene
1,2-Dichloropropane
2,4,5-TP(Silvex)
2,4-D
2,4-Dichlorophenol
2,4-Dimethylphenol
2,4-Dinitrophenol
2,4-Dinitrotoluene
2,6-Dinitrotoluene
2-Chloronaphthalene
2-Chlorophenol
2-Hexanone
2-Methylphenol
3,3'-Dichlorobenzidine
3-Methylphenol(m-cresol)
4,4'-DDD
4,4'-DDE
4,4'-DDT
4,6-Dinitro-2-Methylphenol
4-Bromophenyl phenyl ether
4-Chlorophenyl phenyl ether
4-Methylphenol(p-cresol)
4-Nitrophenol
Acenaphthene
Acetone
Aldrin
Anthracene
Atrazine
Benzene
Benzo[a]anthracene
Benzo[b]fluoranthene
Benzo[g,h,i]perylene
o-Xylene
Beryllium
Bea-BHC
bis(2-Chloroethoxy)methane
BIS(2-CHLOROISOPROPYL)ETHER
Bis(2-ethylhexyl)phthalate
Bromomethane
Carbon Disulfide
Chlorobenzene
Chloroethane
Chloromethane
Chrysene
cresols (mixed isomers)
Delta-BHC
Dibenz(a,h)anthracene
Cis-1,2-Dichloroethene
Dibutylphthalate
Dieldrin
Diethyl phthalate
Dimethylphthalate
Di-n-octyl phthalate
Endosulfan I
Endrin
Ethyl Benzene
Fluoranthene
Fluorene
gamma-BHC (Lindane)
Heptachlor
Heptachlor Epoxide
Hexachlorobenzene
Indeno(1,2,3-cd)pyrene
Iodomethane
Lasso
m,p-Xylenes
Methyl Ethyl Ketone
Methylene Chloride
Methyl Tertiary-Butyl Ether (MTBE)
Naphthalene
Nitrobenzene
N-Nitrosodimethylamine
N-Nitrosodiphenylamine
Pentachlorophenol
Phenanthrene
Pyrene
Toluene
Trichloroethylene
Vinyl Chloride
Xylenes(Total)
Antimony
Arsenic
Barium
Boron
Cadmium
Chloride
Chromium
Cobalt
Copper
Cyanide
Fluoride
Iron
Lead
Manganese
Mercury
Nitrate as N
Nickel
pH
Phenols
Selenium
Silver
Sulfate
Thallium
Total Dissolved Solids
Tritium
Vanadium
Zinc

ATTACHMENT 4: Intrawell Background Values

Laraway RDF Site No. 1970450002
Illinois EPA Permit No. 1995-313-LFM

Constituent	Units	STORET	R173 (R173)	G174 (G228)	G175 (G229)	G176 (G230)
Total Calcium	mg/L	00916	--	382.43	--	1,121.23
Dissolved Magnesium	mg/L	00925	159.84	1,176	743	715.24
Total Magnesium	mg/L	00927	--	431.03	317.92	--
Dissolved Sulfate	mg/L	00946	--	4,745	3,772	4,603.76
Total Sulfate	mg/L	00945	--	1,881.67	2,876.2	4,843.42
Total Dissolved Solids	mg/L	70300	--	8,777	5,200	8,130.70

Constituent	Units	STORET	G177 (G231)	G186 (G240)	G187 (G241)	G188 (G242)
Total Calcium	mg/L	00916	--	--	--	--
Dissolved Magnesium	mg/L	00925	--	300	213	311
Total Magnesium	mg/L	00927	173.45	--	--	--
Dissolved Sulfate	mg/L	00946	--	2,254	1,290	1,764
Total Sulfate	mg/L	00945	--	--	--	--
Total Dissolved Solids	mg/L	70300	--	3,621	2,570	4,983.6

Constituent	Units	STORET	G189 (G243)	G190 (G244)	G191 (G245)	G192 (G246)
Total Calcium	mg/L	00916	--	--	--	--
Dissolved Magnesium	mg/L	00925	199	274.68	547.11	722.73
Total Magnesium	mg/L	00927	--	--	--	--
Dissolved Sulfate	mg/L	00946	--	1,141.15	2,764.71	3,969.51
Total Sulfate	mg/L	00945	--	--	--	--
Total Dissolved Solids	mg/L	70300	--	2,115.63	4,123.66	4,863.52

Constituent	Units	STORET	G193 (G247)	G194 (G248)	G195 (G249)	G196 (G250)
Total Calcium	mg/L	00916	--	--	--	--
Dissolved Magnesium	mg/L	00925	211.77	161.16	108.20	123.40
Total Magnesium	mg/L	00927	--	--	--	--
Dissolved Sulfate	mg/L	00946	912.55	836.72 7	05.45	647.99
Total Sulfate	mg/L	00945	--	--	--	--
Total Dissolved Solids	mg/L	70300	1,972.65	1,261.11	1,060.61	976.40

Section V: CORRECTIVE ACTION FOR SWMUs

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 constituents, listed in 35 IAC Part 721 Appendix H, from any SWMU at its facility near Joliet, Illinois.

2. This facility was initially issued a RCRA Permit by USEPA and Illinois EPA which became effective November 3, 1989. The USEPA portion of the Permit (also known as "HSWA Permit"), contained, among other things, corrective action requirements for two SWMUs (Ponds 1 through 4 and the Land Treatment Unit).

3. An RFI has been completed for the two SWMUs identified in the original Permit, with a third SWMU, known as the "Inactive Landfill Area". USEPA determined that, based on the results of the RFI, no corrective action was necessary at these three SWMUs. This determination was documented in a March 4, 1993, permit modification.

4. The Permittee has conducted investigative efforts at two other areas within the facility in response to contamination encountered during post-closure activities near the former hazardous waste landfill. These areas are: (1) SWMU 1 (or South SWMU); and (2) SWMU 2 (or North SWMU). Further investigation/remediation of these units is to be carried out in accordance with the provisions of this section of this Permit.

   a. The South SWMU is located near Wells R-144 and G-160. It is an area suspected to be contaminated by spills associated with drum handling activities in the 1970s.

   b. The North SWMU is suspected to be the former location of an underground oil storage tank.

5. Illinois EPA now has authority for imposing corrective action requirements at RCRA permitted facilities and thus will now be responsible for overseeing future corrective action activities at this facility as part of the requirements in this modified RCRA Permit.

6. The Laraway facility includes two piles (or stacks) of phosphogypsum material (referred to the North Stack and South Stack) and related surface water management system. This phosphogypsum material is a by-product of the production of phosphoric acid carried out at the former Olin facility located northeast of these piles. This section of the Permit set forth requirements which the Permittee must carry out to complete corrective action of the North Stack and South Stack and their associated surface water management systems.

7. The Olin ponds were purchased by Waste Management on August 8, 2020, per the quit claim deed, which resulted in an additional three SWMUs which requires the RCRA corrective action at the facility. The facility intends to develop this area as part of the proposed MSWLF as described in Section III of the Permit. The facility must conduct and complete corrective action prior to development of this area.

8. 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.

   a. A completed Illinois EPA RCRA Corrective Action Certification form (available on Illinois EPA's website) must accompany all corrective action-related information submitted to Illinois EPA.

   b. To allow for proper review of all corrective action-related information submitted to Illinois EPA, one original and two copies of the information must be submitted.

9. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs present at the facility.

10. The requirements of 35 IAC Part 742 must be met in determining remediation objectives for all corrective action activities.

B. OVERVIEW OF SWMUs ADDRESSED UNDER THE ORIGINAL RCRA PERMIT

A total of five SWMUs have been addressed during the RCRA corrective action activities under the original RCRA Permit issued for the Laraway facility: A brief description of each of these SWMUs follows:

1. Land Treatment Unit The land treatment unit (also known as the land farming area) was located on approximately 25-acres in the eastern portion of the site. The land farming operation consisted of applying sludgy, oily waste materials to the land surface followed by shallow disking of the waste-treated soil. The nature of land farming confines the operation to the top several inches of soil. No special construction or engineering was performed to create the landform, however, a permit application indicated that short berms were constructed around the application area to prevent runoff during application. Land farming was limited to the warmer summer months and occurred from 1974 through May 1979. This unit was investigated under the oversight of USEPA in accordance with the corrective action requirements of the facility's original RCRA Permit. Based on the results of this investigation, USEPA determined no further corrective action was necessary at this unit in a March 4, 1993, permit modification.

2. Ponds 1 Through 4 Ponds 1 through 4, built between 1973 and 1978, were constructed using clay from the site. The center portion of each pond was excavated. The excavated soils were placed around the periphery of each pond and compacted. It was in this manner that the walls of the ponds were formed. The ponds were approximately 10 feet to 12 feet deep. The approximate measurements of the ponds are as follows:

Pond -- 270 feet x 70 feet	Pond -- 260 feet x 80 feet
Pond -- 260 feet x 80 feet	Pond -- 280 feet x 80 feet

Use of the ponds generally coincided with land farming activities. When weather conditions for land farming were unsuitable, the ponds were used to store waste. Waste materials were accepted into the ponds year-round.

These ponds were investigated under the oversight of USEPA in accordance with the corrective action requirements of the facility's original RCRA Permit. Based on the results of this investigation, USEPA determined no further corrective action was necessary at these ponds in a March 4, 1993, permit modification.

3. Inactive Landfill Approximately 27,000 cubic yards of refuse were removed from the trench from February 12 to March 3, 1991. The material which was classified as non-hazardous was placed in Area 1 of the landfill unit on site. Potentially hazardous material such as drums, were removed, placed in overpacks, staged, and sampled.

   Following excavation of the refuse trench, a grid was established over the footprint of the refuse trench. The excavation was divided into four quadrants. Soil samples were acquired from the center of each quadrant as well as the center of the excavation. These five samples were identified as RFTR-1 through RFTR-5. Three groundwater monitoring wells (G-224, G225, and G226) were also installed as part of the RFI activities in July of 1990. This unit was investigated under the oversight of USEPA in accordance with the corrective action requirements of the facility's original RCRA Permit. Based on the results of this investigation, USEPA determined no further corrective action was necessary at this unit in a March 4, 1993, permit modification.

4. SWMU No. 1 - (also known as South SWM) - The contaminated soil present at this unit is suspected to have resulted from spills associated with the handling of drums handling procedures during the operation of Trenches 7, 8, and 9 within Area 1 of the RCRA landfill unit. This contamination is near well R-144 and was discovered during the installation of Well G-160. The facility has completed the investigation of the South SWMU and determined the vertical and horizontal extent of the contaminated soil area. The extent of the contaminated area has been determined to be generally under the existing haul road adjacent to the south side of Area 1.

5. SWMU No. 2 - (also known as North SWM) - An underground oil storage tank removed in the mid-1980s was once present at this location and is suspected to be the source of contaminated soil found here. The facility has completed the investigation of the North SWMU and has determined that the vertical and horizontal extent of the contaminated soil area of the North SWMU is contained within the upper clay above the aquifer.

C. CHRONOLOGY OF CORRECTIVE ACTION EFFORTS UNDER ORIGINAL PERMIT

The following is a brief chronological history of pertinent corrective action activities carried out under the provisions of the original RCRA Permit issued to the Laraway facility:

1. A joint RCRA Permit for the Laraway facility was issued by USEPA and Illinois EPA on September 29, 1989, and was effective on November 3, 1989. This Permit required the facility to, among other things: (1) provide post-closure care for a closed landfill (with oversight from Illinois EPA); and (2) conduct corrective action on the SWMUs of concern at the facility (with oversight from USEPA). The Permittee was required to submit to the USEPA within 120 days after the effective date of the RCRA Permit a written RCRA Facility Investigation (RFI) Phase I Workplan to document the absence or presence of hazardous waste or hazardous constituents in the groundwater, surface water, sediments, soils, and air from the following SWMUs:

   a) Ponds 1 through 4;

   b) The old land farming area.

2. An RFI Workplan for this facility was submitted to the USEPA on March 8, 1990. This workplan focused on the 2 SWMUs identified in the Permit and an additional SWMU known as the inactive landfill.

3. The USEPA approved the RFI Workplan on October 18, 1990, for Ponds 1 through 4, the old land farming area and the inactive landfill.

4. The USEPA received the Final RFI Report on July 23, 1992. The final RFI report details the investigations results with respect to the three afore-mentioned SWMUs. A series of subsurface soil samples were taken and analyzed for all three SWMUs. Three wells were also installed downgradient of the surface impoundments to determine if any hazardous constituents from the impoundments were being released into the groundwater. Based on these investigations, the report concludes that there are no continuing releases of hazardous constituents and no further corrective action activity is necessary.

5. The USEPA reviewed the Final RFI report for Ponds 1 through 4, the old land farming area, the inactive landfill and agreed with the conclusions made it. They issued a public notice to end corrective action as a permit modification on December 4, 1992, and then issued a final permit modification to end corrective action at this facility on March 4, 1993.

6. Illinois EPA's letter of April 18, 1994, approved an investigation workplan for a unit known as "SWMU No. 1", which was contaminated soil in the vicinity of wells R-144 and G-169. This contamination was discovered during the installation of G-160. The Illinois EPA reissued the letter of April 18, 1994, on August 10, 1994, to include the use of a backhoe to collect soil samples. The purpose of this investigation was to determine the vertical and horizontal extent of contamination discovered in the vicinity of groundwater monitoring wells R-144 and G-160.

7. Laraway proposed to replace groundwater monitoring well R144 (on September 30, 1999) as part of its application to renew the RCRA Permit.

8. Laraway proposed to install a final cover over SWMU 1 in a July 20, 2000, submittal by Francis R. Lewis.

9. A July 20, 2000, submittal from Mr. Lewis also identified a new SWMU as being present at the facility. This SWMU is referred to as "SWMU 2" and is the location of a former underground storage tank. WMI proposed to extend the final cover system of the closed landfill over this area.

D. <u>ADDITIONAL CORRECTIVE ACTION NEEDED FOR THE NORTH SWMU AND SOUTH SWMU</u>

1. The Permittee must conduct additional investigation efforts as part of a Supplemental RCRA Facility Investigation (RFI) at the North SWMU to determine the nature and extent of releases of hazardous wastes and hazardous constituents detected during the initial investigation efforts conducted at this unit. A plan to conduct this investigation was approved by Illinois EPA on July 5, 2011.

2. Procedures for developing these remediation objectives must meet the requirements of 35 IAC Part 742.

3. For certain SWMUs, it may not be appropriate to establish final target soil levels. This will be the case for those SWMUs where the selected corrective action is capping of the area followed by long-term monitoring.

4. If it is determined that corrective measures must be taken in response to releases from the North SWMU, then the Permittee shall implement a Corrective Measures Program for the SWMU 2. The proposed corrective measures must meet the requirements of 35 IAC 724.201 to be sufficient to protect human health and the environment from the observed release.

5. The Permittee must conduct corrective measures at the SWMU 1. While the Permittee has already proposed a conceptual corrective measure program for this SWMU, detailed plans and specifications for the program has not been submitted to Illinois EPA. The first step in the Corrective Measures Program for the South SWMU is the development of a Corrective Measures Workplan which Illinois EPA approved on July 5, 2011; Corrective Measures for SWMU 1 must be carried out in accordance with this letter.

E. GENERAL REQUIREMENTS FOR THE CORRECTIVE ACTION EFFORTS AT THE NORTH STACK AND THE SOUTH STACK

1. The Permittee shall designate an independent third-party contractor as the Project Officer who shall personally direct and be present for the execution of all tasks associated with the corrective action efforts described in this Section. The Project Officer shall be a qualified Illinois licensed Professional Engineer who is independent from and not under the control of influence of the operator, any employee of the Permittee, or any other corporation, company or legal entity that is a subsidiary, affiliate, parent corporation or holding corporation associated with the Permittee.

2. The Project Officer shall be responsible for ensuring implementation of an achievement of the plans and specifications in the approved corrective action efforts. The Project Officer may utilize one or more project managers who are under his/her direct oversight in carrying out these responsibilities. The Project Officer shall develop reports each day summarizing the work completed that day. These reports must, for that day, include:

   a. The date the work occurred.

   b. A summary of weather conditions.

c. Identification of each area within the facility where work occurred, including diagrams and references to the interior horizontal and vertical control system identified in Condition V.E.9 below.

d. A description of the work carried out in each area.

e. Identification of the equipment and personnel working in each area identified above.

f. Photographs, as appropriate, to document the progress and acceptability of the work.

g. Results of all construction monitoring and quality control/quality control inspections efforts carried out to ensure the work meets the requirements of this Permit (including location where these inspections occurred; the type of inspection; the inspection procedure used; and the name of the person(s) conducting the inspections).

h. A description of any problems, incidents, etc. which occurred.

i. Notes from the various project managers documenting the above information regarding the tasks they are overseeing.

A copy of this report must be placed in the operating record for this project.

3. Issuance of this Permit does not relieve the Permittee of the responsibility of complying the provisions of 35 IAC Subtitle B (Air Pollution Control) or Subtitle C (Water Pollution Control).

4. All discharges of runoff from disturbed areas to Waters of the State must meet the requirements of 35 IAC Parts 304 and 309.

5. All surface water control structures shall be operated, as necessary, until the final cover is in place over the entire South Stack and the proper erosional stability has been established through a vegetative cover.

6. All discharge and diversion structures shall be designed to have flow velocities that will not cause erosion or scouring of the natural or constructed lining of the structures themselves or the receiving stream channel.

7. All surface water management structures must be inspected on a quarterly basis. Repairs must be made, as necessary in response to erosion problems.

8. Proper steps must be taken to minimize the generation of fugitive dust during corrective action efforts at the North and South Stacks. Appropriate corrective measures must be taken if fugitive dust becomes a problem.

9. A horizontal and vertical control system must be established by a professional land surveyor. This system must consist of stakes and monuments which:

   a. Define the boundaries of the property;

   b. Define the boundaries of the final landform for the South Stack, as established by the siting approval from the Will County Board; and

   c. Include a series of interior stakes and monuments to establish a horizontal and vertical grid system which can be used in documenting and monitoring corrective action efforts at both the North Stack and South Stack.

10. All stakes and monuments associated with the system above must be:

    a. Clearly marked for identification;

    b. Inspected annually for damage (and then repaired if needed by a professional land surveyor); and

    c. Re-evaluated and resurveyed by a professional land surveyor once every five years (stakes/monuments found to be inaccurate must be replaced).

11. The requirements of 29 CFR 1910.120 and 1926 must be met during these corrective action efforts. An appropriate program must be developed and implemented to ensure no unacceptable levels of radon, radium, uranium, gross alpha, or gross beta in the air are generated during this project.

12. Subsections IV.F and IV.G of this Permit contains the requirements related to the "physical" corrective action efforts to be carried out at the North Stack and South Stack areas.

F. CORRECTIVE ACTION REQUIREMENTS FOR THE NORTH STACK

1. The North Stack is approximately 23 acres in size. It was constructed in the mid-1950s by placing an earthen dike across a broad drainageway. Phosphogypsum was placed behind the dike from approximately 1955 to 1961. Soil was subsequently placed over the material. Additional soil was subsequently placed in scattered piles/mounds in the eastern portion of the Stack. It is estimated that approximately 350,000 cubic yards of phosphogypsum and 280,000 cubic yards of soil were present in the North Stack.

2. The procedures for carrying out corrective action at the North Stack are set forth in Section 7.0 of the approved permit application.

3. Removal of the sediments and any contaminated soil from the "moat" and the Return Water Pond must be carried out in accordance with the approved permit application and the general provisions of this subsection.

4. Soil once present on top of the North Stack may be stockpiled for future use. In removing this soil from the top of the stack, care must be taken to ensure no phosphogypsum is mixed with this soil.

5. The phosphogypsum and associated contaminated soil will be removed from this unit and placed: (1) on the South Stack; or (2) if necessary, in the Solid Waste Unit Expansion. The requirements set forth in 40 CFR 61 Subpart R and any other applicable air pollution regulations must be met in carrying out this effort.

6. Surface water management during the corrective action effort at the North Stack shall be carried out in accordance with the procedures set forth in Section 7.6.2 of the approved permit application.

    a. All surface water coming into contact with the phosphogypsum must be collected and routed to the South Stack Moat or Return Water Pond.

    b. Surface water in the area that does not come into contact with phosphogypsum material may be handled as run-off from any other construction project.

    c. During the corrective action effort, run-on to the North Stack area must be directed around the stack through the use of diversion berms and channels.

d. Permits must be obtained, as appropriate, and the applicable regulations must be complied with regarding surface water management and discharge during this project.

7. On July 12, 2011, Illinois EPA approved a report documenting the removal of the vast majority of the phosphogypsum material and associated contaminated soil at the North Stack. This letter also sets forth the procedures for completing the removal effort at this unit.

8. Currently, the approved corrective action for groundwater contamination associated with the North Stack consists of a six stage implementation of a groundwater interceptor trench downgradient of the North Stack and an engineered wetland to treat contaminated groundwater collected from the interceptor trench. Prior to detailed design and installation of the groundwater interceptor trench and engineered wetland, the Permittee shall establish groundwater area background concentrations for the Former North Stack using upgradient monitoring wells G105, G109, and G168 identified in Condition VI.2. In establishing the Former North Stack groundwater area background concentrations:

a. Wells listed in Condition VI. 2 shall be sampled on a quarterly basis for a minimum of four consecutive quarters (i.e., Fourth Quarter 2011 through Third Quarter 2012).

b. The wells shall be sampled for the parameters identified in Conditions VI.2.a and VI.2.b from the Fourth Quarter 2011 through the Third Quarter 2012.

c. Area background groundwater concentrations shall be established for constituents listed in Condition VI.2.b List 2. When establishing groundwater area background concentrations for the North Stack, the procedures of 35 IAC 742, Subpart D, shall be followed.

d. On or before August 15, 2018, the Permittee shall submit a Title 35 IAC Part 742 evaluation for groundwater that includes, but is not limited to, the following:

i. A comparison of the downgradient groundwater sampling results to the North Stack groundwater area background concentrations and the 35 IAC Part 742 (TACO), Tier 1, Class I Groundwater Remediation Objectives (GROs) where applicable;

ii. Isoconcentration maps for each contaminant exceeding applicable Tier 1 GROs;

iii. Recent potentiometric maps of groundwater in the vicinity of the North Stack;

iv. Trend analysis of contaminants that exceed applicable Tier 1 GROs;

v. Tier 2 or Tier 3 (if appropriate) evaluation for groundwater constituents that exceed applicable Tier 1 GROs;

vi. A recommendation for further activities in the event the downgradient groundwater concentrations cannot meet the applicable GROs at the nearest point of human exposure; and

vii. The report shall also include a completed Illinois EPA RCRA Corrective Action Certification Form.

e. Based upon the Illinois EPA's review of the information submitted as required by Condition V.F.8.d, the groundwater interceptor trench and engineered wetland may be deemed unnecessary. In the event the interceptor trench and engineered wetlands are deemed necessary, the following conditions apply:

i. Within 180 days of the Illinois EPAs response to the report required by Condition V.F.8.d, above the facility must submit a detailed design report for the final trench system and treatment wetland. The design report must be submitted as a request to modify the Corrective Action Portion of the Permit.

ii. All construction efforts associated with the interceptor trench and the engineered wetland must be included in the report required by Condition V.F.9 below.

iii. The facility must obtain appropriate permit(s) from the Illinois EPA Bureau of Water and provide notification of acquiring those permits to the Illinois EPA Bureau of Land Permit Section before construction of the wetland can begin.

iv. If installed, the remediation wetland must be operated in accordance with the requirements of any permit issued by the Illinois EPA Bureau of Water.

v. Groundwater at the North Stack must be monitored in accordance with the requirements of Section VI to the Permit.

9. A report must be submitted to Illinois EPA by March 1 of each year describing the corrective action efforts completed during the previous calendar year (i.e., January to December).

G. CORRECTIVE ACTION FOR THE SOUTH STACK

Currently, the South Stack is approximately 175 acres in size. The top of the stack is relatively flat, is approximately 100 acres in size, and is approximately 80 feet above the surrounding ground surface. The stack is uncovered and sits on at least 20 feet of fine-grained glacial deposits which overlie the bedrock. The side-slope of the stack consists of an upper portion and a lower portion, separated by a mid-level bench.

Run-off from the stack and any water discharging from around the perimeter of the stack flows into a ditch (referred to as the "moat") which surrounds the stack and which conveys this water to the Return Water Pond. The water accumulating in the Return Water Pond is pumped to the Olin wastewater treatment plant for treatment before being discharged via an NPDES permit.

a. In general, the approved corrective action for the South Stack provides for proper closure and post-closure of the stack and includes:

a. Improving the management of precipitation and surface water at the unit;

b. Minimizing the amount of precipitation percolating into the stack by establishing a final cover system over the stack;

c. Placing certain soils over the stack, as appropriate, to provide for acceptable contours for the final cover system to be placed over the stack. The soils which can be used include:

(1) Uncontaminated soils;

(2) Certain contaminated soils that have been bioremediated in accordance with Permit No. 2001-108-DE/OP and all associated supplemental permits (the most recent supplemental permit is Supplemental Permit No. 2011-506-SP dated January 19, 2012) and met the treatment standards set forth in these permits. The types of soils that can be bioremediated under this permit are: soil contaminated with petroleum hydrocarbons; coal-based hydrocarbon contaminated soil (i.e., from former manufactured gas plants); polynuclear aromatic hydrocarbon contaminated soils and chlorinated phenol contaminated soils;

(3) The four types of soil mentioned in Condition V.G.2.c(2) which already meet the treatment standards set forth in Permit No. 2001-108-DE/OP and associated supplemental permits;

(4) During construction of the South Stack final landform, any rock, concrete, brick, or asphalt in soils may be left in place. However, any soils that are placed within the last one-foot increment of the south stack landform grades will not contain any of these materials that are larger than 10 inches in size.

The Permittee may carry out soil biotreatment on the top of the South Stack in places where a 60-mil geomembrane is present over the stack and which is turn is covered by 18 inches of cover soils and an additional one-foot of soils. These activities must also be carried out in accordance with Permit No. 2001-108-DE/OP and all associated modifications.

d. Providing post-closure care of the final cover; and

e. Monitoring the groundwater during the time the afore-mentioned tasks are being carried out, including the post-closure care period.

b. An estimated schedule for completing the physical corrective action efforts at the South Stack is set forth in Section 8.2 of the approved permit application. It is understood the "2010" in the schedule is the first year that a full construction season is available for the project. It is estimated that it will take approximately 23 years to complete closure of the South Stack.

c. The closure efforts at the South Stack (except groundwater monitoring) are described in detail in Section 8 of the approved permit application, revised July 2008, and will consist of the following tasks (it must be noted that several of these tasks may be going on simultaneously in various portions of the stack).

a. Placement of phosphogypsum from the North Stack on top of the stack;

b. Placement of a 60-mil geomembrane and an overlying 18-inch protective bioremediated soil cover on the top portion of the stack (approximately 100-110 acres in size) to prevent further infiltration of surface water into the stack (this effort will be completed in two phases);

c. Construction/operation of an interim surface water management system;

d. Placement of a minimum three-foot thick interim bioremediated or uncontaminated soil cover on the upper slope, mid-level bench, and lower slope of the stack;

e. Placement of bioremediated or uncontaminated soil over the stack to construct the final landform (approximately 200 acres in size) which will then receive a final cover;

f. Installation of a sideslope drain around the perimeter of the stack to collect/enhance drainage of any water in the stack (this installation will occur prior to placement of the lower slope interim cover system);

g. Installation of a forcemain to convey collected seepage from the sideslope drain to the return water pond and the Olin wastewater treatment facility (at some time during the project, the return water pond will be converted to a sedimentation basin and modifications will be made to the forcemain so that the return water pond is by-passed.

h. Removal of any phosphogypsum sediments from the "moat", followed by preparation of the former moat for anticipated final use (may include bringing a portion of the moat to surrounding grade or use of a portion of the moat as part of the final surface water management system).

i. Eventual conversion of the Return Water Pond into a sedimentation basin, starting with removal of any remaining seepage water and any phosphogypsum contaminated sediment;

j. Placement of a final cover system two-feet of compacted low permeability soil and one-foot of vegetative support material over the completed landform).

k. Construction/operation of the final surface water management system.

d. Section 8.3.3 of the application describes the surface water management system which will be implemented from the time that corrective action first begins at the South Stack until such time as a final cover system is established over the entire landform. This interim surface water management system must provide for the routing of all water from uncovered areas of the stack to the Return Pond (via the "moat") and then to the Olin wastewater treatment plan. Surface water from all areas which have received a minimum of 18 inches of bioremediated or uncontaminated soil may be directed to the various sedimentation basins associated with this interim system.

Discharge of any water from these interim sedimentation basins must be carried out in accordance with an NPDES permit issued by Illinois EPA Bureau of Water.

a. Storm water from the covered portions of the top slope will be directed to the "Top Slope Interim Sedimentation Basin" which will in turn discharge to the Southwest Basin via an 18-inch above-ground pipe.

b. Storm water from the covered portions of the upper slope and mid-level bench will be directed to a sedimentation basin constructed on the mid-level bench. This basin will be lined with a geomembrane and will discharge via an 18 inch above-ground pipe to the Southwest Basin.

c. Storm water from the covered portions of the lower slope will flow to one of three interim sedimentation basins (the Northwest basin, the Southeast basin, and the South basin).

d. Portions of the "moat" may be used to convey surface water to a sedimentation basin only after all phosphogypsum has been removed from that reach of the "moat."

e. Section 8.3.8 of the original permit application describes the surface water management program for the finally covered landform. This program consists of diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and four sedimentation basins. Details of this system are contained in Drawings 24 and 28 of the original permit application and in the permit application assigned a Log No. of B-141R-M-100 by the Illinois EPA. The four sedimentation basins are referred to as the North Basin, the South Basin, the Northwest Basin (which will include a portion of the former Return Pond) and the Southwest Basin. Any discharge from these sedimentation basins must be carried out in accordance with NPDES permits issued by the Illinois EPA.

f. All interim or final sedimentation basins located around the perimeter of the stack must be constructed, operated, and maintained such that erosion of the banks of the basins is minimized.

g. Sediments removed from the Return Pond or "moat" may be placed on the South Stack provided: (1) it is placed under the interim cover and final cover system approved herein; and (2) the area is properly graded and vegetated to allow for proper surface water runoff.

h. The facility shall be operated such the level of noise audible outside the facility does not cause or contribute to a violation of 35 IAC Parts 900-905 or Section 24 of the Act.

i. The Quality Assurance/Quality Control Plan set forth in Appendix K of the application must be followed during all aspects of this project.

j. Once the final cover system has been established over the entire landform, quarterly inspections of the closed landform and associated sedimentation pond must be conducted:

   a. All rills, gullies, and crevices six inches or deeper identified in the inspection shall be filled and seeded. Areas identified by the Permittee or the Illinois EPA as particularly susceptible to erosion shall be recontoured.

   b. All eroded and scoured drainage channels shall be repaired (including replacement of lining material, as necessary).

   c. All holes and depressions created by settling shall be filled, re-vegetated, and recontoured so as to prevent standing water

d. All areas with failed or eroded vegetation in excess of 100 square feet shall be re-vegetated.

e. The drainage system around the perimeter of the landfill must be inspected to ensure it is operating properly.

f. All appurtenances associated with the sedimentation ponds must be inspected to ensure they are operating properly.

k. Post-closure use of this facility must not disturb the integrity of the final cover of the landfill or the drainage system installed around the perimeter of the landfill, unless: (1) necessary to comply with the requirement of this Permit; or (2) such disturbances are first approved by Illinois EPA.

l. A report must be submitted to Illinois EPA by March 1 of each year containing the following information:

a. Those areas of the stack which received interim cover during the previous calendar year;

b. The components of the interim or final surface water management system constructed during the previous calendar year;

c. The components of the sideslope drain and associated forcemain system installed during the previous calendar year for the management of liquid flowing from the stack and the status of the overall system used to manage this liquid;

d. Those areas which received bioremediated or uncontaminated soil during the previous calendar year beyond that needed for the interim cover and the approximate thickness of bioremediated or uncontaminated soil placed in these areas;

e. Those areas, if any, which received final cover during the previous calendar year;

f. A summary of any removal efforts carried out at the North Stack, the "moat", or the Return Water Pond during the previous calendar year;

g. A summary (including appropriate drawings) of the cumulative efforts to date regarding the overall project;

h. A discussion of the efforts to be carried out during the next calendar year; and

i. Drawings which identify those areas where petroleum contaminated soil was biotreated in accordance with Permit No. 2001-108-DE/OP and associated supplemental permits.

m. Removal of the sediments and any contaminated soil from the "moat" and the Return Water Pond must be carried out in accordance with the approved permit application and general provisions of Subsection III.F. above.

n. Groundwater at the South Stack must be monitored in accordance with the requirements of Section VII of this Permit.

H. OVERVIEW OF CORRECTIVE ACTION FOR THE OLIN PONDS

1. The facility expansion plan consists of two areas identified as the North Area and the South Area, which will consist of approximately an additional 289 acres, located on a permitted facility property of 1,011 acres. Located within the facility is a wastewater treatment plant and the three wastewater holding ponds, referred to as the three Olin Ponds. The following three Olin Ponds occupies a total of approximately 81 acres and are newly identified as three SWMUs 3a, 3b, and 3c and must be properly closed and remediated to meet the corrective action requirements of this Permit prior to the landfill expansion. This proposed expansion is to the north of the existing facility and is depicted on Figure 1 (Expanded Solid Waste Unit) dated March 2017, and was included as part of Waste Management's July 31, 2017, Class 3 permit application.

2. The Olin Ponds are currently used to manage phosphate slurry generated by the treatment plant from the treatment of stormwater runoff and seepage from the South phosphogypsum Stack. The treatment plant operates pursuant to Illinois EPA Permit No. IL0002020. The East Pond was constructed in 1970, to manage inorganic wastewater from the now razed Olin manufacturing plant that was located north of the Ponds. The West and Center Ponds were constructed in 1973.

3. The three Olin Ponds (SWMU 3) consist of three different areas separated by interior earthen berms, identified as the East Pond (North and South), the West Ponds, and the Center Pond. A description of the former Olin Ponds and the amount of standing liquid in the ponds is as follows:

a. East Pond (SWMU 3a):
This Pond is approximately 33 acres and consists of two separate areas: the North End with a capacity of 33,235,000 gallons and the South End with a capacity of 6,842,000 gallons.

b. Central Pond (SWMU 3b):
This Pond is approximately 8 acres and has a capacity of 41,706,000 gallons.

c. West Pond (SWMU 3c):
This Pond is approximately 30 acres and has a capacity of 149,555,000 gallons.

Note: The total capacity of the three ponds is 231,338,000 gallons.

4. The facility conducted the preliminary sediment and soil investigations in the Olin Pond area in 2014 to assess the conditions of the Ponds. The preliminary assessment data demonstrates a potential for a release of hazardous waste or hazardous waste constituents from the Olin Ponds (SWMUs 3a through 3c). As such, the Permittee must prepare a SWMU Assessment Plan and a proposed schedule of implementation and completion of the corrective action at the Ponds. The preliminary assessment data may be utilized to conduct further corrective action investigation and remediation activities required in subsection V.I below.

5. No further action (NFA) for the three Olin Ponds must be obtained from Illinois EPA prior to initiating the development of the proposed expansion of the MSWLF in this area as described in Section III of this Permit.

I. ADDITIONAL CORRECTIVE ACTION REQUIRED FOR THE OLIN PONDS

1. The Permittee may remove and treat all Standing Liquids from the Olin Ponds. The Permittee must comply with the provisions of 35 IAC Subtitle C (Water Pollution Control).

2. Within 30 days of the issuance of the Permit Modification under Log No. B-141R-M-125, the Permittee shall submit a workplan for the proposed activities commenced at the Olin Ponds as the preliminary site preparation for the aforementioned MSWLF expansion in Condition V.H.4 and Section III of the Permit for Illinois EPA's review and approval. Such activities proposed include, but are not limited to, the following:

a. Removal and Disposal of sediments from the Olin Ponds;

b. Excavation/remediation of Impacted Underlying Soils; and

c. Removal of Treatment Plant Piping; and

d. Sampling of Sediment

3. Within 60 days after receipt of the sediment sampling results, the Permittee shall submit a SWMU Assessment Plan for the Olin Ponds (SWMUs 3a, 3b, and 3c) for Illinois EPA's review and approval as required in Condition V.H.4. This SWMU Assessment Plan must document the activities addressed in Conditions V.I.1 and V.I.2 above and propose confirmation sampling and additional investigations as necessary to determine the release potential to specific environmental media at the three Olin Ponds. The SWMU Assessment Plan must demonstrate that the sampling and analysis program is capable of yielding representative samples from the remaining underlying soils at the Olin Ponds and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the SWMU(s) to the environment.

4. Procedures for developing the remediation objectives must meet the requirements of 35 IAC Part 742.

5. Requirements set forth in Conditions V.E.1 through V.E.4 and Condition V.H.5 of this Permit must be met for corrective action activities at the Olin Ponds.

J. INTERIM MEASURES

At any time during the course of this Permit, the Permittee may, subject to Illinois EPA review and approval, 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 an investigation 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 corrective measures study (CMS).

1. 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 proposed measure will mitigate the potential threat to human health and the environment and/or will be 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.

2. 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 shall not affect the schedule for implementation of any other portion of the Permit.

3. If the Illinois EPA determines that interim measures are necessary to protect human health or the environment, then the Permittee will be allowed to proceed under plans, procedures, and schedules approved by Illinois EPA.

K. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The Permittee shall prepare a detailed cost estimate for the completion of any investigation or corrective measure required under this Permit, in order to provide financial assurance for completion of corrective action, as required under 35 IAC 724.201(b). Such a cost estimate will 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. All calculations and unit costs made in developing this estimate must be provided, as well as justification for all values used. These estimates shall be included in each workplan or report submitted to Illinois EPA for review and approval.

   The approved cost estimate for the corrective action efforts approved herein is as indicated in Attachment D, Section III.

2. 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 estimate required under Condition V.K.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 60 days after the approval of the initial or revised cost estimates required under Condition V.K.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.

L. NOTIFICATION REQUIREMENTS FOR AN ASSESSMENT OF IDENTIFIED SOLID WASTE MANAGEMENT UNIT(S)

1. The Permittee shall notify the Illinois EPA in writing of any newly-identified SWMU(s) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than 60 days after discovery. Such a notification must also be submitted if the Permittee discovered that a possible release has occurred from one of the SWMUs identified in this Permit. The notification shall provide the following information, as available:

   a. A scaled map showing the location of the newly-identified SWMU within the facility;

   b. The past and present function of the unit;

   c. The general dimensions, capacities, and structural properties of the unit;

   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, 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, 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.

3. Within 120 days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall prepare a SWMU Assessment Plan. This SWMU Assessment Plan must propose investigations, including field investigations, if necessary, to determine the release potential to specific environmental media for the newly-identified SWMU. 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-discovered SWMU(s) to the environment.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions, or disapprove the Plan in writing. If the plan is approved, the Permittee shall begin to implement the Plan within 45 days of receiving such written notification. 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. Additional investigation and remediation must then be conducted to ensure the requirements of 35 IAC 724.200 and Part 742 are met.

Section VI: GROUNDWATER MONITORING PROGRAM FOR THE NORTH STACK

To monitor the effectiveness of corrective action activities and demonstrate compliance with the AGQS, the groundwater monitoring program must be conducted as follows:

1. 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 Part 703 Subpart G.

   a. A completed Illinois EPA RCRA Corrective Action Certification form (available on Illinois EPA's website) must accompany all corrective action related information submitted to Illinois EPA. Professional Engineer signatures are not required for routine groundwater reports required by this section.

   b. To allow for the proper review of all corrective action related information submitted to Illinois EPA, one original and two copies of the information must be submitted.

2. Groundwater monitoring wells shall be maintained in the locations shown in Attachment 2 of the Additional Information to the submittal entitled, "Class 1* Permit Modification – Well G1A3 (G257) Status Change", (Log No. B-141R-M-151). At this time, the North Stack groundwater quality monitoring network shall consist of the monitoring wells listed in Table 1 below:

Table 1 – North Stack Monitoring Well Network

Facility Well Number	Illinois EPA Well Number
WT-301-07	G1H1
WT-302-07	G1H2
WT-303-07	G1H3
WT-308-07	G1H8
*G-105-05	*G105
*G-109-05	*G109
*G168	*G168

* Upgradient monitoring well

a. The following list of parameters shall comprise the List 1 Field Parameters:

LIST 1

FIELD PARAMETERS	STORET
Bottom of Well Elevation (ft. ref MSL)*	72020
Depth to Water (Ft-bgs)	72019
Depth to Water (ft. from measuring point)	72109
Elevation of Groundwater Surface (ft. ref MSL)	71993
pH (S.U., unfiltered)	00400
Specific Conductance (umhos/cm, unfiltered)	00094
Temperature of Water Sample (°F)	00011
Elevation of Well Casing Measuring Point (Ft-MSL)	72110
Turbidity (NTU)	00076
Oxidation Reduction Potential (millivolts)	00090

* = To be reported a minimum of once every five years or whenever maintenance activities are conducted.

b. The following list of parameters shall comprise the List 2 semi-annual Inorganic Parameters

LIST 2

SEMI-ANNUAL INORGANIC PARAMETERS FILTERED	Units	STORET
Arsenic As, Dissolved	ug/L	01000
Lead Pb, Dissolved	ug/L	01049
Manganese Mn, Dissolved	ug/L	01056
Phosphorous P, Dissolved	mg/L	00666
Sulfate SO_4, Dissolved	mg/L	00946

LIST 2

SEMI-ANNUAL INORGANIC PARAMETERS UNFILTERED	Units	STORET
Arsenic As, Total	ug/L	01002
Lead Pb, Total	ug/L	01051
Manganese Mn, Total	ug/L	01055
Phosphorous P, Total	mg/L	00665
Sulfate SO4, Total	mg/L	00945
Total dissolved Solids (TDS)	mg/L	70300
Radium 226, Total	pCi/L	09501
Radium 226, Total, Counting Error	pCi/L	09502
Radium 228, Total	pCi/L	11501
Radium 228, Total, Counting Error	pCi/L	11502
Gross Alpha, Total	pCi/L	01501
Gross Alpha, Total, Counting Error	pCi/L	01502
Gross Beta, Total	pCi/L	03501
Gross Beta, Total, Counting Error	pCi/L	03502
Total Uranium	ug/L	28011

c. Groundwater quality monitoring and reporting must be conducted at the wells listed in Table 1 for the List 1 and List 2 constituents in accordance with the following schedule:

Quarter of Calendar Year:	Samples Collected During Months of:	Results Due to Illinois EPA by:
Second	April-May	July 15
Fourth	October-November	January 15

d. Groundwater quality results must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment A to this Illinois EPA response, in accordance with the schedule in Condition VI.2.c above. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

e. 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 copy of the LPC-592 must accompany your submittal. However, the Permittee must submit one original and a minimum of two copies of each notice or report you submit to the Illinois EPA. The form is not to be used for permit applications.

f. Reports summarizing groundwater monitoring activities must be submitted in accordance with the schedule provided in Condition VI.2.c above. The reports must include, but not be limited to, the following:

1. Brief background information and description of the purpose for the submittal;

2. Copies of laboratory reports;

3. A tabulated summary of groundwater quality results. The tabulation must provide the appropriate 35 IAC Part 620, Class I GQS or 35 IAC 742, Tier 1, Class I, GRO and must highlight any detected exceedances of those standards;

4. A tabulated summary of groundwater elevation data;

5. Potentiometric maps based on the current groundwater elevation data;

6. A discussion of any problems encountered during the reporting period.

g. Annually, the operator shall prepare an assessment of the monitoring program which shall include an evaluation of the groundwater flow direction and the hydraulic groundwater at the facility. This assessment shall be submitted with the monitoring results due on July 15.

Section VII: GROUNDWATER MONITORING PROGRAM FOR THE SOUTH STACK

To identify any releases from the South Stack and demonstrate compliance with the applicable groundwater quality standards, the groundwater monitoring program must be conducted as follows:

1. 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 Part 703 Subpart G.

    a. A completed Illinois EPA RCRA Corrective Action Certification form (available on Illinois EPA website) must accompany all corrective action related information submitted to Illinois EPA. Professional Engineer signatures are not required for routine groundwater reports required by this section.

    b. To allow for the proper review of all corrective action related information submitted to Illinois EPA, one original and two copies of the information must be submitted.

2. The monitoring program must be capable of determining background groundwater quality hydraulically upgradient of and unaffected by the units and to detect any discharge of contaminants from any part of a potential source of discharge from the units. The Illinois EPA reserves the right to require installation of additional monitoring wells as may be necessary to satisfy the requirements of this Permit.

3. The groundwater monitoring program shall include consistent sampling and analysis procedures to assure that monitoring results will provide a reliable indication of groundwater quality in the zone being monitored.

4. The Permittee shall sample all groundwater monitoring points for all potential sources of contamination on a semi-annual basis in accordance with Condition VII.22 below including a minimum of 30 years after certification of closure.

5. The Permittee shall use the methods in Section 9.2.8 of the approved permit application or propose for the Illinois EPA's approval, a more appropriate method to statistically evaluate the groundwater monitoring data. The selected method must provide for statistical comparisons between upgradient and downgradient groundwater quality data and a reasonable balance between the probability of obtaining Type I (false positive) and Type II (false negative) errors. The Type I error rate must be no less than 5%. The proposal must consider the gathering of a background data set (from upgradient wells), sufficient to provide an accurate representation of the variability in the quality of groundwater that is unaffected by operations at the facility, and to assure that the selected test has a reasonable chance of detecting releases should they occur.

6. The Permittee shall examine the distribution of data from each well for each parameter to determine if the statistical methods specified in Condition VII.5 are appropriate to determine an impact to groundwater using the comparisons in Condition VII.8. If the data for a given well and parameter is not normally distributed, the Permittee shall propose a more appropriate method for those wells and/or parameters to statistically evaluate the groundwater monitoring data in accordance with Condition VII.5 above.

7. For each sampling event, using the methods in Condition VII.5 above, the Permittee must determine if a significant change in groundwater quality has occurred by comparing sample results from each downgradient well to the upgradient well's background data established during the first two years of monitoring. However, for well GF1D, background data collection shall be conducted quarterly beginning with the Third Quarter 2011. This comparison must evaluate each parameter for each well. The sample results from the S series wells shall be compared to the upgradient S series data. The sample results from the D series wells shall be compared to the upgradient D series data.

8. The Permittee shall conclude that a significant change in groundwater quality has occurred if the results of the evaluation in Condition VII.7 above indicate that the value for any parameter exceeds:

   a. The Groundwater Protection Standard listed in Condition VII.20 below. Groundwater Protection Standards must be submitted as a Class 1* permit application within 60 days of the fourth semi-annual sampling event following the effective date of this Permit. The Groundwater Protection Standards are to be determined as follows:

      i. The background value established in accordance with Section 9.2.8 of the approved permit application;

      ii. The Class I GQS listed in 35 IAC Part 620 Subpart D; or

iii. The applicable 35 IAC 742, Tier 1, Class I, Groundwater Remediation Objective.

b. A statistically significant increasing concentration trend at the 95% confidence level determined in accordance with Section 9.2.8 of the approved permit application.

9. Within 60 days of the original sample date, the Permittee may resample and test the determination made in Condition VII.8 above. If the evaluation of the resample result confirms the determination made in Condition VII.8 above, the Permittee must conclude that a significant change in groundwater quality has occurred.

10. In the event a significant change in groundwater quality has occurred or has been confirmed, the Permittee shall:

a. Notify the Illinois EPA Bureau of Land Permit Section in writing, within 10 days of the change in groundwater quality, identifying each well and each parameter;

b. Submit an assessment monitoring plan within 30 days of the significant change as determined in Condition VII.8 or Condition VII.9 above in the form of a request to modify the Corrective Action portion of the Permit. The assessment monitoring plan shall include appropriate methods for determining the source of the increase, the potential threat to human health and the environment and the concentration and extent of the contaminants if any. The assessment monitoring plan shall, at a minimum, include expanded sampling requirements for the affected well(s) and shall be implemented within 30 days of approval from the Illinois EPA.

c. Submit assessment report, based on and including the data and information generated from the completion of Condition VII.10.b above to the Illinois EPA within 90 days of approval of the assessment monitoring plan.

d. Propose a corrective action plan if assessment monitoring indicates that the facility has impacted groundwater. The corrective action plan shall be submitted within 30 days of approval of the assessment report required by Condition VII.10.c above in the form of a request to modify the Corrective Action portion of the Permit and shall include appropriate response action to address any impact of the facility. The plan shall be implemented within 30 days of Illinois EPA approval.

11. All monitoring wells shall be constructed in a manner that maintains the integrity of the bore hole and prevents contamination of the samples and groundwater. The casing material shall be inert so as not to affect the water sample.

12. A padlocked protective cover must be installed over the portion of the well casing extending above the ground surface to protect against damage.

13. Wells shall be easily visible and identified with the Illinois EPA monitoring point designation.

14. Should any well become consistently dry or unserviceable, a replacement well shall be provided within 10-feet of the existing well. This well shall monitor the same zone as the existing well and constructed in accordance with the current Illinois EPA groundwater monitor well construction standards at the time that the wells are replaced. A well which is more than 10-feet from the existing well or which does not monitor the same geologic zone must be approved via a Class 1* permit application and designated as a new well. If this facility determines that a replacement well will be a dry well, then it must submit for Illinois EPA approval either a proposal to install a new monitoring well or a proposal not to replace the well with appropriate rationale.

15. Within 30 days of installation of any groundwater monitoring well, boring logs compiled by a qualified geologist, well development data and as-built diagrams shall be submitted to the Illinois EPA utilizing the enclosed "Well Completion Report" form. For each well installed pursuant to this Permit, one form must be completed. As-built diagrams, for each monitoring point installed, shall include the horizontal location to the nearest ± 0.1 foot (grid coordinates), the type and inner diameter of casing material used, type, and length of screen packing material used, type and length of seals used, type of backfill used, finishing details, groundwater levels, elevation of stick-up (top of casing), ground surface elevation, bottom elevation, interval screened and screen slot size and depth. All elevations or levels are to be measured and reported to the nearest ± 0.01 Ft-MSL.

16. All borings, wells, and piezometers not used as monitoring points shall be abandoned in accordance with the standards in 35 IAC 811.316, and the decommissioning and reporting procedures contained in 77 IAC Part 920. In the event specific guidance is not provided by 77 IAC Part 920, the enclosed Illinois EPA monitoring well plugging procedures shall be followed.

17. The Illinois EPA shall be notified in writing at least 15 days prior to the installation of all new and replacement monitoring wells. All newly required monitoring wells must be installed within 60 days of the issuance of this Permit.

18. Surveyed elevation of stick-up is to be reported when the well is installed (with as-built diagrams) and every two years, or whenever the elevation changes.

19. Groundwater monitoring wells shall be maintained in the locations shown in Attachment 2 of the Additional Information to the submittal entitled, "Class 1* Permit Modification – Well G1A3 (G257) Status Change", (Log No. B-141R-M-151). The following monitoring points are to be used in the groundwater monitoring program for this SWMU. These monitoring points supersede all previously required monitoring points and represent the entire list of monitoring points now required for this SWMU.

Facility Designation	Illinois EPA Designation
^{S}G-128-05	G1F1
^{S}+G-129-05	+G1F2
^{S}MW-2	G1F3
^{S}WT-131-05	GF2S
^{D}MW-6	GF2D
^{S}MW-5	G1F4
^{S}G208	G1F5
^{S}G205	G1F6
G1F7	G1F7
G1F8	G1F8
+GF2S	+GF3S
+GF2D	+GF3D

+ - represents upgradient monitoring point(s)
# - represents monitor point(s) <u>added</u> to the monitoring program
^{S} - represents an S-series well
^{D} - represents a D-series well
$^{\#\#}$ - represents monitoring point to be deleted from the monitoring program

20. The concentration or values for the parameters contained in Lists 1 and 2 shall be determined for samples collected from the groundwater monitoring points and reported according to the schedule in Condition VII.22 and evaluated in accordance with Condition VII.8.

LIST 1

FIELD PARAMETERS	STORET	GWPS S-Series Wells	GWPS D-Series Wells
Bottom of Well Elevation (ft. ref MSL)*	72020	--	--
Depth to Water (ft. below land surface)	72019	--	--
Depth to Water (ft. from measuring point)	72109	--	--
Elevation of Groundwater Surface (ft. ref MSL)	71993	--	--
pH (S.U., unfiltered)	00400	6.5 – 9.0	6.5 – 9.0
Specific Conductance (umhos/cm, unfiltered)	00094	--	--
Temperature of Water Sample (°F)	00011	--	--
Elevation of Well Casing Measuring Point (ft MSL)	72110	--	--
Turbidity (NTU)	00076	--	--
Oxidation Reduction Potential (millivolts)	00090	--	--

* = To be reported a minimum of once every five years or whenever maintenance activities are conducted.

LIST 2

INORGANIC PARAMETERS FILTERED	Units	STORET	GWPS S-Series Wells	GWPS D-Series Wells
Antimony Sb, Dissolved	ug/L	01095	20	20
Arsenic As, Dissolved	ug/L	01000	10.0	29.3
Cadmium Cd, Dissolved	ug/L	01025	1	1
Chromium Cr, Dissolved	ug/L	01030	4	4
Copper Cu, Dissolved	ug/L	01040	34.3	25.0
Fluoride, Dissolved	mg/L	00950	0.274	0.55
Iron Fe, Dissolved	ug/L	01046	3,260	3,733
Lead Pb, Dissolved	ug/L	01049	5	5
Manganese Mn, Dissolved	ug/L	01056	170.1	171.0
Nickel Ni, Dissolved	ug/L	01065	10	10
Phosphorous P, Dissolved	mg/L	00666	0.01	0.32
Sulfate SO_4, Dissolved	mg/L	00946	450	227
Zinc Zn, Dissolved	ug/L	01090	10	10

LIST 2

INORGANIC PARAMETERS UNFILTERED	Units	STORET	GWPS S-Series Wells	GWPS D-Series Wells
Antimony Sb, Total	ug/L	01097	20	20
Arsenic As, Total	ug/L	01002	50	50
Cadmium Cd, Total	ug/L	01027	5	5
Chromium Cr, Total	ug/L	01034	35.4	100
Copper Cu, Total	ug/L	01042	650	650
Fluoride, Total	mg/L	00951	4	4
Iron Fe, Total	ug/L	01045	18,152	9,609
Lead Pb, Total	ug/L	01051	12.1	7.5
Manganese Mn, Total	ug/L	01055	353	323
Nickel Ni, Total	ug/L	01067	100	100
Phosphorous P, Total	mg/L	00665	1.22	0.19
Sulfate SO_4, Total	mg/L	00945	418	400
Total Dissolved Solids (TDS)	mg/L	70300	1,289	1,200
Zinc Zn, Total	ug/L	01092	5,000	5,000
Radium 226, Total	pCi/L	09501	0.64	0.69
Radium 226, Total, Counting Error	pCi/L	09502	-	-
Radium 228, Total	pCi/L	11501	1.47	1.64
Radium 228, Total, Counting Error	pCi/L	11502	-	-
Gross Alpha, Total	pCi/L	01501	50.2	13.1
Gross Alpha, Total, Counting Error	pCi/L	01502	-	-
Gross Beta, Total	pCi/L	03501	65	13.1
Gross Beta, Total, Counting Error	pCi/L	03502	-	-
Total Uranium	ug/L	28011	9.5	3.25

21. All monitoring points shall be maintained in accordance with the approved permit application such that the required samples and measurements may be obtained.

22. The schedule for sample collection and submission of semi-annual monitoring results is as follows:

Sampling Quarter	Sampling Due	Report Due Date
April-May (2nd)	List - 1 and 2	July 15
Oct-Nov (4th)	List - 1 and 2	January 15

1 - Field Parameters
2 - Indicator Parameters

23. Groundwater quality results must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment A to this Permit, in accordance with the schedule in Condition VII.22 above. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's webpage titled, Electronic Reporting of Groundwater Data.

24. 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 copy of the LPC-592 must accompany your submittal. However, the Permitee must submit one original and a minimum of two copies of each notice or report you submit to the Illinois EPA. The form is not to be used for permit applications.

25. Annually, the operator shall prepare an assessment of the monitoring program which shall include an evaluation of the groundwater flow direction and the hydraulic gradients at the facility. This assessment shall be submitted with the monitoring results due on July 15.

Section VIII: STANDARD CONDITIONS FOR POST-CLOSURE CARE OF HWMUs

GENERAL REQUIREMENTS

1. EFFECT OF PERMIT. The existence of a RCRA Permit shall not constitute a defense to a violation of the 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 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 Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, 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 700.107)

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 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, includes 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;

c. 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 Appendix A of 35 IAC 721. 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 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 application 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 qualified Illinois lessened 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 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 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 health or the environment. Any such information shall be reported orally within 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 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 day written notice requirement in favor of a written report within 15 days. (35 IAC 702.152(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 14, 15, and 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))

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
Planning and Reporting Section - #24
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 702.151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until post-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 post-closure care as required by 35 IAC 724.244(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).

PREPAREDNESS AND PREVENTION

30. 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)

RECORD KEEPING

31. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

POST CLOSURE

32. 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.

33. 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).

34. COST ESTIMATE FOR FACILITY 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 60 days prior to each anniversary of the date on which the first post-closure cost estimate was prepared or if using the financial test or corporate guarantee, within 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 post-closure.

c. Kept on record at the facility and updated. (35 IAC 724.244)

35. 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 the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245. Financial assurance documents submitted to 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

36. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

Section IX: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of Sections I, II, and VIII of this Permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this Permit.

Condition	Submittal	Due Date
Section I: POST-CLOSURE CARE FOR HWMUs		
C.10.c	Leachate analyses, levels, and amount removed	June 1of each year
C.10.d	Modification request to create or revise reduced list	As needed
D.1	Request permit modification to remove the liner or hazardous waste	Prior to removing the liner or wastes
D.2	Certify to the Illinois EPA that post-closure care was performed in accordance with the specifications	Within 60 days after completion of the post-closure care period
E.3	A corrective action plan to the Illinois EPA for approval if subsurface gas becomes a problem	Within 30 days after discovery of the problem
Section II: Groundwater Corrective Action Program for HWMUs		
C.5	Proposal for establishment of a Point of Compliance	Upon attainment of groundwater protection standards within the GMZ
D.2	Proposal for installation and addition or replacement, or for the removal of any Groundwater Recovery System well located within the GMZ	As needed. Illinois EPA approval required prior to implementation

Condition	Submittal	Due Date
D.5	Notify the Illinois EPA if any well: has been damaged, the structural integrity has been compromised, or has become consistently dry or unserviceable. A proposal for a replacement well(s) must be included with this submittal	Within 30 days of discovery
D.7	Submit completed boring logs, construction diagrams, and data sheets from installation and development of each new or replacement well	Within 30 days of the date that installation of the well is completed
D.7	Submit well plugging and abandonment certifications	Within 30 days of the date that the well is plugged and abandoned
E.5.a	Establishing background values / concentration limits	Within 45 days of receipt of the fourth quarter groundwater analytical results
I.3	Submit evaluation of effectiveness of the groundwater extraction system to hydraulically capture and withdraw the off-site plume of groundwater contamination	Semi-annually (in accordance with Condition II.J.2)
I.3	Submit notification or modification if off-site plume of contamination is not completely captured by the current extraction system design	Within 30 days of the semi-annual evaluation
J.2 and J.3	Groundwater monitoring data, statistical calculations, and groundwater surface elevation data.	Information Collected During Months of: April-May; Oct-Nov — Results Due by: July 15; Jan 15

Condition	Submittal	Due Date
J.4	Report surveyed elevation of stick-up	When a well is installed (with as-built diagrams) and every two years (during the second quarter sampling event) or whenever the elevation changes
J.5 and J.6	Report elevation (MSL) of the bottom of each groundwater monitoring well and information regarding inspection and maintenance of pumps	July 15
J.10	Report on effectiveness of Corrective Action Program	Second Quarter
J.11.a	Submit notification if any concentration limits specified in the Groundwater Protection standard are being exceeded at any GMZ boundary well	Within seven days after discovery of exceedance
J.11.b	Submit permit modification to Corrective Action Program	Within 90 days of the date an increase is discovered
J.12.a	Notify Illinois EPA that groundwater flow is not being adequately controlled	Within seven days of determination
J.12.c	Report to Illinois EPA describing changes to corrective action program to ensure groundwater flow is adequately controlled	Within 30 days determination
J.12.d	Request for permit modification describing changes to corrective action program to ensure groundwater flow is adequately controlled	Within 60 days of determination

Condition	Submittal	Due Date
J.13.a	Submit notification to make determination that another source caused the increase or that the increase resulted from error in sampling, analysis, or evaluation	Within seven days of discovery of increase
J.13.b	Submit report that demonstrates that a source other that a regulated unit caused the standard to be exceeded or that that apparent noncompliance with the standards resulted from error in sampling, analysis, or evaluation	Within 90 days of discovery of exceedance
J.13.c	Submit an application for a permit modification to make any appropriate changes to the Corrective Action Program, if necessary	Within 90 days of discovery of exceedance
J.14.a	Report concentration of additional constituent(s) detected in the groundwater pursuant to Condition II.I.2.a.1	Within seven days after completion of the analysis
J.15	Submit documentation that well maintenance procedures are completed	Semi-annually (in accordance with Permit Condition J.2)
K.3	Submit application for permit modification	Within 90 days of determination that the corrective action program no longer satisfies 35 IAC Part 724 Subpart F
Section VIII:	STANDARD CONDITIONS FOR POST-CLOSURE CARE OF HWMUs	
6	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	Submittal date to be determined by the Illinois EPA

Condition	Submittal	Due Date
14	Notify Illinois EPA of planned physical alterations or additions	Prior to planned change. Illinois EPA approval required prior to implementing change.
16	Notify Illinois EPA of changes which may result in permit noncompliance	At least 15 days prior to change
17	Application for permit modification indicating permit is to be transferred	At least 90 days prior to transfer date
19	Submission of any information required in a compliance schedule	Within 14 days after each schedule date
20	Report to Illinois EPA any non-compliance which may endanger health or environment	
	by telephone	Within 24 hours after discovery
	and	
	in writing	five days after discovery
21	Report all other instances of non-compliance	March 1 of each Year along with Annual Report

Section X: REPORTING AND NOTIFICATION REQUIREMENTS FOR NON-HAZARDOUS WASTE LANDFILLS

The reporting and notification requirements of Sections III and IV of this Permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this Permit.

Condition	Submittal	Due Date
Section III: Non-Hazardous Waste Landfills		
C.2	Construction Certification Report	Upon completion of construction of each unit
C.5	Clay liner recertification	Prior to waste disposal
C.6	Acceptance Report	Before structure if placed into service
D.10	Notification to EPA-FOS Regional office and county authority	No later than 5:00 p.m. the next business day following the acceptance of waste outside the specified operating hours
D.25	Notify Illinois EPA of the discovery of unauthorized waste	No later than 5:00 p.m. on the business day after detection
D.25	Summary of load checking reports	Submit with annual report
G.2	Notification of Changes	Within 15 days of change
I.4	Leachate monitoring results	Submitted semi-annually with groundwater reports
J.7	Written Notification of exceedance	Within two business days of occurrence
J.7	Modification request	Within 180 days of occurrence
J.9	Results from gas monitoring	Submitted with annual report

Condition	Submittal	Due Date
K.1	Closure notification	Upon completion of closure activities
K.4	Certification of completion of post-closure care	No later than 60 days after the post-closure care has been completed
K.8	Update cost estimates	June 1
K.9	Modification request to use controlled burning	Prior to use. Illinois EPA approval required prior to implementation
L.1	Annual Certification	May 1
L.2	Annual Report	May 1
Section IV: Groundwater Monitoring for Non-Hazardous Waste Landfills		
4	Well Completion Report	Within 60 days of installation
6	Notification of well replacement	15 days prior to installation
6	Permit modification request to replace well more than 10-feet from existing well or which does not monitor the same geologic zone	Prior to replacement
14	Notification of observed increase	Within 90 days of sampling date
15	Modification request	Within 180 days of sampling Date
16	Permit modification request	Within 30 days of Illinois EPA denial

Condition	Submittal	Due Date
17	Groundwater detection monitoring results for wells on semi-annual schedule	Second Quarter-July 15 Fourth Quarter-January 15
	Groundwater monitoring results for other wells	First Quarter – April 15 Second Quarter – July 15 Third Quarter – October 15 Fourth Quarter – January 15
18	Report elevation of well stick-up	When well is installed and every two years thereafter, or whenever there is reason to believe the elevation has changed
19	Evaluation of groundwater flow direction	July 15
21	Permit modification request	When background concentrations exhibit a statistically significant change.

Section XI: REPORTING AND NOTIFICATION REQUIREMENTS FOR SWMU CORRECTIVE ACTION

The reporting and notification requirements of Sections V, VI and VII of this Permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this Permit.

Condition	Submittal	Due Date
Section V: Corrective Action for SWMUs		
F.9	North Stack Annual Corrective Action Report	March 1.
G.13	South Stack Annual Corrective Action Report	March 1.
J.1	Proposal for interim measures.	Prior to implementation. IEPA approval required prior to implementation.
I.2	Olin Pond SWMU Assessment Plan	Within 30 calendar days of the approval of permit modification, Log No. B-141R-M-125
K.1	Cost estimate for investigation and/or corrective measures.	Include with each workplan or report.
K.2	Documentation of Financial Assurance	60 calendar days after approval of initial or revised cost estimate.
L.1	Notification of Newly-Identified SWMUs.	60 calendar days after discovery.
L.3	SWMU Assessment Plan.	Within 120 calendar days of request by BOL.
L.5	Report documenting results of SWMU Assessment Plan.	In accordance with schedule in SWMU Assessment Plan.

Condition	Submittal	Due Date
Section VI:	Groundwater Monitoring Program for the North Stack	
2.c	Groundwater Quality Report.	Second Quarter – July 15 Fourth Quarter – January 15
Section VII:	Groundwater Monitoring Program for the South Stack	
8.a	Proposal to establish groundwater Protection standards.	Within 60 days after the fourth semi-annual sampling event.
10.a	Notification of significant change in Groundwater quality.	Within 10 days of the change.
10.b	Assessment monitoring plan.	Within 30 days of the change.
10.c	Assessment report.	Within 90 days after approval of assessment monitoring plan.
10.d	Corrective Action Plan	Within 30 days after approval of assessment report.
15	Well Completion Report.	Within 30 days after installation.
17	Notification prior to installation of new and replacement monitoring wells.	Within 15 days prior to installation.
18	Surveyed elevation of stick-ups.	When installed every two years thereafter, or whenever elevation changes.
22	Semi-annual monitoring results.	Second Quarter – July 15 Fourth Quarter – January 15
25	Assessment of groundwater monitoring program	July 15

ATTACHMENT A

MONITORING WELL CONSTRUCTION DIAGRAM

COMPLETION REPORT FOR GROUNDWATER MONITORING WELL, AND

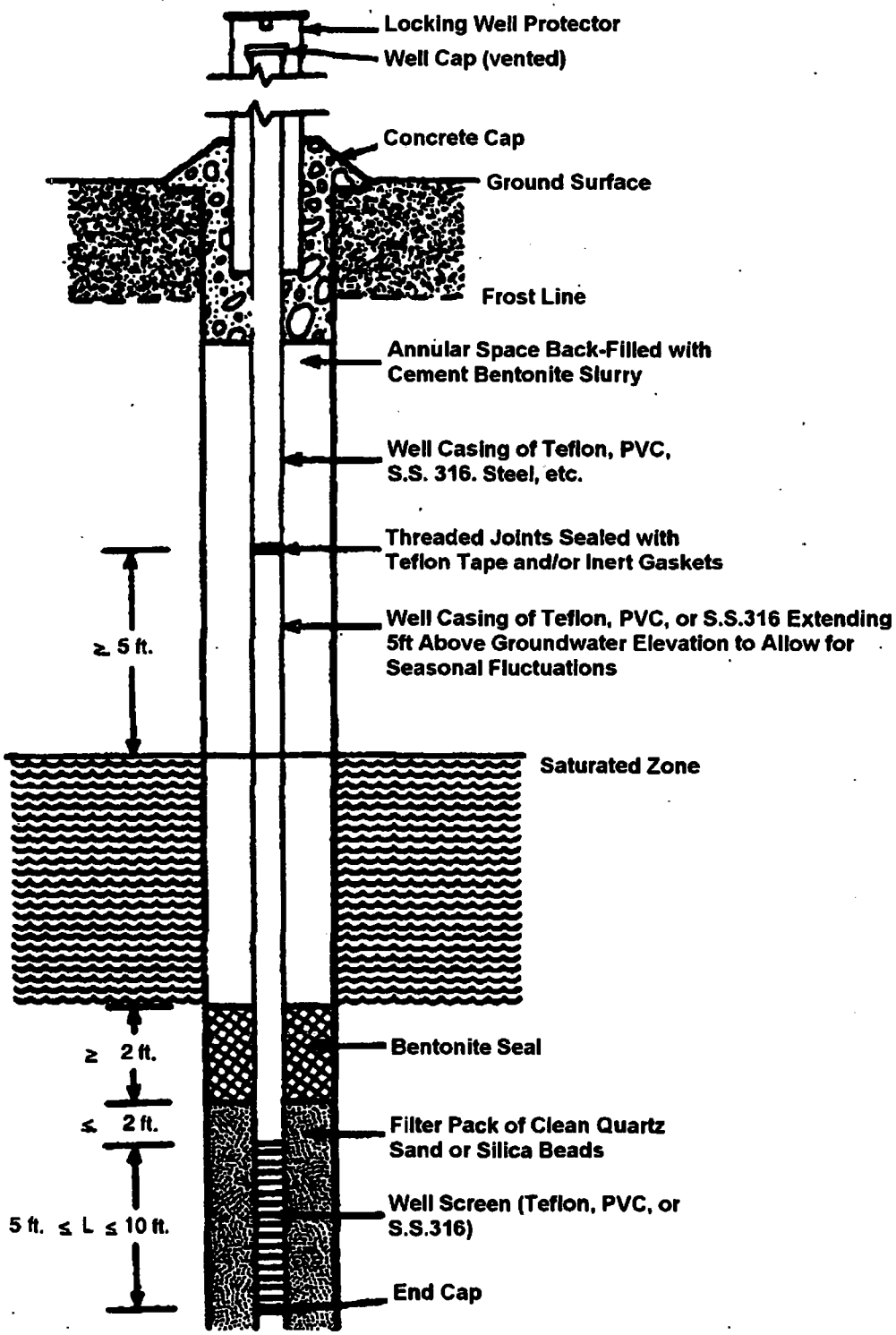
ILLINOIS EPA BORING LOG

ILLINOIS EPA GROUNDWATER FORMATTING REQUIREMENTS

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Monitoring Well Diagram



Illinois Environmental Protection Agency

Field Boring Log

Page ____ of ____

Site File No. _____ Federal ID No. _____
Site File Name: _____
Quadrangle: _____ Sec._____ T._____ R. _____
UTM (or State Plane) Coord. N. (X) _____ E (Y): _____
Latitude ____° ____° ____°Longitude ____° ____° ____°
Drilling Location: _____
Drilling Equipment: _____

County: _____
Boring No. _____ Monitoring Well No.: _____
Surface Elevation: _____ Completion Depth: _____
Auger Depth: _____ Rotary Depth: _____
Date: Start _____ Finish: _____

Elev.	Description of Material	SAMPLES: Graphic Log	Depth in Feet	Sample No.	Sample Type	Sample Recovery (X)	Potentiometer	N Value (Blow Counts)	OVA or HNU Readings	Personnel: G - D - H - H -	Remarks

Illinois Environmental Protection Agency **Well Completion Report**

Site Number: _____ County: _____

Site Name: _____ Well #: _____

State Plane Coordinate: X __ Y __ (or) Latitude: ___° ___' ___" Longitude: ___° ___' ___" Borehole #: _____

Surveyed by: _____ IL Registration #: _____

Drilling Contractor: _____ Driller: _____

Consulting Firm: _____ Geologist: _____

Drilling Method: _____ Drilling Fluid (Type): _____

Logged By: _____ Date Started: _____ Date Finished: _____

Report Form Completed By: _____ Date: _____

ANNULAR SPACE DETAILS

Type of Surface Seal: _____

Type of Annular Sealant: _____

Installation Method: _____

Setting Time: _____

Type of Bentonite Seal – Granular, Pellet, Slurry (Choose One)

Installation Method: _____

Setting Time: _____

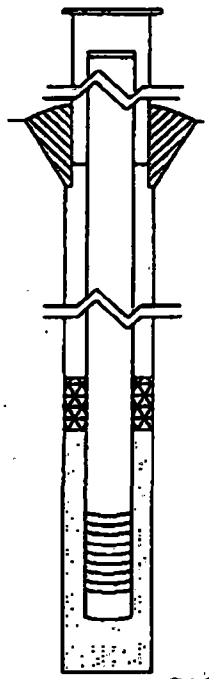
Type of Sand Pack: _____

Grain Size: _____ (Sieve Size)

Installation Method: _____

Type of Backfill Material: _____ (if applicable)

Installation Method: _____



Elevations (MSL)*	Depth (BGS) (.01ft.)	
____	____	Top of Protective Casing
____	____	Top of Riser Pipe
____	____	Ground Surface
____	____	Top of Annular Sealant
____	____	Static Water Level (After Completion)
____	____	Top of Seal
____	____	Top of Sand Pack
____	____	Top of Screen
____	____	Bottom of Screen
____	____	Bottom of Well
____	____	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
River Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

**Hand-Slotted Well Screens are Unacceptable

CASING MEASUREMENTS

Diameter of Borehole (inches)	
ID of Riser Pipe (inches)	
Protective Casing Length (feet)	
Riser Pipe Length (feet)	
Bottom of Screen to End Cap (feet)	
Screen Length (1st slot to last slot) (feet)	
Total Length of Casing (feet)	
Screen Slot Size**	

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data
(the 01 Record portion of the LPC-160 is included for example purposes)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL Page 1 of _____
CHEMICAL ANALYSIS FORM

RECORD CODE: L P C S M 0 1 (1–7) TRANS CODE: A (8)

REPORT DUE DATE __ __/__ __/__ __

FEDERAL ID NUMBER _____

SITE INVENTORY NUMBER _____ (9–18)

MONITOR POINT NUMBER _____ (see Instructions) (19–22)

REGION _____ CO. _____

DATE COLLECTED __ __/__ __/__ __ (23 M D Y 28)

FACILITY NAME _____

FOR IEPA USE ONLY

LAB _____ (29)

BACKGROUND SAMPLE (X) _____ (54)

TIME COLLECTED __ __ : __ __ (24 Hr. Clock) (55 11 M 58)

UNABLE TO COLLECT SAMPLE _____ (59)
(see Instructions)

MONITOR POINT SAMPLED BY _____ (60)
(see Instructions)

_____ OTHER (SPECIFY)

SAMPLE FIELD FILTERED - INORGANICS (X) _____ (61) ORGANICS (X) _____ (62)

SAMPLE APPEARANCE _____ (63–102)

COLLECTOR COMMENTS _____ (103–142)

LAB COMMENTS _____ (150–199)

Il 532 1213
LPC 160 12/2011

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

*Only Keypunch with Data in Column 35 or Columns 38-47

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered – Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-159	Lab Comments	

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included for example purposes)

RECORD CODE | L | P | C | S | M | 0 | 2 | (1–7) TRANS CODE | A | (8) (COLUMNS 9-29 FROM ABOVE)

	FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET	Remarks See Inst.	Replicate	< or >	Value
Q	TEMP OF WATER (unfiltered ° F)	0 0 0 1 1 (30–34)	(35)	(36)	(37)	(38–47)
Q	SPEC COND (unfiltered umhos)	0 0 0 9 4				
Q	pH (unfiltered units)	0 0 4 0 0				
Q	ELEV OF GW SURF (ft ref MSL)	7 1 9 9 3				
Q	DEPTH OF WATER (ft below LS)	7 2 0 1 9				
A	BTM WELL ELEV (ft ref MSL)	7 2 0 2 0				
Q	DEPTH TO WATER FR MEA PT (ft)	7 2 1 0 9				

IL 532 1213
LPC 160 12/2011

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

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***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Space 35	Remarks	
Space 36	Replicate	
Space 37	< or >	
Space 38-47	Value	

ATTACHMENT B

ILLINOIS EPA MONITORING WELL PLUGGING AND ABANDONMENT PROCEDURES

STATE ID No: 1970450002

USEPA ID No: ILD074411745

ILLINOIS EPA MONITOR WELL PLUGGING AND ABANDONMENT PROCEDURES

	Well Construction		Plugging Procedure
I. Unconsolidated Sediment Wells	I-A	...if backfilled with cement grout above bentonite seal and/or sandpack:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through temi pipe. 5. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
	I-B	...if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	1. Knock out and remove thin surface concrete plug, if present. 2. Re-auger entire length of well. 3. Remove well casing from re-augured borehole. 4. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 5. Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. 6. Slowly pump slurry under low pressure through tremi pipe. 7. Continue slow pumping until all formation water and the water slurry mix is displaced from top of casing. 8. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 9. Pull a flight of augers (5" if in unstable materials and hole collapse is likely or 10" if in competent material and collapse is unlikely). 10. Top off cement slurry after each flight is removed.
	I-C	...if monitor well construction is unknown:	1. Follow procedures in I-A.
II. Bedrock Wells	II-A	...All bedrock monitor wells:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi-pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through tremi pipe. 5. Slowly withdraw pipe making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

ATTACHMENT C

PREDICTION LIMIT TEST

STATE ID No: 1970450002

USEPA ID No: ILD074411745

ATTACHMENT C

Prediction Limit Test

The following statistical procedures must be followed as referenced in Section I (Corrective Action Program).

1) Calculate the background mean (X_b) for each parameter, using the values (X_i) from each background sampling event of upgradient wells as follows:

$$X_b = \frac{X_1 + X_2 \ldots X_n}{n}$$

Where X_i = each background value

n = the total number of background measurements

X_b = background mean

2) Calculate the background variance (S_b^2) and standard deviation (S_b) for each parameter using the values (X_i) from each background sampling event of upgradient wells as follows:

$$S_b^2 = \frac{(X_1 - \bar{X}_b)^2 + (X_2 - \bar{X}_b)^2 \ldots + (X_n - \bar{X}_b)^2}{n-1}$$

and $S_b = (S_b^2)^{1/2}$

3) Calculate the prediction limit using:

$$P = X_b + C(S_b)$$

Where C = Coefficient determined from Table 1, at the number of background measurements (n) and the number of downgradient monitoring wells to be statistically compared to upgradient wells at the facility (K) during a sampling event, such that $K \leq 5$.

P = the prediction limit

4) If the value of any routine parameter for any downgradient well exceeds the prediction limit value (P) for that parameter, the Permittee shall conclude that a statistically significant difference exists between the background and routine values for that parameter for that well.

5) When some of the upgradient values are less than the Method Detection Limit (MDL), a value of one half (1/2) the MDL shall be substituted for all background values that are reported as less than the MDL. All other computations shall be calculated as given above.

TABLE 1

FACTORS FOR OBTAINING ONE-SIDED
95% PREDICTION LIMITS FOR k ADDITIONAL
SAMPLES GIVEN A BACKGROUND SAMPLE OF SIZE n

Number of new measurements (k)

n	1	2	3	4	5
4	2.63	3.56	4.18	4.67	5.08
5	2.34	3.04	3.49	3.83	4.10
6	2.18	2.78	3.14	3.42	3.63
7	2.08	2.62	2.94	3.17	3.36
8	2.01	2.51	2.80	3.01	3.18
9	1.96	2.43	2.70	2.90	3.05
10	1.92	2.37	2.63	2.82	2.96
11	1.89	2.33	2.58	2.75	2.89
12	1.87	2.29	2.53	2.70	2.83
13	1.85	2.26	2.49	2.66	2.78
14	1.83	2.24	2.46	2.62	2.74
15	1.82	2.21	2.44	2.59	2.71
16	1.81	2.20	2.41	2.57	2.68
17	1.80	2.18	2.40	2.54	2.66
18	1.79	2.17	2.38	2.53	2.64
19	1.78	2.16	2.36	2.51	2.62
20	1.77	2.14	2.35	2.49	2.60
21	1.77	2.13	2.34	2.48	2.59
22	1.76	2.13	2.33	2.47	2.57
23	1.75	2.12	2.32	2.46	2.56
24	1.75	2.11	2.31	2.45	2.55
25	1.74	2.10	2.30	2.44	2.54
26	1.74	2.10	2.29	2.43	2.53
27	1.74	2.09	2.29	2.42	2.52
28	1.73	2.09	2.28	2.42	2.52
29	1.73	2.08	2.28	2.41	2.51
30	1.73	2.08	2.27	2.40	2.50
31	1.72	2.07	2.27	2.40	2.50
32	1.72	2.07	2.26	2.39	2.49
33	1.72	2.07	2.26	2.39	2.49
34	1.72	2.06	2.25	2.38	2.48

TABLE 1 (Continued)

FACTORS FOR OBTAINING ONE-SIDED
95% PREDICTION LIMITS FOR k ADDITIONAL
SAMPLES GIVEN A BACKGROUND SAMPLE OF SIZE n

35	1.71	2.06	2.25	2.38	2.48
36	1.71	2.06	2.25	2.37	2.47
37	1.71	2.06	2.24	2.37	2.47
38	1.71	2.05	2.24	2.37	2.46
39	1.71	2.05	2.24	2.36	2.46
40	1.71	2.05	2.23	2.36	2.46
41	1.70	2.05	2.23	2.36	2.45
42	1.70	2.04	2.23	2.35	2.45
43	1.70	2.04	2.23	2.35	2.45
44	1.70	2.04	2.22	2.35	2.44
45	1.70	2.04	2.22	2.35	2.44
46	1.70	2.04	2.22	2.34	2.44
47	1.70	2.03	2.22	2.34	2.44
48	1.70	2.03	2.22	2.34	2.43
49	1.69	2.03	2.21	2.34	2.43
50	1.69	2.03	2.21	2.34	2.43
60	1.68	2.02	2.20	2.32	2.41
70	1.68	2.01	2.19	2.31	2.40
80	1.67	2.00	2.18	2.30	2.39
90	1.67	2.00	2.17	2.29	2.38
100	1.67	1.99	2.17	2.29	2.38

Factor = $t(n-1,1-a/k)\,(1+1/n)^{1/2}$

ATTACHMENT D

COST ESTIMATES

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Attachment D: Cost Estimates

The following values must be used when establishing financial assurance in accordance with this Permit, applicable rules, and regulations. The cost estimates for closure, post-closure care, and calculations for the amount of financial assurance required for this facility are shown in Table I-2, Table 10-1, Table 10-2, Table 11-2, Table 13-1, and Table 13-2 of Document D.127 (expressed in 2024 dollars) identified in Attachment F of this Permit.

I. HWMUs Post-Closure Care (In accordance with Condition I.F.1)
Hazardous waste disposal Area 1 (35.95 Acres) and Area 2 (8.17 Acres).
Post-Closure Care is to be provided until at least September 10, 2022.

A. HWMUs Post-Closure Care (from Table I-2)	$16,456,185

II. Non-Hazardous Waste Landfill (In accordance with Condition III.K.6):

B. MSWLF Closure (from Table 13-1)	$9,524,326
C. MSWLF Post-Closure Care (from Table 13-2)	$4,709,258
D. Non-Hazardous Sub-Total	$14,233,584

III. South Stack Closure, Post-Closure Care, and Corrective Action Activities (In accordance with Condition V.K.1):

E. South Stack Closure (from Table 10-1)	$6,886,012
F. South Stack Post-Closure Care (from Table 11-2)	$5,553,746
G. Corrective Action (from Table 10-2)	$7,444,745
H. South Stack Sub-Total	$19,884,503

IV. Summary of Costs

I. HWMUs Post-Closure Care	$16,456,185
J. Non-Hazardous Sub-Total	$14,233,584
K. South Stack Sub-Total	$19,884,503
L. Grand Total	$50,574,272

Note:

Table 11-2 includes North Stack Ground Water Sampling and Monitoring. This table also contains cost estimate for post-closure care of the South Stack.

ATTACHMENT E

CONSTRUCTION CERTIFICATION

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Attachment E: Construction Certification

This statement is to be completed by both the responsible officer and the qualified Illinois lessened Professional Engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the Permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land #33
Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: Laraway Recycling and Disposal Facility
IEPA's SITE CODE: LPC #1970450002
U.S. EPA ID NO.: ILD074411745
PART B PERMIT LOG No. B-141R
PERMIT (OR MODIFICATION) ISSUANCE DATE:
PERMIT CONDITION NO. REQUIRING CERTIFICATION:

The _____ has been constructed in accordance with the specifications in the Permit. Documentation that the construction was in accordance with the Permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction of 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.

_____	_____
Signature of Owner/Operator	Name and Title
_____	_____
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number
Date	(P.E. SEAL)

ATTACHMENT F

APPROVED PERMIT APPLICATION IDENTIFICATION

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Attachment F: APPROVED PERMIT APPLICATION IDENTIFICATION

A. Application for Renewed RCRA Post-Closure Permit Issued May 17, 2010 (B-141R)

1. Application titled: "RCRA Part B Post-Closure Permit Renewal Application" dated January 28, 2005.

2. Additional information dated February 20, 2009.

3. Additional information dated May 20, 2009.

B. Construction/Operation of a Non-hazardous Waste Landfill

1. Application titled: "Laraway Recycling and Disposal Facility Class 3 Permit Modification – Solid Waste Unit Expansion" dated February 2008

2. Additional information dated February 13, 2009.

3. Additional information dated March 6, 2009.

4. Additional information dated May 18, 2009.

5. Additional information dated July 8, 2009.

6. Additional information dated August 13, 2009.

7. Additional information dated September 29, 2009.

8. Additional information dated November 13, 2009

C. Corrective Action for Solid Waste Management Units

1. Application titled: "North and South Stack Corrective Action Plan" dated February 2008.

2. Additional information dated July 31, 2008.

3. Additional information dated February 13, 2009.

4. Additional information dated May 8, 2009.

D. Approved Permit Modification Requests

1. Class 1 Permit Modification Request (Log No. B-141R-M-1) dated June 1, 2010, and approved by Illinois EPA on July 14, 2010.

2. Class 1* Permit Modification Request (Log No. B-141R-M-2) dated June 8, 2010, and approved by Illinois EPA on July 14, 2010.

3. Class 1* Permit Modification Request (Log No. B-141R-M-3) dated August 10, 2010.

4. Class 1* Permit Modification Request (Log No. B-141R-CA-1 and B-141R-M-4) dated July 12, 2010 and August 10, 2010, and approved by Illinois EPA on November 10, 2010.

5. Class 1* Permit Modification Request (Log No. B-141R-M-5) dated August 25, 2010, and approved by Illinois EPA on November 10, 2010.

6. Class 1* Permit Modification Requests (Log No. B-141R-M-6, 7, 8 and 9), dated September 2, 2010, September 15, 2010, October 6, 2010 and October 12, 2010, and approved by Illinois EPA on December 27, 2010.

7. Class 1* Permit Modification Request (Log No. B-141R-M-10), dated November 4, 2010, and approved by Illinois EPA on January 11, 2011.

8. Class 1 and 1* Permit Modification Requests (Log No. B-141-R-M-13, 14, 15 and 16), dated December 3, 2010; January 7, 2011; and February 7, 2011, and approved by Illinois EPA on February 25, 2011.

9. Class 1* Permit Modification Request (Log No. B-141R-M-11) dated October 29, 2010, and approved by Illinois EPA on March 4, 2011.

10. Class 1* Permit Modification Request (Log No. B-141R-M-20) dated March 1, 2011, and approved by Illinois EPA on April 8, 2011.

11. Class 1* Permit Modification Requests (Log No. B-141R-M-21, 23 and 24) dated March 23, 2011; April 25, 2011; and March 17, 2011, and approved by Illinois EPA on June 21, 2011.

12. Class 1* Permit Modification Request (Log No. B-141R-M-18) dated December 6, 2010; additional information was submitted December 22, 2010. Among other things this submittal included a revised Appendix K (North and South Stack Construction Quality Assurance Plan), and approved by Illinois EPA on September 1, 2011.

13. Class 1* permit Modification Requests (Log No B-141R-M-12, 17, 19, 26, 30, and 31) dated November 9, 2010, December 7, 2010, February 21, 2011, May 31, 2011, July 11, 2011, and July 18, 2011; and approved by Illinois EPA on August 19, 2011. Note that this approval letter also acknowledged the withdrawal of a Class 1* permit modification request dated April 14, 2011 (Log No. B-141R-M-22).

14. Class 1* Permit Modification Requests, all approved on September 1, 2011:
    Log No. B-141R-M-25 dated May 5, 2011
    Log No. B-141R-M-27 dated June 8, 2011
    Log No. B-141R-M-28 dated June 17, 2011
    Log No. B-141R-M-29 dated July 6, 2011
    Log No. B-141R-M-32 dated August 1, 2011

15. Class 1* Permit Modification Request (Log No. B-141R-M-36) dated October 12, 2011, 2011, and approved by Illinois EPA on November 10, 2011

16. Class 1* Permit Modification Requests (Log No. B-141R-M-33 and 35) dated September 26, 2011 and November 211, 2011

17. Class 1* Permit Modification Requests (Log Nos. B-141R-M-34, 37, 38, and 39) dated October 3, 2011, November 18, 2011, November 21, 2011, and January 17, 2012.

18. Class 1* Permit Modification Request (Log No. B141R-M-40, 41, 42, 43, 44, 46, and 47) dated January 24, 2012; January 27, 2012; February 3, 2012; February 6, 2012; April 12, 2012; and May 10, 2012.

19. Class 1* Permit Modification Requests (Log Nos. B-141R-M-49, 50, 51, and 52) dated May 29, 2012, June 6, 2012, June 29, 2012, and July 10, 2012.

20. Class 1* Permit Modification Request (Log No. B-141R-M-54) dated August 21, 2012.

21. Class 1* Permit Modification Request (Log No. B-141R-M-45) dated April 1, 2012.

22. Class 1* Permit Modification Request (Log No. B-141R-M-48) dated May 23, 2012, additional information submitted June 14, 2012.

23. Class 1* Permit Modification Request (Log No. B-141R-M-55) dated August 24, 2012.

24. Class 1* Permit Modification Request (Log No. B-141R-M-61) dated January 11, 2013.

25. Class 1* Permit Modification Request (Log No. B-141R-M-53) dated August 22, 2012.

26. Class 1* Permit Modification Request (Log No. B-141R-M-57) dated September 13, 2012.

27. Class 1* Permit Modification Request (Log No. B-141R-M-58) dated October 2, 2012. Additional information submitted November 28, 2012.

28. Class 1* Permit Modification Request (Log No. B-141R-M-59) dated November 1, 2012. Additional information submitted January 24, 2013.

29. Class 1* Permit Modification Request (Log No. B-141R-M-60) dated November 28, 2012.

30. Class 1* Permit Modification Request (Log No. B-141R-M-63) dated November, 2012.

31. Class 1* Permit Modification Request (Log No. B-141R-M-61) dated January 11, 2013.

32. Class 1* Permit Modification Request (Log No. B-141R-M-62) dated January 21, 2013.

33. Class 1* Permit Modification Request (Log No. B-141R-M-64) dated February 6, 2013. Additional information dated February 11, 2013.

34. Class 1* Permit Modification Request (Log No. B-141R-M-65) dated February 6, 2013.

35. Class 1* Permit Modification Request (Log No. B-141R-M-67) dated April 10, 2013.

36. Class 1* Permit Modification Request (Log No. B-141R-M-68) dated February 6, 2013.

37. Class 1* Permit Modification Request (Log No. B-141R-M-69) dated May 6, 2013.

38. Class 1* Permit Modification Request (Log No. B-141R-M-66) dated February 27, 2013.

39. Class 1* Permit Modification Request (Log No. B-141R-M-70) dated May 31, 2013.

40. Class 1* Permit Modification Request (Log No. B-141R-M-71) dated May 31, 2013.

41. Class 1* Permit Modification Request (Log No. B-141R-M-72) dated June 17, 2013.

42. Class 1* Permit Modification Request (Log No. B-141R-M-73) dated May 13, 2013.

43. Class 1* Permit Modification Request (Log No. B-141R-M-74) dated August 12, 2013 and September 6, 2013 and approved by Illinois EPA on September 18, 2013.

44. Class 1* Permit Modification Request (Log No. B-141R-M-75) dated September 19, 2013 and approved by Illinois EPA on February 7, 2014.

45. Class 1* Permit Modification Request (Log No. B-141R-M-76) dated October 30, 2013 and approved by Illinois EPA on February 7, 2014.

46. Class 1* Permit Modification Request (Log No. B-141R-M-77) dated October 31, 2013 and approved by Illinois EPA on February 7, 2014.

47. Class 1* Permit Modification Request (Log No. B-141R-M-78) dated October 31, 2013. Additional information dated November 14, 2013 and November 25. 2013. Approved by Illinois EPA on February 7, 2014.

48. Class 1* Permit Modification Request (Log No. B-141R-M-79) dated November 25, 2013 and approved by Illinois EPA March 25, 2014.

49. Class 1* Permit Modification Request (Log No. B-141R-M-80) dated December 9, 2013 and approved by Illinois EPA March 25, 2014.

50. Class 1* Permit Modification Request (Log No. B-141R-M-81) dated January 28, 2014 and approved by Illinois EPA March 25, 2014.

51. Class 1* Permit Modification Request (Log No. B-141R-M-82) dated January 28, 2014 and approved by Illinois EPA March 25, 2014.

52. Class 1* Permit Modification Request (Log No. B-141R-M-83) dated March 13, 2014 and approved by Illinois EPA May 15, 2014.

53. Class 1* Permit Modification Request (Log No. B-141R-M-84) dated March 18, 2014 and approved by Illinois EPA May 15, 2014.

54. Class 1* Permit Modification Request (Log No. B-141R-M-86) dated May 21, 2014 and June 23, 2014 and approved by Illinois EPA on July 15, 2014.

55. Class 1* Permit Modification Request (Log No. B-141R-M-87) dated May 22, 2014 and approved by Illinois EPA September 3, 2014.

56. Class 1* Permit Modification Request (Log No. B-141R-M-88) dated July 16, 2014 and approved by Illinois EPA September 3, 2014.

57. Class 1* Permit Modification Request (Log No. B-141R-M-89) dated July 28, 2014 and approved by Illinois EPA on September 26, 2014.

58. Class 1* Permit Modification Request (Log No. B-141R-M-90) dated July 28, 2014 and approved by Illinois EPA on September 26, 2014.

59. Class 1* Permit Modification Request (Log No. B-141R-M-91) dated August 4, 2014 and approved by Illinois EPA October 9, 2014.

60. Class 1* Permit Modification Request (Log No. B-141R-M-92) dated August 14, 2014 and approved by Illinois EPA on September 26, 2014.

61. Class 1* Permit Modification Request (Log No. B-141R-M-93) dated September 15, 2014 and approved by Illinois EPA on October 20, 2014.

62. Class 1* Permit Modification Request (Log No. B-141R-M-94) dated October 15, 2014 and approved by Illinois EPA on April 20, 2015.

63. Class 1* Permit Modification Request (Log No. B-141R-M-96) dated December 1, 2014 and approved by Illinois EPA on March 3, 2015.

64. Class 1* Permit Modification Request (Log No. B-141R-M-97) dated December 18, 2014 and approved by Illinois EPA on March 3, 2015.

65. Class 1* Permit Modification Request (Log No. B-141R-M-98) dated March 19, 2015 and approved by Illinois EPA on April 20, 2015.

66. Class 1* Permit Modification Request (Log No. B-141R-M-99) dated May 13, 2015 and approved by Illinois EPA on June 30, 2015.

67. Class 1* Permit Modification Request (Log No. B-141R-M-100) dated June 16, 2015 and approved by Illinois EPA on August 10, 2015.

68. Class 1* Permit Modification Request (Log No. B-141R-M-101) dated July 7, 2015 and approved by Illinois EPA on August 10, 2015.

69. Class 1* Permit Modification Request (Log No. B-141R-M-102) dated July 22, 2015.

70. Class 1* Permit Modification Request (Log No. B-141R-M-103) dated September 8, 2015.

71. Class 1* Permit Modification Request (Log no. B-141R-M-95) dated October 29, 2014.

72. Class 1* Permit Modification Request (Log No. B-141R-M-105) dated November 2, 2015.

73. Class 1* Permit Modification Request (Log No. B-141R-M-104) dated January 19, 2016.

74. Class 1* Permit Modification Request (Log No. B-141R-M-106) dated January 19, 2016.

75. Class 1* Permit Modification Request (Log No. B-141R-M-107) dated March 18, 2016.

76. Class 1* Permit Modification Request (Log No. B-141R-M-109) dated May 17, 2016.

77. Class 1* Permit Modification Request (Log No. B-141R-M-110) dated June 17, 2016.

78. Class 1* Permit Modification Request (Log No. B-141R-M-112) dated August 9, 2016.

79. Class 1* Permit Modification Request (Log No. B-141R-M-113) dated August 11, 2016.

80. Class 1* Permit Modification Request (Log No. B-141R-M-115) dated November 1, 2016.

81. Class 1* Permit Modification Request (Log No. B-141R-M-108) dated April 15, 2016.

82. Class 1* Permit Modification Request (Log No. B-141R-M-111) dated July 20, 2016.

83. Class 1* Permit Modification Request (Log No. B-141R-M-116) dated November 3, 2016.

84. Class 1* Permit Modification Request (Log No. B-141R-M-117) dated December 15, 2016.

85. Class 1* Permit Modification Request (Log No. B-141R-M-122) dated April 5, 2017.

86. Class 1* Permit Modification Request (Log No. B-141R-M-126) dated August 18, 2017

87. Class 1* Permit Modification Request (Log No. B-141R-M-128) dated October 11, 2018. Closure certification report covering 19.2 acres of the solid waste landfill.

88. Class 1* Permit Modification Request (Log No. B-141R-M-129) dated November 21, 2017. Modifications to base grade elevations and drainage basins.

89. Class 1* Permit Modification Request (Log No. B-141R-M-118) dated December 15, 2016. Changes to the facility's groundwater and landfill gas monitoring programs.

90. Class 1* Permit Modification Request (Log No. B-141R-M-119) dated January 5, 2017. Demonstration of alternate source for groundwater exceedances during the third and fourth quarter 2016 groundwater sampling events.

91. Class 1* Permit Modification Request (Log No. B-141R-M-120) dated March 8, 2017. Proposed changes to the groundwater monitoring program for the non-hazardous waste landfill. Note that the proposed change from quarterly to semi-annual groundwater monitoring for select wells contained in this submittal was not approved.

92. Class 1* Permit Modification Request (Log No. B-141R-M-121) dated March 21, 2017. Proposal for an assessment monitoring plan to address dissolved sulfate levels in Well G188 at the facility's non-hazardous waste landfill.

93. Class 1* Permit Modification Request (Log No. B-141R-M-123) dated May 11, 2017. Additional information dated January 25, 2018. Updates to cost estimates.

94. Class 1* Permit Modification Request (Log No. B-141R-M-136) dated October 2, 2018. Construction certification for Phase 9A.

95. Class 1* Permit Modification Request (Log No. B-141R-M-133) dated May 10, 2018. Updated closure/post-closure plans and cost estimates.

96. Class 1* Permit Modification Request (Log No. B-141R-M-135) dated August 13, 2018. Revised clay liner elevations in the future Phase 12 and 13 areas, revised waste placement procedures, allowed use of non-hazardous refractory brick waste for internal landfill access roads, acceptance of gas probe GP-14 installation report, and an updated leachate monitoring schedule.

97. Class 1* Permit Modification Request (Log No. B-141R-M-140) dated May 7, 2019. Updated closure/post-closure plans and cost estimates

98. Class 1* Permit Modification Request (Log No. B-141R-M-144) dated November 27, 2019. Construction Certification for Phases 8B, 9B, and 10A.

99. Class 1* Permit Modification Request (Log No. B-141R-M-147) dated November 27, 2019. Construction Certification for Phase 11A. Additional information received April 2, 2020.

100. Class 1* Permit Modification Request (Log No. B-141R-M-143) dated September 20, 2019. Changes in status for Well G1A1 and revised MAPC values.

101. Class 1* Permit Modification Request (Log No. B-141R-M-124) dated November 27, 2019. Alternate Source Demonstration for Well R149

102. Class 1* Permit Modification Request (Log No. B-141R-M-127) dated September 26, 2017. Alternate Source Demonstration for Well R173, exceedances in well G52S, and recalculated background value for well G173.

103. Class 1* Permit Modification Request (Log No. B-141R-M-130) dated December 5, 2017. Alternate Source Demonstration for Well P112.

104. Class 1* Permit Modification Request (Log No. B-141R-M-134) dated June 14, 2018. Alternate Source Demonstration for Well R113 and P112.

105. Class 1* Permit Modification Request (Log No. B-141R-M-141) dated June 26, 2019. Alternate Source Demonstration for Wells G52S, R122, G148, and P112.

106. Class 1* Permit Modification Request (Log No. B-141R-M-131) dated March 21, 2018. Proposed changes to conditions for well G175.

107. Class 1* Permit Modification Request (Log No. B-141R-M-137) dated November 14, 2018. Proposed changes to conditions for well G175.

106. Additional information submitted in support of Items 102 -107 dated February 5, 2020.

107. Class 1* Permit Modification Request (Log No. B-141R-M-148) dated March 4, 2020. Assessment Monitoring Report.

108. Class 1* Permit Modification Request (Log No. B-141R-M-138) dated January 14, 2019. Request Corrections to 10/18/18 Permit (Log # B-141R-M-118, M-119, M-120, M-121, & M-123).

109. Class 1* Permit Modification Request (Log No. B-141R-M-142) dated August 2, 2019. Update to Section E of the Post-Closure Permit Application.

110. Class 1* Permit Modification Request (Log No. B-141R-M-145) dated December 30, 2019. Alternate source demonstration for well R112

111. Class 1* Permit Modification Request (Log No. B-141R-M-146) dated January 8, 2020. Alternate source demonstration for wells G52S and R122.

112. Class 1* Permit Modification Request (Log No. B-141R-M-149) dated May 18, 2020. Changes to the groundwater monitoring program for Wells G1B2, G1A2, and G1A3.

113. Class 1* Permit Modification Request (Log No. B-141R-M-151) dated August 24, 2020. Changes to the groundwater monitoring program for Well G1A3.

114. Class 1* Permit Modification Request (Log No. B-141R-M-152) dated September 17, 2020. Alternate source demonstrations for second and third quarter exceedances at wells G173, G188 and G195; a notice of well replacement for G173; and a proposed permit language modification.

115. Class 1* Permit Modification Request (Log No. B-141R-M-150) Dated May 20, 2020 (Additional information received December 14, 2020). Cost Estimate Updates.

116. Class 1* Permit Modification Request (Log No. B-141R-M-154) Dated October 6, 2020 (Additional information received May 8, 2021 (two submittals), and May 19, 2021. Construction Certification report for Cells 12A, 13A, and 14A.

117. Class 1* Permit Modification Request (Log No. B-141R-M-153) dated September 30, 2020. Closure Certification report for approximately 24.2 acres on the east side of the facility covering portions of Phases 4, 5, and 6.

118. Class 1* Permit Modification Request (Log No. B-141R-M-155) dated February 5, 2021. Additional information dated June 9, 2021. Construction report for new solid waste groundwater monitoring wells.

119. Class 1* Permit Modification Request (Log No. B-141R-M-157) dated March 8, 2021. Additional information dated May 19, 2021. Alternate source demonstration for new solid waste groundwater monitoring exceedances.

120. Class 1* Permit Modification Request (Log No. B-141R-M-158) dated May 14, 2021. Updates to cost estimates.

121. Class 1* Permit Modification Request (Log No. B-141R-M-161) dated August 13, 2021. Change sampling frequency for wells G197, G198 and G1B4.

122. Class 1* Permit Modification Request (Log No. B-141R-M-162) dated September 9, 2021. Construction certification report for cells 11B and 12B.

124. Class 1* Permit Modification Request (Log No. B-141R-M-164) dated November 17, 2021. Additional information dated May 16, 2022.

125. Class 3 Permit Modification Request (Log No. B-141R-M-125) Dated July 31, 2017. Additional information dated September 9, 2017, January 19, 2021, May 26, 2022, October 12, 2022, October 25, 2022, and November 22, 1022.

126. Class 1* Permit Modification Request (Log No. B-141R-M-169) dated August 10, 2022. Abandonment of well G1A5 and construction of well G281

127. Class 1* Permit Modification Requests, all approved on July XX, 2024.
Log No. B-141R-M-167 (2022 Cost Estimate) – Dated May 9, 2022
Log No. B-141R-M-174 (2023 Cost Estimate) – Dated May 12, 2023
Log No. B-141R-M-178 (Disposal Cell Phase
9C / 10B Construction Acceptance Report) – Dated January 22, 2024
Log No. B-141R-M-181 (2024 Cost Estimate) – Dated May 8, 2024

ATTACHMENT G

GROUNDWATER REPORTING FORMS

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA Permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: _____ Site ID #: _____
Facility Address: _____ Fed ID #: _____
Check the appropriate heading. Only one heading may be checked for each corresponding submittal.
Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater	Leachate
___ Quarterly – Indicate one: 1 2 3 4	___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual	___ Semi-Annual
___ Annual	___ Annual
___ Biennial	___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

___ Other (identify)

_____

_____

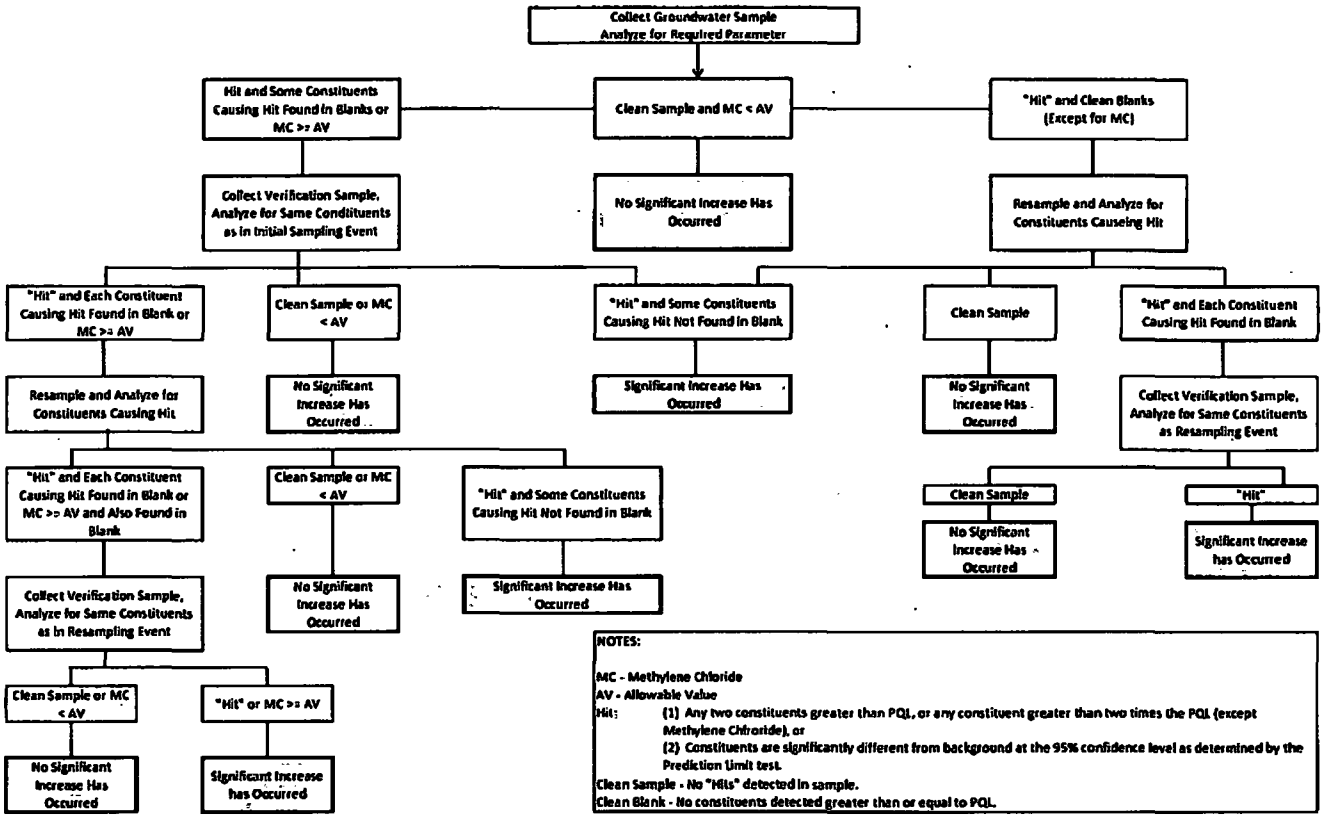
IL 532-2675
LPC 592 5/2000

ATTACHMENT H

STATISTICAL PROCEDURES FLOW CHART

STATE ID No: 1970450002

USEPA ID No: ILD074411745


Collect Groundwater Sample
Analyze for Required Parameter
Hit and Some Constituents Causing Hit Found in Blanks or MC >= AV
Clean Sample and MC < AV
"Hit" and Clean Blanks (Except for MC)
Collect Verification Sample, Analyze for Same Conditituents as in Initial Sampling Event
No Significant Increase Has Occurred
Resample and Analyze for Constituents Causeing Hit
"Hit" and Each Constituent Causing Hit Found in Blank or MC >= AV
Clean Sample or MC < AV
"Hit" and Some Constituents Causing Hit Not Found in Blank
Clean Sample
"Hit" and Each Constituent Causing Hit Found in Blank
Resample and Analyze for Constituents Causing Hit
No Significant Increase Has Occurred
Significant Increase Has Occurred
No Significant Increase Has Occurred
Collect Verification Sample, Analyze for Same Constituents as Resampling Event
"Hit" and Each Constituent Causing Hit Found in Blank or MC >= AV and Also Found in Blank
Clean Sample or MC < AV
"Hit" and Some Constituents Causing Hit Not Found in Blank
Clean Sample
"Hit"
Collect Verification Sample, Analyze for Same Constituents as in Resampling Event
No Significant Increase Has Occurred
Significant Increase Has Occurred
No Significant Increase Has Occurred
Significant Increase has Occurred
Clean Sample or MC < AV
"Hit" or MC >= AV
No Significant Increase Has Occurred
Significant Increase has Occurred
NOTES:
MC - Methylene Chloride
AV - Allowable Value
Hit: (1) Any two constituents greater than PQL, or any constituent greater than two times the PQL (except Methylene Chloride), or
(2) Constituents are significantly different from background at the 95% confidence level as determined by the Prediction Limit test.
Clean Sample - No "Hits" detected in sample.
Clean Blank - No constituents detected greater than or equal to PQL.

ATTACHMENT I

FACILITY PLAN

STATE ID No: 1970450002

USEPA ID No: ILD074411745

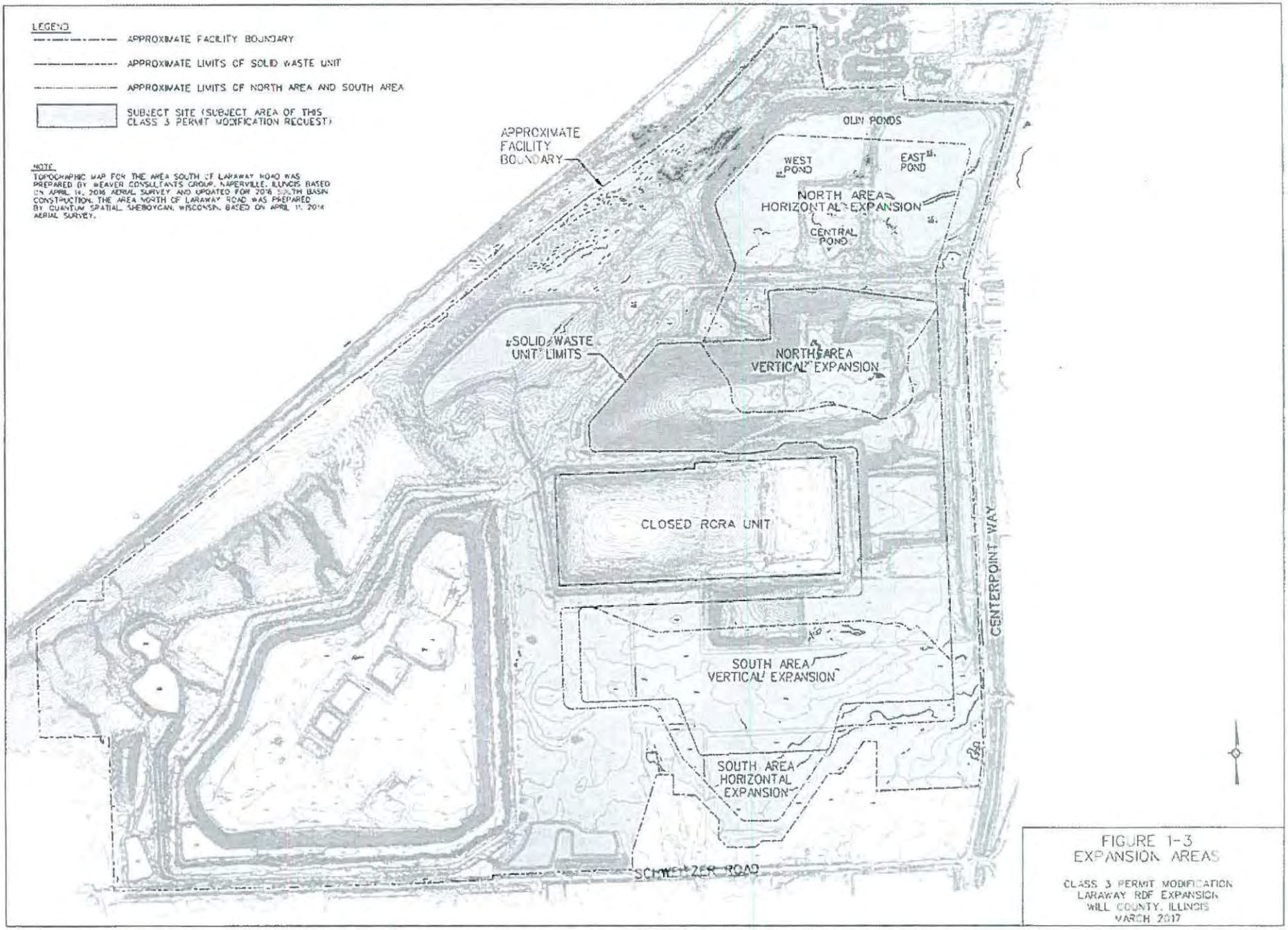


FIGURE 1-3
EXPANSION AREAS

CLASS 3 PERMIT MODIFICATION
LARAWAY RDF EXPANSION
WILL COUNTY, ILLINOIS
MARCH 2017

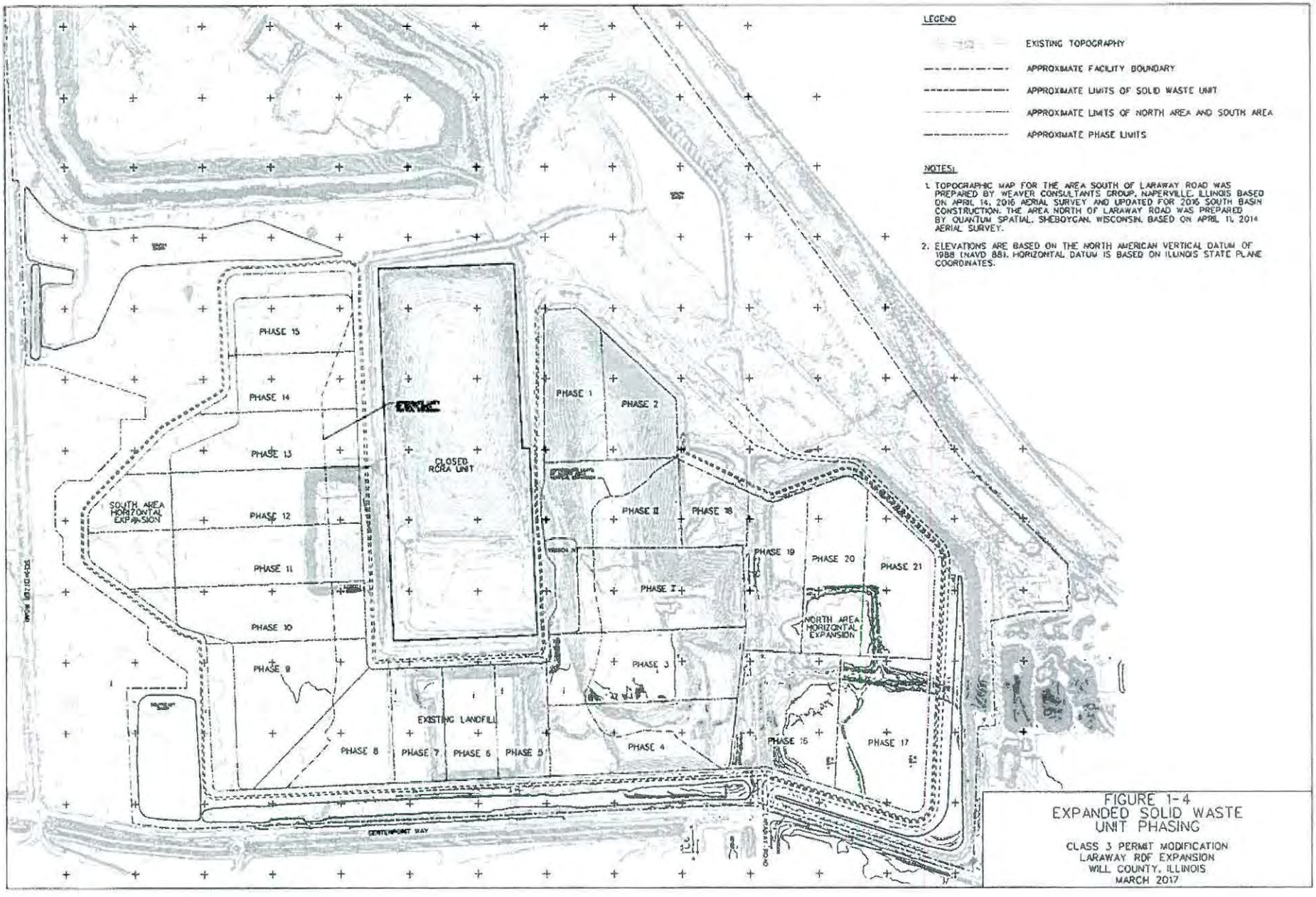


FIGURE 1-4
EXPANDED SOLID WASTE UNIT PHASING

CLASS 3 PERMIT MODIFICATION
LARAWAY RDF EXPANSION
WILL COUNTY, ILLINOIS
MARCH 2017

ATTACHMENT J

Illinois EPA Determinations Regarding Specific Permit Modification Requests

STATE ID No: 1970450002

USEPA ID No: ILD074411745

Attachment J:

Illinois EPA Determinations Regarding Specific Permit Modification Requests

The Illinois EPA has determined that certain portions of submittals identified in Section D of Attachment F as part of the approved permit application cannot be approved as proposed. The following determinations apply to specific modification requests as identified below. All Item references are to Attachment F.

1. Regarding Item D.27: The Illinois EPA has determined the following:

    a. Attachment 4 of the October 2, 2012 submittal cannot be approved due to the following:

        i. The attachment includes portions of a document denied by the September 1, 2011 Illinois EPA letter (Log No. B-141R-M-18, 25, 27, 28, 29 and 32);

        ii. The attachment includes parameters that are not of concern in the subject submittal;

        iii. The attachment includes proposed background values for monitoring well G1B3 which is not included in the subject groundwater assessment; and

        iv. The attachment refers to MAPCs rather than AGQSs making the intended purpose of the calculations confusing.

2. Regarding Item D.28, Condition II.J.17 remains outstanding.

3. Regarding Item D.29:

    a. The Illinois EPA has determined that the request to delete total and dissolved barium from Conditions II.E.1, List E1 and Condition II.E.2, List E2 is not adequate to meet the requirements of Title 35 Illinois Administrative Code (35 IAC) 724.197(a)(3) and 724.200(d) therefore cannot be approved. Semi-annual evaluation of those parameters must continue pursuant to the current requirements for parameters in Lists E1 and E2 of the Permit.

b. Due to Comment 3.a above, the proposed revisions to the Permit Renewal Application cannot be approved. Within 90 days of the date of this Illinois EPA response, revised portions of the Permit Renewal Application consistent with this Illinois EPA determination must be submitted as a Class 1* permit application pursuant to the requirements of 35 IAC Part 703.280.

c. The Illinois EPA does not concur with the facility's assertion that the 35 IAC 620, Class 1 GQSs are not applicable until corrective action is completed. Conditions II.D, Table 2 and II.F.2 designate GMZ monitoring wells that must meet applicable GQSs serving as sentry wells to indicate if the corrective action must be modified.

4. Regarding Item D.30:

a. The facility does not specifically state that it wants to discontinue monitoring for total and dissolved arsenic, lead, manganese, and sulfate, in groundwater at the North Stack, but it is implied based on the proposal to conduct a Tier 2 Evaluation for those parameters. Due to ongoing exeedences for those parameters, a request to discontinue monitoring them cannot be approved at this time.

b. The proposal to conduct a Tier 2 evaluation for arsenic, lead, manganese, and sulfate within 180 days of Illinois EPA approval of the subject submittal cannot be approved at this time. However, a TACO evaluation must be submitted for Illinois EPA review and approval by August 15, 2014. This is due to the following:

i. The distance downgradient from compliance wells to the property boundary (as little as 100 ft) and the lack of retardation factors for inorganic constituents makes it unlikely that compliance can currently be achieved at the nearest point of human exposure which, at this time, is the property boundary.

ii. Based on a phone conversation with Sean Chisek during the week of January 27, 2013, the facility expressed a desire to establish an ELUC restricting groundwater use on the downgradient railroad property, which would move the nearest point of human exposure to the Des Plaines River and make it more likely to achieve compliance. Currently, the facility has secured no such agreement from the railroad. ELUCs cannot be imposed on an adjacent property without the adjacent property owner's approval.

iii. The August 15, 2014, date allows an additional 18 months of monitoring following the source removal in order to determine if significant improvement of groundwater quality occurs as a result of that effort.

iv. The additional 18 months will provide a data set to allow for a more robust trend evaluation. The data set will span from the 4th Quarter 2010 through the 2nd Quarter 2014 and will include the following ten sampling events: 4Q 2010, 2Q 2011, 4Q 2011, 1Q 2012, 2Q 2012, 3Q 2012, 4Q 2012, 2Q 2013, 4Q 2013, and 2Q 2014.

5. Regarding Item D.30:

   a. The Illinois EPA has determined that it cannot approve the request to designate monitoring wells G124, G126, G161 and R134 to be used only for monitoring groundwater elevation due to outstanding issues with arsenic in groundwater. See Comment 2 above.

   b. On February 27, 2013, the facility submitted a work plan to investigate the source(s) of arsenic currently observed in various GMZ groundwater monitoring wells. That document is currently under review by the Illinois EPA. At this time, Condition II.J.17 remains outstanding pending the submittal and Illinois EPA review of that investigation.

   c. On October 4, 2012, the Illinois Pollution Control Board (Board) adopted amendments to 35 IAC Part 620 that include new and revised Groundwater Quality Standards for numerous organic and inorganic parameters. In accordance with 35 IAC 703.271(c) the facility must submit proposed revisions adequate to update the Permit to meet those new requirements. The proposal must be submitted in the form of a Class 1* permit application pursuant to 35 IAC 703.280 within 90 days of the date of this Illinois EPA letter.

6. Regarding Item D.38:

   a. The facility must include monitoring wells G1B1 and G1B2 in investigation activities. This is due to the following:

      i. Wells G1B1 and G1B2 are located at positions most unlikely to be affected by any of the waste management units at the facility, approximately 2,100 and 1,900 ft. respectively side gradient to upgradient of the hazardous waste landfill; much farther than proposed wells WT-208-07 and WT-209-07 (about 625 ft.), well WT-207-07 (about 1,000 ft.), and well D-122-05 (about 1,500 ft.)

ii. Illinois EPA does not concur with the following statement made in the July 8, 2013, email:

> "The other wells [G1B1 and G1B2] could be representative of the groundwater in the general area, but are not upgradient of the unit. If they're not upgradient, they wouldn't be valid as upgradient background wells."
>
> The statement acknowledges that wells G1B1 and G1B2 monitor groundwater that is representative of the general area and not affected by the regulated unit. Unless groundwater data demonstrates otherwise, the wells appear to meet the requirements of 35 IAC 724.197(a)(1) and <u>are</u> potentially valid as background wells.

b. The facility must determine if there is/are potential geologic sources of arsenic in groundwater. Therefore, samples must be collected from each geologic unit down to the upper bedrock present at the facility. This includes the soil horizon, the Peoria Silt, the Lemont Formation Yorkville Member, the Equality formation, the Henry Formation, and the upper weathered portions of the Silurian Dolomite. Those samples must be analyzed to determine arsenic concentrations in those materials, and must be evaluated to determine the potential for arsenic to be leached from those materials based on the geochemical conditions that are determined to be present at the facility.

7. Regarding Item D.49, the proposed AGS/MAPc value of 12 ug/L for p-isopropyltoluene is not approved. At this time, the detections appear to be an anomaly and therefore not representative of actual groundwater conditions.

8. Regarding Item D.50, the revised Page 10-9 of the Solid Waste Expansion Class 3 Permit Modification Application is not approved. It lists a revised MAPC/AGQS of 12ug/L for p-isopropyltoluene. As discussed in Condition 7, this revised MAPC/AGQS is not approved.

9. Regarding Item D.77, the request to modify Permit Condition II.I.2.b to refer to constituent List E1 cannot be approved. Condition II.I.2.b refers to annual sampling and analysis as does List E3. Analysis of List E1 is required by Condition II.I.1.b of the Permit.

Electronic Filing: Received, Clerk's Office 08/04/2025

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

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JUL 30 2024

9589 0710 5270 0389 7097 06

Waste Management of Illinois, Inc.
Attn: Ian Johnson
21233 West Laraway Road
Joliet, Illinois 60436-9525

Waste Management of Illinois, Inc.
Attn: James Wilson
700 East Butterfield Road Suite 400
Lombard, Illinois 60148-5671

Re: 1970450002 – Will County
Laraway Recycling and Disposal Facility
USEPA ILD074411745
Log No. B-141R2
RCRA Permit File – 24D
Permit Correspondence

Dear Mr. Johnson and Mr. James Wilson:

The purpose of this letter is to inform Waste Management of Illinois, Inc. (WMI) of the Illinois EPA's post-closure care evaluation and determination for a closed hazardous waste management unit, Areas 1 and 2, at the above-referenced Laraway Recycling and Disposal Facility (Laraway).

Laraway has been conducting post-closure care activities at Areas 1 and 2 since September 10, 1992, the date Illinois EPA accepted certification of closure, under the requirements of the facility's RCRA Post-Closure Permit (Log Nos. B-141 and B-141R).

The Illinois EPA has conducted a review and evaluation of the post-closure status and financial assurance liability for Areas 1 and 2 to determine whether the environmental conditions and associated regulatory requirements identified at this site meet the standards of the Illinois Environmental Protection Act (Act), Title 35 Illinois Administrative Code (35 IAC) Subtitle G, Subtitle C of the Resource Conservation and Recovery Act (RCRA), and the USEPA's "Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA", dated December 15, 2016 (2016 USEPA Guidance). In addition, USEPA's guidance "Implementing Climate Resilience in Hazardous Waste Permitting Under the Resource Conservation and Recovery Act (RCRA)", dated June 5, 2024 (June 5, 2024 USEPA Guidance) is also referenced in this letter. A copy of the 2016 USEPA Guidance and June 5, 2024 USEPA Guidance are attached to this letter.

1. Post-Closure Care Period Evaluation

Condition I.C.2 of the facility's current RCRA Post-Closure Permit states, post-closure care of the Areas 1 and 2 must be provided for at least thirty (30) years, until at least September 10, 2022. The Illinois EPA has evaluated the conditions of the site, as identified in this letter, and determined that it is necessary to continue post-closure care of Areas 1 and 2 beyond September 10, 2022, for at least thirty (30) years in accordance with 35 IAC 703.282. Additionally, the facility must modify the current RCRA Post-Closure Plan in order to address current and future environmental concerns identified in this letter.

The Illinois EPA's determination to require Laraway to extend post-closure care for Areas 1 and 2 is based on the following:

a. Leachate: The ongoing generation of leachate from Areas 1 and 2 requires continued leachate collection and management under post-closure care in accordance with 35 IAC 724.410(b)(2). According to Laraway's annual leachate report for 2023, reported volumes of leachate generated from the Areas 1 and 2, were 824,265 gallons in 2022 and 1,023,250 gallons in 2023.

According to the 2016 USEPA Guidance, monitoring for leachate generation serves as the most effective way of examining the integrity of the waste management unit (e.g., it can suggest a cover or liner failure when leachate is detected late in the post-closure care period).

b. Nature of waste in the landfill: The wastes contained in Areas 1 and 2, approximately 55 acres in size, are considered RCRA hazardous wastes. Area 1 accepted a mixture of municipal solid waste and industrial bulk waste, some of which was hazardous waste. Area 2 accepted containers of waste.

Since hazardous wastes remain in place, Areas 1 and 2 are susceptible to long-term risks and therefore requires continued maintenance and management under post-closure care.

c. Unit Type/Design: The existing final cover system design for Areas 1 and 2, from top to bottom is: 1) a 28-inch thick final cover protective layer to support vegetation (the top 6 inches (minimum) of which is topsoil); 2) a 12-oz/sy non-woven geotextile; 3) a geonet drainage layer; 4) a 40-mil high density polyethylene (HDPE) geomembrane; and 5) a 24-inch compacted clay layer ($K = 1.00 \times 10^{-7}$ cm/s).

The existing leachate collection system was installed as a retrofit system to Areas 1 and 2. The Areas 1 and 2 landfills were not designed to meet the requirements of 35 IAC 724.401 as confirmed in the facility's RCRA Permit renewal application, dated February 27, 2020. 35 IAC 724.410 requires minimum requirements which must be met during the post-closure care period to provide long-term minimization of migration of liquid though the cover system and minimization of leachate. As noted in the 2016 USEPA Guidance, a viable cover is the most important mechanisms in preventing leachate generation and, ultimately, a release of contaminants to the environment. Maintenance and monitoring of the cover system must continue to preserve its integrity. As the subject units do not meet the minimum design standards of a hazardous waste landfill, a continued long-term monitoring and maintenance of Areas 1 and 2 are necessary.

d. Landfill Gas: Area 1 is equipped with a Gas Collection and Control System (GCCS). After nearly thirty-two (32) years of post-closure care, landfill gas continues to be generated, and therefore, a landfill gas monitoring/management program must continue at Area 1. The gas collection system must remain operational and be maintained.

e. Long-Term Care (also known as Long-Term Stewardship): The establishment and maintenance of physical and legal land use controls at Areas 1 and 2 are necessary to prevent exposure to the hazardous waste and hazardous constituents abandoned within the landfill. The Illinois EPA has determined that long-term monitoring, including maintenance of the cover system and groundwater monitoring system, control of any liquids (leachate), and landfill gas, and restrictions of future land uses must be established at the site. These measures must continue to minimize future exposure and potential hazardous waste releases to the environment in accordance with 35 IAC 724.410(b)(1), Section 12(a), 21(n), and 39(g) of the Act and the 2016 USEPA Guidance.

f. Climate Change Consideration: Long-term care of the hazardous waste management unit mentioned above must also consider impacts from climate change. The June 5, 2024 USEPA Guidance requires the RCRA authorized states to incorporate climate change considerations into their RCRA permitting program. The June 5, 2024 USEPA Guidance requires that, "RCRA permits will include the conditions that the permitting Authority determines are necessary to ensure that the facility operation will be compliant and protective in the face of such impacts." Hazardous wastes remain at Areas 1 and 2; therefore, vulnerability screening and assessment for any potential climate change impacts must be incorporated into the long-term care for Areas 1 and 2.

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2. Financial Assurance Requirements Evaluation

Historically, during the post-closure care period, the Illinois EPA has accepted the facility's proposal to reduce financial assurance liability based on the number of years of post-closure care that had been completed by the facility. However, this reduction did not take into consideration the established long-term environmental threats at facilities with hazardous waste remaining on site. The financial risk to the Illinois EPA and citizens of Illinois, should the Illinois EPA have to unexpectedly assume operation of the post-closure care of the facility, had not been appropriately accounted for. The Illinois EPA has evaluated the risk to the state and citizens of Illinois, based on current climate change guidance, USEPA post-closure care guidance, and in accordance with requirements for post-closure care, cost estimates, and financial assurance for the hazardous waste management unit(s) under 35 IAC Part 724, and has determined that a rolling 30-year post-closure care cost estimate must be maintained by the facility, as required by 35 IAC 724.217(a) (1) and 35 IAC 703.282. If any evidence shows that the estimated cost should be higher than the rolling 30-year cost estimate, then it should be adjusted to a higher number of years.

3. Pending RCRA Renewal Permit Application

A RCRA renewal permit application was received by the Illinois EPA on February 28, 2020, followed by two addendums received on August 21, 2023, and February 8, 2024. As the facility's RCRA permit is in the process of being renewed, the facility must submit an addendum to the renewal permit application to revise the post-closure plan for the Area 1 and 2 units to extend the post-closure care and provide rolling 30-year financial assurance for the post-closure care of the Area 1 and 2 units within sixty (60) days of the date of this letter.

If Item 3 above is not addressed in a timely manner, the Illinois EPA may: (1) issue a renewal permit with conditions to reflect the extension of the post-closure care period; or (2) deny the renewal of the RCRA permit for the facility.

This action shall constitute the Illinois EPA's final action for the requirements described above. The applicant may appeal this final decision to the Illinois Pollution Control Board pursuant to Section 40 of the Act by filing a petition for a hearing within thirty-five (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 ninety (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.

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For information regarding the request for an extension, please contact:

Illinois Environmental Protection Agency
Division of Legal Counsel
1021 North Grand Avenue East
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, Clerk
State of Illinois Center
100 West Randolph Street, Suite 11-500
Chicago, IL 60601-3233
312/814-3620

Work required by this letter 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 concerning this matter, please contact John Roop, P.E., by email at john.roop@illinois.gov or by phone at 217/524-3071.

Sincerely,

Jacqueline M. Cooperider (for JMC)

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:jjr/1970450002-RCRA-PCCFA-Notice.docx

Attachments: USEPA Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal facilities under Subtitle C of RCRA

USEPA June 5, 2024, Guidance: Implementing Climate Resilience in Hazardous Waste Permitting Under the Resource Conservation and Recovery Act (RCRA)

cc: Norberto Gonzalez, Emily Keener, U.S. EPA – Region V

Electronic Filing: Received, Clerk's Office 03/04/2025

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 15 2016

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

MEMORANDUM

SUBJECT: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA

FROM: Barnes Johnson, Director
Office of Resource Conservation and Recovery

TO: RCRA Division Directors, Regions 1-10
RCRA Enforcement Managers, Regions 1-10
Regional Counsels, Regions 1-10

Purpose

The purpose of this memorandum is to provide guidance to assist regulators in evaluating conditions at hazardous waste disposal facilities subject to Subtitle C of the Resource Conservation and Recovery Act (RCRA) that are approaching the end of the original 30-year post-closure care period, and in determining whether the post-closure care period should be adjusted or allowed to end. Any such determinations must ensure ongoing protection of human health and the environment. This guidance also provides information to assist facility owners and operators in preparing documentation to inform the regulators' evaluations.

This guidance has the additional benefit of helping regulated entities understand what may be necessary to ensure protection of human health and the environment at units subject to post-closure care requirements. This enables waste generators and handlers to have a better understanding of the costs associated with land disposal so they can better evaluate long-term waste management strategies, including waste minimization.

Introduction and Need for Guidance

The RCRA Subtitle C hazardous waste management regulations establish a post-closure care[1] period for certain hazardous waste treatment, storage and disposal facilities, and specify post-closure care activities. The post-closure care requirements apply to land disposal units (landfills, land treatment units,

[1] Post-closure care can be generally described as the period of time after closure during which owners and operators conduct specified monitoring and maintenance activities to preserve the integrity of the containment system and to continue to prevent or control releases of contaminants.

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and surface impoundments) that leave hazardous waste in place after closure. Post-closure care also applies to some non-land-based units (*e.g.,* certain tanks or containment buildings) that cannot fully decontaminate or "clean close" [1] all equipment, structures, and soils. Post-closure care activities consist of two primary responsibilities: monitoring and reporting, and maintaining the integrity of the waste containment systems (see 40 CFR 264/265.117). Post-closure care for each hazardous waste management unit must begin after completion of closure of the unit and normally continue for 30 years after that date; the regulations also provide discretion to the permitting authority to adjust the length of the post-closure care period.

Many facilities around the country are approaching the end of the initial post-closure care period established in their RCRA permits or post-closure plans. Accordingly, questions have arisen about how to evaluate conditions at these facilities to determine whether the post-closure care period needs to be adjusted – that is, extended, or whether a 30-year post-closure care period is protective for a specific unit. In response, the Office of Resource Conservation and Recovery has developed this guidance recommending criteria to consider when evaluating facilities nearing the end of the post-closure care period [2] and thus ensure that human health and the environment will continue to be protected by the resulting determination. It also sets forth a recommended process for evaluating the post-closure care period in a timely fashion. Finally, this guidance discusses additional considerations that may be important for decision-makers when evaluating the adequacy of the post-closure care period.

This guidance supplements existing guidance on the post-closure care period, including the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[3]

Regulatory Overview of the Post-Closure Care Period

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[1] The RCRA Subtitle C regulations generally provide for two types of closure: closure by removal or decontamination (referred to as "clean closure") and closure with waste in place. The premise of clean closure is that all hazardous wastes have been removed from a given RCRA unit and any releases at or from the unit have been remediated. More information on clean closure is available in *Memorandum: Risk-Based Clean Closure* from Elizabeth Cotsworth, Acting Director Office of Solid Waste, March 16, 1998.

[2] This document is solely intended to provide guidance to federal and state regulators on implementing the RCRA Subtitle C regulations and to provide policy advice and recommendations. As such, this document does not impose any legally binding requirements, and the use of such phrases as "guidance," "recommend," "may," "should," and "can," are not intended to impose or connote any legal obligations. Accordingly, this document does not change or substitute for any law, regulation, or any other legally binding requirement and is not legally enforceable. The policies described in this document may not apply to a particular situation based upon the circumstances, and EPA may deviate from or revise any of the policies described in this document without prior notice to the public. While EPA has made every effort to ensure the accuracy of the discussion in this document, the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling.

[3] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10.

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EPA regulations[4] require that the post-closure care period for each hazardous waste management unit subject to the requirements of 40 CFR 264/265.117 through 264/265.120 must begin after completion of closure of the unit and continue for 30 years after that date. Still, the regulations' identification of a default 30-year post-closure care period does **not** reflect a determination by EPA that 30 years of post-closure care is necessarily sufficient to eliminate potential threats to human health and the environment in all cases. Nor is the full 30-year period always necessary. In fact, the regulations provide for a permit authority to conduct a case-by-case review of the post-closure care period and establish arrangements to adjust the length of the post-closure care period on a facility or unit-specific basis, where the record supports a determination that the revised post-closure care period will remain protective of human health and the environment.[5]

The regulations provide that the decision to alter the length of the post-closure care period can be made at any time preceding *partial closure*[6] of a hazardous waste management unit subject to post-closure care; at any time preceding *final closure*[7] of a facility; or at any time during the post-closure care period for a particular unit. For permitted facilities, such a decision must be made through the permit renewal or modification procedures in parts 124 and 270 of the regulations. For interim status facilities, adjustment to the post-closure care period must be made in accordance with § 265.118(g).

According to § 264.117 the post-closure care period may be modified under certain circumstances provided the modifications are protective of human health and the environment:

- The post-closure care period may be shortened where "the reduced period is sufficient to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."

- The post-closure care period may be extended where "the extended period is necessary to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health or the environment)."

The provisions for interim status facilities are similar [§§ 265.117 and 265.118(g)].

For more details on particularly relevant portions of the federal RCRA hazardous waste regulations, see Appendix A.

Criteria to Consider for Evaluating the Post-Closure Care Period

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[4] 40 CFR 264.117 (for permitted facilities) and 265.117 (for interim status facilities)

[5] EPA explained this approach early in the RCRA program. *See* 45 Fed. Reg. 33197 (May 19, 1980); *see also* 47 Fed. Reg. 32287-88 (July 26, 1982); 46 Fed. Reg. 2819 (Jan. 12, 1981).

[6] *Partial closure* is defined in 40 CFR 260.10 as "the closure of a hazardous waste management unit in accordance with the applicable closure requirements of parts 264 and 265 of this chapter at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile or other hazardous waste management unit, while other units of the same facility continue to operate."

[7] *Final closure* is defined in 40 CFR 260.10 as "the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under parts 264 and 265 of this chapter are no longer conducted at the facility unless subject to the provisions in § 262.34."

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An overarching consideration in determining whether to extend the post-closure care period, or allow it to end, is the inherent uncertainty associated with the long-term presence of hazardous waste in the unit. Because many hazardous wastes degrade slowly or do not degrade under containment in these units, the continued presence of hazardous waste in the unit (*i.e.*, any case other than clean closure) indicates the potential for unacceptable impacts on human health and the environment in the future if post-closure care is not maintained. For instance, there are often uncertainties in whether controls will continue to function as planned and whether future activities will lead to unplanned exposures to human and environmental receptors. Even if there is no current evidence of actual releases from the facility, significant factors can change over time. For example, groundwater flow can change direction due to the sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences. Landfill components, such as caps and liners (which have a finite design life), can degrade over time, especially if maintenance is discontinued. Exposure pathways that have been eliminated by means of an engineered control may be reopened (*e.g.*, if animals burrow through the cap). Thus, continued monitoring and maintenance activities may be appropriate unless or until it can be demonstrated that site-specific conditions adequately minimize the risk that contaminants will migrate from the unit (*e.g.*, site geology/hydrogeology) or that, in the event the engineering controls fail, a release would not pose an unacceptable risk to human health and the environment. This section provides recommended criteria that can be used to evaluate site-specific conditions and associated risks or remaining uncertainties in determining whether to adjust the post-closure care period.

These criteria can also be periodically used to evaluate whether activities in the post-closure plan should be amended. For instance, if the regulator determines it is necessary to extend the post-closure care period, these criteria can be used to determine if the frequency of one or more post-closure care monitoring requirements could be reduced during that extended timeframe. Each criterion is not necessarily applicable for every unit in post-closure care, for example, the "Gas Collection System Integrity" criterion would not apply to units without a gas collection system. The questions provided under each criterion are intended to help identify potential threats to human health and the environment. However, they do not all need to be answered in order to make a decision concerning the appropriate post-closure care period and the monitoring/maintenance activities.

Waste Treatment: Knowing whether the hazardous waste was disposed prior to the effective date of the Land Disposal Restrictions (LDR) program is an important piece of information when evaluating site-specific conditions. Hazardous waste treatment that destroys harmful contaminants or reduces toxicity of the waste before placement in a land disposal unit provides a more lasting form of groundwater protection than waste containment alone. Similarly, through a process called stabilization or immobilization, metal contaminants – that cannot be treated – can be chemically and physically solidified or bound into the wastes that contain them (*e.g.,* through chemical fixation). Thus, reducing the mobility or leachability of hazardous constituents in a waste is another means of achieving LDR's groundwater protection goal. Relevant questions for this criterion include:

- Were all the wastes pre-treated in accordance with the treatment standards of the LDR program or does the unit contain wastes that were placed on the land prior to the effective dates of the LDR rules?

EPA recommends reviewing the waste analysis data for treated wastes in the land disposal unit.

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Nature of Hazardous Wastes Remaining in the Unit: The current properties of the hazardous waste (*e.g.*, degradation, solubility, liquid-to-solid ratio) provide an important indication of the waste's ability to migrate or disperse in the environment.

- What is the degree of risk (*e.g.*, exposure pathways, probability of exposure) presently associated with the wastes in the unit?
  - Are the wastes highly toxic?
  - Do they degrade into substances that are more or less toxic, or non-toxic?
  - Are there indications that the waste might become incompatible with the liner?
- What is the potential for adverse impacts from releases based on the current understanding of contaminant fate and transport considerations (*e.g.*, presence of persistent, bioaccumulative contaminants, as compared to biodegradable contaminants; constituent speciation(s); and leaching profiles)?
- Is the waste in a stable state? Are there indications that the waste may become unstable?

EPA recommends that current data from regulatory standards be used for comparison to facility-specific performance goals articulated in the post-closure plan, and that, as necessary, the plan be updated to account for any new information on toxicity and carcinogenicity. EPA also recommends reviewing and possibly updating the list of constituents to analyze, since scientific understanding of constituents of concern may change over time. In addition, the data gathered should include an analysis of potential degradation products as well as of the types of wastes known to have been placed in the unit(s).

Unit Type/Design: The main objective of the disposal units is the containment of the hazardous waste. Thus, emphasis should be placed on the unit's ability to contain hazardous wastes over the long term.

- Is the unit, for example, a landfill, a surface impoundment, or a closed tank with residual contamination?
- Does the unit meet the minimum technology requirements (*e.g.*, double liners, leachate collection system)? Or was the unit already in existence at the time these requirements were promulgated and closed before retrofitting?
- To what extent does the overall design and construction of the unit minimize the need for long-term maintenance, resist the generation of leachate and emissions, and contain any remaining waste in perpetuity?

It is recommended that the permitting authority consider any unit-specific design, in concert with applicable closure and post-closure care requirements, when evaluating whether adjustment of the post-closure care period is warranted to protect against any potential impact on human health and the environment. There can be circumstances in which continuing to maintain unit-specific controls may be necessary to protect human health and the environment, particularly if the unit pre-dated the minimum technology requirements; this could support a decision to extend the post-closure care period. Conversely, there might be circumstances where the overall design and construction of the unit minimize the need for long-term maintenance and could support a decision to shorten or end the post-closure care period.

Leachate: The leachate collection and removal system controls leachate build-up on the liner, working in conjunction with the liner's barrier system to minimize the potential for groundwater contamination.

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Monitoring for leachate generation serves as the most effective way of examining the integrity of the waste management unit (*e.g.,* it can suggest a cover or liner failure when leachate is detected late in the post-closure care period). [8]

- Will the integrity and functionality of the leachate collection system, leachate generation rate, and leachate quality remain adequate to prevent harm to human health or the environment in the absence of post-closure care?
- Can the facility owner or operator show through monitoring/modeling and/or statistical analysis that the leachate would not pose a threat to human health and the environment because it would not exceed applicable standards at compliance or exposure points?
- Is it likely those standards will be exceeded in the future, for example, through formation and release of degradation products? Do the data demonstrate that there are no increasing trends in the concentration of leachate constituents?
- Can the facility owner or operator demonstrate that maintenance and operation of the leachate collection system can be ceased without posing a threat to human health and the environment?

EPA recommends that potential impacts from changes in leachate characteristics and generation rate that could result from discontinued maintenance be considered.

Groundwater: Groundwater monitoring serves as the primary means of detecting leachate releases and groundwater contamination. It is important that groundwater analytical results, adequacy and reliability of the groundwater-monitoring network, and groundwater-monitoring well integrity be evaluated before the post-closure care period nears its end.

Groundwater should not exceed risk-based concentrations for a reasonable exposure scenario (or point of exposure) using currently acceptable risk assessment methods and up-to-date risk-based levels and scenarios. If the evaluation determines that unacceptable risk exists, these risks should be addressed. The risk evaluation should consider reasonable current or future groundwater use in the general area of the site (*e.g.*, if a drinking water source is located nearby).

Review of the groundwater monitoring system should have been done as part of operation and maintenance inspections over time. Evaluation of the groundwater monitoring network should refer to the most recent operation and maintenance inspection. The well network evaluation should look at groundwater flow direction, well construction, and placement relative to groundwater flow direction.

[8] "If leachate is generated late in the post-closure care period, this could suggest a cover or liner failure warranting an extension of the post-closure care period." See page B-13 of the RCRA Guidance Manual for Subpart G Closure & Post-Closure Care Standards and Subpart H Cost Estimating Requirements, EPA/530-SW-87-010 (January, 1987).

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- Is groundwater quality in compliance with current standards?
- Have there been changes or are changes anticipated in land use/groundwater use that could change the applicable standards (*e.g.*, introduction of agricultural irrigation to an area) or the directional flow (*e.g.*, sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences)?
- Do the data indicate any trend in the concentration of analytes in groundwater?
- Has an expanded list of analytes (*e.g.*, selected from Appendix VIII of 40 CFR part 261) been considered for analysis within a reasonable time frame?
- Have the monitoring wells been maintained to provide valid data, for example, no well screen occlusion?

Siting and Site Geology/Hydrogeology: Relevant facility location characteristics (which might have changed since the post-closure plan was approved) may include proximity to vulnerable areas such as residential areas and surface and drinking water sources. The current and reasonably anticipated future land use of the facility and surrounding properties may also be relevant. Location in potentially vulnerable areas increases the likelihood and potential severity of releases. For example, if units are located in areas prone to flooding or with a high water table, it may be appropriate for reviewers to consider the potential for continuing risks to surface water in evaluating whether to modify the post-closure care period. Conversely, units located in areas not prone to flooding, or at great distance from the water table, might have less need for long-term maintenance. Additional hydrologic and geologic conditions such as wetlands and earthquake zones, unstable soils, and areas at risk for subsurface movement could have changed since a unit first entered post-closure care and might also need to be taken into account. Proximity to residential areas can also present unique considerations. It is also appropriate to consider whether facility conditions minimize the potential for adverse impacts on local populations if there is a release from the unit. [9]

[9] If a unit managing vapor-forming chemicals has releases to the environment, it creates the potential for vapor intrusion issues to neighboring communities due to migrating plumes of contaminated groundwater or migrating soil gases, even when the community is some distance away. Consider evaluating risks from subsurface intrusion of toxic constituents (*e.g.*, vinyl chloride from aerobic degradation of perchloroethylene/trichloroethylene), or landfill gases such as methane and hydrogen sulfide, into buildings or structures located near the unit in post-closure care. See the *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, June 2015.

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- Does the site geology include subsurface strata that might contain or retard migration?
- What is the distance to the groundwater table, bearing in mind seasonal fluctuations, and the proximity of any useable aquifers?
- Is the unit located in a dry climate that provides minimal precipitation?
- Is the pattern of land use changing or likely to change in the future in a way that would bring people closer to or farther away from the facility?
- Have zoning laws changed?
- Is there a sizable buffer zone around the facility that could limit human activity near the site into the future?
- What is the distance to sensitive receptors for groundwater flow and emissions?
- Could the distance to sensitive receptors change under reasonably foreseeable future conditions, as reflected, for example, in land use development plans for the area?
- Is there the potential for impact on surface water quality?
- Have new potential exposure pathways been identified and evaluated? For example, vapor intrusion had not been identified as a potential exposure pathway at the time many permits were issued.[11]

In addition, EPA recommends that the potential effects of climate change be taken into account in making these assessments.[10] For example, flooding from more intense and frequent storms and sea-level rise may lead to contaminant releases from units subject to post-closure care requirements by transport of contaminants through surface soils, groundwater, surface waters and/or coastal waters. Saltwater intrusion and increased groundwater salinity in coastal aquifers may increase the permeability of clay liners installed at waste sites, such as landfills. Changes in precipitation patterns and temperature may also adversely affect the performance and efficacy of engineering controls.

Facility History: All waste management units (during active life or in post-closure care) must be adequately managed to prevent releases of contaminants to the environment. A well-managed facility is more likely to maintain its structural integrity. Good compliance records, routine maintenance and inspections, emergency procedures to handle natural disasters, and prompt and efficient response to spills and other incidents, are some of the management practices that help demonstrate whether the unit has been adequately managed.

[10] For more information on climate change adaptation consult the "Climate Change Adaptation Technical Fact Sheet: Landfills and Containment as an Element of Site Remediation," EPA 542-F-14-001 (May 2014).

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- From the facility records (including frequency of all maintenance activities), to what extent did the unit closure design and activities described in the closure plan and closure certification minimize the need for ongoing monitoring and maintenance?
- Has past noncompliance with regulatory requirements contributed to present environmental conditions that warrant an extension of the post-closure care period (*e.g.*, non-compliance with current LDR standards)?
- Is there a history of any releases and what are current contaminant levels?
- If a release did occur, have corrective measures been successfully implemented and has subsequent monitoring shown no evidence of a recurrence?
- Are analyses being conducted for the correct parameters?
- How complete and accurate is the facility operating record?
- Is there confidence that the record accurately reflects spills, releases, lapses in maintenance or other events that may have a bearing on potential facility impacts?
- To what extent have closure activities minimized or eliminated escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, surface waters or the atmosphere during the post-closure care period?

In order to fully understand the facility history, EPA recommends that the permit authority also review the closure plan and certification of closure. [11]

Gas Collection System Integrity: For units that have a landfill gas collection system, it is important to analyze the extent to which it is capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility. In addition, because gas emissions can increase or decrease over time, it is recommended that statistical or graphical analysis of the data be used to identify any significant changes in gas emissions.

- To what extent is the gas collection system capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility?

Integrity of Cover System: A viable cover is the most important mechanism in preventing leachate generation and, ultimately, releases of contaminants. Cracks, burrows from animals, and other problems are likely to occur after termination of post-closure care. If testing and inspection end, problems can go undetected and releases could occur. Thus, it is vital to evaluate the performance of the cover system during the post-closure care period.

[11] For further information on closure performance standards, see 40 CFR 264.111 and 265.111.

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- Has the cover system been designed and maintained to minimize migration of water into the management unit and to prevent contaminants from escaping into the environment?
- Has periodic testing or inspection been conducted to identify and assure any necessary repairs? Potential concerns include differential settlement, problems with cover integrity (cracks, burrows, etc.), cover drainage, and the adequacy of the diversion or drainage system. Even where such problems have not occurred, are they likely to arise without long-term care, *e.g.*, will the cover system remain intact without mowing to prevent growth of trees?
- Is the remaining waste likely to be so benign that even with a compromised cover system release of hazardous constituents is unlikely?
- To what extent will the integrity of the cover system be preserved in the absence of long-term care or with reduced maintenance requirements?

For alternative covers, it is recommended that the potential effects of climate change (*e.g.*, increasing frequency and intensity of weather events) be taken into account to the extent practical. For example, will the vegetation remain viable under altered precipitation patterns?

Long-Term Care: The concept of long-term care (also known as long-term stewardship) generally includes the establishment and maintenance of physical and legal controls that are necessary to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place at a site or closed facility. As a general matter, the RCRA post-closure care requirements (for example, monitoring and cap maintenance) fall under the umbrella of long-term care. When considering whether to adjust the post-closure care period, permitting authorities should evaluate any continuing need to maintain engineering controls (ECs),[12] particularly those specified in the RCRA post-closure care regulations.

- How will the potential for human exposure to contamination be minimized in the absence of RCRA post-closure care?
- How is the integrity of the entire containment system going to be preserved over time?
- Can maintenance and monitoring activities cease or be reduced without causing an adverse impact to human health and the environment?

A further need to maintain ECs could justify an extension of the post-closure care period. This may be the case even if the frequency of some activities could be adjusted (*e.g.*, some activities may be needed more frequently in the early years of the post-closure care period and less frequently later).

The RCRA post-closure care regulations provide for the imposition of institutional controls (ICs)[13] as well. For example, §§ 264/265.117(c) provides that post-closure uses of a property where hazardous wastes remain after final or partial closure must never be allowed to disturb the integrity of the containment system or the functioning of the monitoring system, with limited exceptions. In addition, §§ 264/265.119(b)(1)(ii) provide that the owner or operator must record a notation, in accordance with state law, 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, among other things, the property's use is restricted under the RCRA closure/post-closure regulations. States can

[12] Engineering controls are the engineered physical barriers or structures (*e.g.*, caps, impermeable liners, mitigation barriers, or fencing) designed to monitor and prevent exposure to the contamination.
[13] Institutional controls are administrative or legal instruments (*e.g.*, deed restrictions/notices, easements, restrictive covenants, zoning) intended to minimize the potential for human exposure to contamination by limiting land or resource use.

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choose to supplement or support such deed restrictions under state law, *e.g.*, by setting up a deed restriction tracking system, ensuring that deed restrictions remain in place, or ensuring that information on existing ICs is available to interested parties.

Even in cases where the post-closure care period need not be extended to protect human health and the environment, the permitting authority may want to ensure that some long-term ICs, such as an easement that provides access to the property, are continued. EPA recommends that any ICs (under state or local authority) needed beyond the post-closure care period be in place before the post-closure care period ends. EPA expects that the permit authority would typically need to assess the availability and adequacy of other potential mechanisms for overseeing ICs as part of evaluating whether any modification to the post-closure care period was warranted.

EPA also recommends that consideration be given as to whether a funding source is available to support any necessary ECs and ICs in the future (see Appendix B for a list of ICs resources.) This could be done, for example, as part of an anticipated future use (or end-use strategy) that generates revenue, so that protective controls at the unit can be continued while supporting beneficial reuse of the land into the future.

Recommended Approach for Reviewing Hazardous Waste Management Units Approaching the End of the Post-Closure Care Period

EPA believes that, at a minimum, it is important to make a decision about the length of the post-closure care period, and to document such decision, well before that period nears its end. Therefore, EPA recommends that regulators assess the overall status of all the units under post-closure care, and plan to evaluate the adequacy of their post-closure care periods well in advance of their anticipated conclusions. EPA also recommends that the results from the evaluation of the post-closure care period be included in the regulator's administrative record for the facility.

As stated before, the federal RCRA hazardous waste regulations provide discretionary authority to the permitting authority to extend or shorten the length of the post-closure care period. However, the facility owner or operator is responsible for providing the information necessary to support this decision (see, for example, 40 CFR 270.30(h), Duty to provide information). A lack of relevant and complete information may justify a conclusion by the regulatory authority that extension of the post-closure care period is necessary to protect human health and the environment until such information is provided.

EPA's recommendations for evaluating units approaching the end of the post-closure care period are discussed in more detail below.

Timing: Regulators should track permit terms and dates of all post-closure permits and have a strategy for when they will begin looking at whether to adjust the post-closure care period, allowing enough time for the necessary steps to take place prior to the 30-year expiration:

- Identify and gather necessary information
- Evaluate information
- Decide whether to adjust the post-closure care period
- Incorporate tentative decision into permit renewal (or modification) process.

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For units with operating permits, EPA recommends starting the process at least 18 months before the expiration of the post-closure permit or post-closure care period, whichever comes first. It is important to keep in mind that in accordance with § 270.1(c) units subject to post-closure care must have post-closure permits or an enforceable document in lieu of a post-closure permit and, under § 270.50, permits can be issued for no longer than ten years. Consequently, over the course of a 30-year post-closure care period, the permit would normally need to be renewed at least twice (unless the post-closure care period has been modified). In addition, for a permitted land disposal facility, the length of the post-closure care period is an important component of the five-year review required under § 270.50(d). The facility owner or operator may also initiate the post-closure care evaluation and/or modification process by submitting a permit modification. Similarly, regulators should evaluate petitions to end or shorten the post-closure care period in a timely manner.

For facilities conducting post-closure care under interim status, regulators might want to adopt time frames for review similar to those of permits (*e.g.*, every ten years) to initiate the process of identifying and gathering relevant information. At a minimum, they should evaluate the adequacy of the post-closure care period well in advance of its end date. The facility owner or operator may also initiate the process by submitting a revision to their post-closure plan, including a petition in accordance with § 265.118(g)(1).

Post-Closure Plan: When considering adjusting or ending the post-closure care period, regulators should request a copy of the most current version of the approved post-closure plan, along with any proposed revisions provided by the owner or operator. Under §§ 264.118(b) and 265.118(c), the post-closure plan identifies certain activities (and their frequency) that must be conducted during the post-closure care period (*e.g.*, monitoring and maintenance). The post-closure plan may also identify performance standards or performance goals, which should be updated to account for any new information on toxicity and carcinogenicity. The post-closure plan thus provides an important starting point for the review. The project file should have a history of permit modifications including those made to the post-closure plan. It is also important that the results of the post-closure period assessment be incorporated into a revised post-closure plan (and the permit), as appropriate.

Relevant Information: As part of the review of the post-closure plan and any relevant historical information, regulators should determine whether they possess the information necessary to adequately evaluate the conditions at the unit so that a decision about the post-closure care period can be made. Relevant information may include monitoring reports, results from testing or inspections of the cover system, information concerning land use and institutional controls, and any other information that would be helpful in determining whether post-closure care continues to be needed for the unit. The absence of adequate information (*e.g.*, to address unresolved risk issues), including failure of the permittee to provide necessary information, will make it difficult for the permitting authority to conclude that allowing the post-closure period to end or shortening the post-closure care period meets the regulatory standard. The permitting authority can conclude that an extension of the post-closure care period is necessary to protect human health and the environment until the information necessary to make a final determination is available. Any proposal to adjust the post-closure care period should be supported by adequate data and analysis to demonstrate the anticipated long-term performance of the unit. To account for cyclical fluctuations in weather and hydrology, EPA recommends that multiple-year performance data be considered (*e.g.,* ten years).

The recommended criteria outlined in the previous section are also relevant to inform deliberations on whether and what additional information about the facility is necessary.

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If information becomes available indicating changing circumstances that might necessitate the need to revisit the post-closure care (*e.g.*, monitoring results show leaching) it is recommended that the regulator immediately request any additional information needed from the facility owner or operator to inform a decision about adjusting the post-closure care period. This can be accomplished through various means, including under the facility's permit terms (*e.g.*, under § 270.30(h), the permit holder has a duty to provide relevant information and records; under § 270.30(k)(4), monitoring results must be reported at intervals specified in the permit); through enforcement of the relevant interim status regulations; or through inspections or studies required pursuant to RCRA sections 3007 or 3013.

Expiration/Renewal of Post-Closure Permits: Permits are issued for a fixed term not to exceed ten years, which means post-closure permits will need to be renewed periodically throughout the post-closure care period (*e.g.*, a 30 year period could span three permit terms). Renewal applications must be submitted 180 days before the expiration date of an effective permit (see § 270.10(h)). Frequently, facility owners or operators do not submit a renewal application as they approach the permit's expiration date because they believe they will submit an acceptable certification that they have completed post-closure care for the unit(s). If, towards the end of the permit term, the permitting authority has not received a permit renewal application from the facility or if the permitting authority anticipates that there may be any issues regarding the acceptability of the certification of completion of post-closure care, EPA recommends that the regulatory authority remind the owner or operator that the regulations require the facility to provide the required certification or reapply for a permit, and request submission of the permit renewal application (see §§ 270.10(h) and 270.30(b)). Timely submission of an application for permit renewal will ensure that a valid permit is in effect (pursuant to § 270.51) pending a resolution. If a facility owner or operator does not submit a timely renewal application, and the permit is not administratively continued, the regulator may consider initiating an enforcement action or issuing a new permit (see § 270.51(c)).

Public Participation: Any potential adjustments to the length of the post-closure care period are subject to requirements for involving the public. For permitted facilities, extensions to the post-closure care period would be processed as a Class 2 modification, and reductions would be Class 3. In both cases, the regulator must provide public notice, hold a public meeting, and allow an opportunity for written comments to be submitted. Similarly, for adjustments in the length of the post-closure care period at interim status facilities, the regulator must provide public notice and an opportunity for written comments. Although there is no specific provision in the regulations to notify the public when a post-closure care period ends, we recommend that the regulatory authority consider providing notice to the local community when they release a facility owner or operatory from their post-closure care obligation.

Financial Assurance Requirements: Finally, permitting authorities should keep in mind that an adjusted post-closure care period may also necessitate revisions to the associated post-closure cost estimate and financial assurance.

Additional Considerations

Benefits of Post-Closure Permits: Permits are site-specific legal documents that establish the technical and administrative conditions to which a facility must adhere, in order to ensure that monitoring and maintenance activities are performed to prevent and address releases that could potentially threaten

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public health and the environment and lead to cleanup obligations.[14] Thus, it is critical that any modifications to the permit are made, as necessary, to ensure they are complete and current. Permits are issued in, at most, ten-year increments to ensure they are periodically reviewed and requirements are updated as necessary. Additionally, facility owners and operators may request modifications to a permit. Although there are resources associated with permit maintenance, permits provide numerous benefits and protections such as:

- Basic Permitting Requirements – Permits are subject to the regulations governing facility permitting as set forth in 40 CFR part 270, which covers basic EPA permitting requirements, such as application requirements, standard permit conditions (*e.g.,* duty to comply, duty to reapply, duty to provide information), and monitoring and reporting requirements (*e.g.,* annual monitoring reports, compliance schedules).
- Unit-Specific Informational Requirements – Where applicable, owners or operators of a permit must submit information including detailed plans and engineering reports under § 270.14(b)(13).
- Financial Assurance – The owner or operator of a permitted unit must establish and maintain financial assurance. At facilities with units in post-closure, requirements include financial assurance for post-closure care in accordance with the approved post-closure plan for the facility, for as long as the unit remains subject to RCRA post-closure care requirements, including the post-closure permit requirement (§ 264.145).
- Corrective Action – Section 264.101 requires that all permits include requirements for facility-wide corrective action as necessary to protect human health and the environment.
- Enforceability – The permitting authority can enforce RCRA permit requirements including through facility inspections, record reviews, and other means. Section 270.28 provides that the permittee shall allow the regulatory authority to perform inspections at the facility.
- Public Participation – The permitting process of 40 CFR parts 270 and 124, and the permit modifications procedures in § 270.42 provide for public involvement. The public has the opportunity to comment on a facility's closure and post-closure plans as part of the initial permitting process and any amendments made to the plans as part of the permit modification procedures.
- Additional Conditions – Section 3005(c)(3) of RCRA (codified at 40 CFR 270.32(b)(2) and commonly referred to as the "omnibus authority"), allows for additional site-specific permit conditions to be incorporated into RCRA permits, should such conditions be necessary to protect human health and the environment.
- When permits incorporate the technical requirements contained in parts 264, 266, and 267 of the regulations, those permit conditions are not subject to challenge (*i.e.,* a number of permit conditions are required by the regulations themselves).
- Permit requirements cannot be terminated merely by sale of the property or bankruptcy of the owner or operator.

Relationship of Subpart F Corrective Action and Post-Closure Care: Corrective action and post-closure care requirements for a regulated unit may be linked, for example, in the case of groundwater

[14] Owners and operators of units subject to post-closure care, must have post-closure permits, "unless they demonstrate closure by removal or decontamination as provided under § 270.1(c)(5) and (6), or obtain an enforceable document in lieu of a post-closure permit, as provided under paragraph (c)(7) of this section" (see §270.1(c)).

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monitoring and/or corrective action for releases from closed regulated units being handled pursuant to 40 CFR 264.90–264.100. In many cases, it may be desirable (either by the facility owner/operator, the regulatory agency, or both) to coordinate the post-closure care and monitoring/corrective action requirements. EPA recommends that the regulatory agency consider extending the post-closure care period (and associated permits or other enforceable documents) when corrective action continues beyond the original post-closure care period (see §§ 264.90(c)(3) and 264.96(c)).

Post-Closure Rule:[15] This rule amended the regulations applicable to facilities with land disposal units in two areas. First, it modified the requirement for a post-closure permit to provide EPA and the authorized states discretion to use a variety of authorities to address the post-closure period at non-permitted facilities. In addition, it amended the regulations governing closure of land-based units to allow EPA and the authorized states to address those units through the corrective action program in certain situations where regulated units and other solid waste management units have contributed to a release.

Scope of Guidance and Relationship to Existing Guidance: This document is not intended to provide guidance on decisions to extend or shorten the post-closure care period for *non-hazardous* waste units (*i.e.,* units regulated under RCRA Subtitle D), nor is it intended to replace existing guidance concerning establishment and attainment of remedial goals at contaminated facilities addressed under RCRA Subtitle C authority. This guidance is meant to supplement any existing guidance on the post-closure care period, and should be used in concert with the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[16] This document provides additional considerations and factors that are not included in the 1987 guidance, such as vapor intrusion, updated toxicity values, and climate change considerations – although the updates presented in this guidance are not intended to be comprehensive.

Relationship to State Authorities: Under RCRA, states may apply to, and receive from EPA, authorization of a state program to operate in lieu of the federal RCRA hazardous waste program. *These state programs may be broader in scope or more stringent than EPA's RCRA hazardous waste regulations, and requirements can vary from state to state.* Members of the regulated community are encouraged to contact their state agencies for the particular post-closure care requirements that apply to them in any particular state.

For additional information, feel free to contact me, or your staff may contact Lilybeth Colon (colon.lilybeth@epa.gov, 703-308-2392) or Tricia Buzzell (buzzell.tricia@epa.gov, 703-308-8622).

[15] See *Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process*; Final Rule, October 22, 1998 (63 FR 56710).

[16] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10. Appendix B of this guidance presents technical factors to consider in determining the length of the post-closure care period as well as a number of hypothetical scenarios illustrating how site-specific information might be used to support an extension or reduction in the length of the period.

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Appendix A: Overview of Federal Regulatory Provisions

Regulations governing RCRA post-closure care are set forth in 40 CFR part 264 subpart G for permitted facilities and part 265 subpart G for interim status facilities. Additional requirements for post-closure care of specific types of units are included in the regulations for those units. See §§ 264/265.197 (Tank Systems); §§ 264/265.228 (Surface Impoundments); §§ 264/265.258 (Waste Piles); §§ 264/265.280 (Land Treatment Units); §§ 264/265.310 (Landfills); § 264.603 (Miscellaneous Units); §§ 264/265.1102 (Containment Buildings); and §§ 264/265.1202 (Hazardous Waste Munitions and Explosives Storage).

Regulations governing financial assurance for post-closure care are set forth in 40 CFR part 264 subpart H for permitted facilities and part 265 subpart H for interim status facilities.

Regulations governing facility permitting are set forth in 40 CFR part 270.

Post-Closure Care – Sections 264.117(a) and 265.117(a) establish general requirements for post-closure care and a 30-year post-closure care period. However, the regulations also allow the permitting authority to shorten the 30-year post-closure care period if the reduced period is sufficient to protect human health and the environment, or to extend it, if necessary (see the *Post-Closure Plan Amendment* section for more details). Sections 264.117(a)(2)(i) and 265.117(a)(2)(i) provide the following examples for shortening the post-closure care period: "...(*e.g.*, leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."

Sections 264.117(a)(2)(ii) and 265.117(a)(2)(ii) provide the following example for extending the post-closure care period: "...(*e.g.*, leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment)."

Post-Closure Plan – Under §§ 264.118 and 265.118, the owner or operator of specified units must have a written post-closure plan. The plan must identify monitoring and maintenance activities that will be carried out after closure, and their frequency, to assure compliance with the requirements of specific subparts, including subparts F, K, L, M, N and X, where applicable. For permitted facilities (§ 264.118(a)), the post-closure plan must be submitted with the permit application and approved by the permitting authority as part of permit issuance procedures. The approved post-closure plan becomes a condition of any RCRA permit issued (see the *Post-Closure Plan Amendment* section for more details). For interim status facilities (§ 265.118), the owner or operator must submit the post-closure plan to the permitting authority within specified time frames, and the regulations provide for making the post-closure plan available to the regulatory authority.

Procedures for Post-Closure Plan Amendment – For permitted facilities, the process for making changes to the post-closure plan is through permit modification (permit modification procedures are set forth in § 270.42). Under § 264.118(d)(1), the owner or operator may submit a written notification or request for a permit modification to amend the post-closure plan. Under § 264.118(d)(2), the owner or operator must submit a written notification of the permit modification or request for a permit modification to authorize a change in the approved post-closure plan under certain circumstances. Specific reasons set forth in the regulations include changes in operating plans or facility design that affect the approved post-closure plan, and

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events occurring during the active life of the facility that affect the approved post-closure plan. For interim status facilities, § 265.118(d) prescribes procedures for amending the post-closure plan. The permitting authority may also request modifications to the post-closure plan under §§ 264.118(d)(4) and 265.118(d)(4).

Procedures for Post-Closure Care Period Adjustment – Adjustments to the post-closure care period may be initiated at any time preceding partial or final closure or at any time during the post-closure care period of a particular unit. For interim status facilities, § 265.118(g) prescribes a process for extending or shortening the post-closure care period that includes provisions for public involvement. For permitted facilities, § 264.117(a)(2) provides for shortening or extending the post-closure care period in accordance with the permit modification provisions in parts 124 and 270.

Section 270.41 provides for Agency-initiated permit modifications. EPA may modify a permit for the following reasons: if there have been material and substantial alterations or additions to the facility; there is new information that was not available at the time of permit issuance; new statutory or regulatory requirements were promulgated; EPA has cause to initiate a compliance schedule under § 270.33; or as necessary to assure that the facility continues to comply with the currently applicable requirements in parts 124, 260 through 266, and 270, when a permit for a land disposal facility is reviewed by the Director under § 270.50(d).

Section 270.42 contains the regulations that apply to the modification of a permit at the request of the permittee. For all modifications, the permittee submits information to EPA that describes the exact change to be made to the permit conditions, identifies whether the modification is Class 1, 2, or 3, and provides the applicable permit application information.

The process for extending the post-closure care period is a Class 2 modification, while the process for shortening the post-closure care period is a Class 3 modification (§ 270.42, Appendix I, E2 and E3). These procedures include provisions for public involvement. The post-closure care period can also be modified through permit renewal under § 270.32(d).

Financial Assurance for Post-Closure Care – EPA's regulations under parts 264/265 subpart H establish requirements for financial assurance, including financial assurance requirements for post-closure care (see §§ 264.140 and 265.140). Under §§ 264.144 and 265.144, the owner or operator is required to have detailed written cost estimates for post-closure monitoring and maintenance in accordance with the applicable post-closure care requirements. Under §§ 264.145 and 265.145 generally, the owner or operator is required to establish financial assurance for post-closure care in an amount equal to the current post-closure cost estimate.

Certification of Completion of Post-Closure Care and Release of Owner and Operator from Financial Assurance Requirements – Under §§ 264.120 and 265.120, the owner or operator must submit certification that the post-closure care for the unit(s) was performed in accordance with the approved post-closure plan; the certification must be sent by registered mail to the permitting authority. This certification must be submitted no later than 60 days after the completion of the post-closure care period for each hazardous waste disposal unit. The certification must be signed by the owner or operator and a qualified professional engineer. Documentation supporting the professional engineer's certification must be furnished to the permitting authority upon request until the permitting authority releases the owner or operator from the financial assurance requirements for post-closure care under §§ 264.145(i) and 265.145(h).

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Under §§ 264.145(i) and 265.145(h), within 60 days of receipt of certification from the owner or operator and a qualified professional engineer that the post-closure care has been completed for a hazardous waste disposal unit in accordance with the approved plan, the permitting authority will notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care for that unit. If the permitting authority has reason to believe that post-closure care has not been in accordance with the approved post-closure plan, the permitting authority must provide the owner or operator a detailed written statement of any such reason.

Scope of the Post-Closure Permit Requirements – Under § 270.1(c), owners and operators of surface impoundments, landfills, land treatment units, and waste pile units that received waste after July 26, 1982, or that certified closure (according to § 265.115) must have post-closure permits, unless they demonstrate closure by removal or decontamination, or obtain an enforceable document in lieu of a post-closure permit as provided under § 270.1(c)(7). Under § 270.10(h), if a permittee has an effective permit and they want to renew it, they must submit a new application at least 180 days before the expiration date of the effective permit.

Monitoring and Records – Under § 270.30(j)(2), the permittee must retain records of all monitoring information for a period of at least three years from the date of sample, measurement, report, or certification, unless extended by request of the permitting authority at any time. Records from all groundwater monitoring wells and associated groundwater surface elevations must be maintained for the active life of the facility, and for disposal facilities for the entire post-closure care period.

Compliance with an Expiring Permit – Under § 270.51(c), if the permittee is not in compliance with the conditions of the expiring or expired permit, the permitting authority may issue a new permit under part 124, initiate enforcement action, or take other actions authorized by the RCRA regulations.

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Appendix B: Institutional Controls (ICs) Resources

The following resources may be helpful in implementing and maintaining ICs throughout the post-closure care period and beyond.

- EPA guidance on *Ensuring Effective and Reliable Institutional Controls at RCRA Facilities* (Matt Hale, Director, Office of Solid Waste, and Susan Bromm, Director Office of Site Remediation and Enforcement, June 14, 2007) sets forth guiding principles and recommendations that can help EPA and state decision makers on the use of ICs at RCRA facilities, and EPA resources for additional information and assistance.

- *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups* guidance provides some discussion about how ICs can be used at post-closure care facilities. (p.3 text box) EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000, https://www.epa.gov/fedfac/institutional-controls-site-managers-guide-identifying-evaluating-and-selecting-institutional

- *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites* provides information and recommendations that should be useful for planning, implementing, maintaining and enforcing ICs, and offers an overview of EPA's policy regarding the roles and responsibilities of the parties involved in the various life-cycle stages of ICs. Final, December 2012. OSWER 9200.0-77, EPA-540-R-09-002, https://www.epa.gov/fedfac/institutional-controls-guide-preparing-institutional-control-implementation-and-assurance

- *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* guidance also discusses how ICs could be used at RCRA post-closure care facilities. (Section 2.3) Final, December 2012. OSWER 9355.0-89, EPA-540-R-09-001, https://www.epa.gov/fedfac/institutional-controls-guide-planning-implementing-maintaining-and-enforcing-institutional

- *Long-Term Stewardship: Ensuring Environmental Site Cleanups Remain Protective over Time* report identifies long-term stewardship challenges and opportunities for improvement, and makes recommendations for how EPA and its state, tribal, and local partners should proceed in addressing them. This report also includes a definition of long-term stewardship, why long-term stewardship is important, and what EPA and others are currently doing to address long-term stewardship issues. Final, September 2005, EPA 500-R-05-001, https://nepis.epa.gov/Exe/ZyNET.exe/P100119V.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000015%5CP100119V.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

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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.

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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.

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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.

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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

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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.

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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

B-141R-M-167

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cc: SDD
Des Plaines

WASTE MANAGEMENT
29755 S Prairie View Drive
Wilmington, IL 60481
(815) 423-5120
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May 9, 2022

Mr. Kenneth Smith, P.E.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
MAY 11 2022
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification

Dear Mr. Smith:

This letter and its attachments are being submitted as a Class 1* permit modification to request authorization to 1) update the post-closure cost estimate for the closed RCRA unit, 2) update the closure/post-closure plans and cost estimates for the stack corrective action, 3) update the closure/post-closure plans and cost estimates for the solid waste expansion, and 4) fix a typographical error in the permit. This application consists of the following:

1. This letter;
2. LPC-PA23, RCRA Permit Application Form;
3. Attachment 1 – Updated Post-Closure Cost Estimate (Table I-2);
4. Attachment 2 – Updated Corrective Action Closure Plan;
5. Attachment 3 – Updated Corrective Action Post-Closure Plan;
6. Attachment 4 – Updated Solid Waste Expansion Closure/Post-Closure Plan;
7. Section 39(i) Certification.

Updated RCRA Post-Closure Cost Estimate

In accordance with Permit No. B-141R, condition VIII.34, the RCRA unit post-closure costs have been revised to reflect current costs and have been increased by the 2021 CPI of 4.13%. Post-closure costs have been estimated until September 2023. Financial assurance documentation will be submitted within 90 days of Agency approval for the amount outlined on Table I-2 from the post-closure plan. The revised cost estimate is included in Attachment 1 to this submittal. ***If approved, please replace the existing Table I-2 from the RCRA post closure plan contained in the approved Part B permit application binder 1 and replace with the revised Table I-2.***

Updated Corrective Action Closure/Post-Closure Plans

In accordance with Permit No. B-141R, the closure and post-closure plans and associated cost estimates for the stack corrective action have been revised to reflect current costs and have been increased by the 2021 CPI of 4.13 %. The south stack top slope sedimentation basin, 104 acres of geomembrane cap, south stack grading, perimeter toe drain, forcemain, wet well/lift station and a portion of the moat cleaning have been completed to date and are noted in the revised closure plan. Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts outlined on Tables 10-1 and 11-2 of the revised plans contained in Attachments 2 and 3 of this submittal. ***If approved, please replace the existing Sections 10.0 and 11.0 from the North and South Stack Corrective Action Plan permit application binder 1 and replace with the revised Sections 10.0 and 11.0.***

Updated Solid Waste Unit Closure/Post-Closure Plans

In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 4.13%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 8 and portions of Phases 10 through 14 are in place. Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts as outlined on Table 13-3 of the closure/post-closure plan contained in Attachment 4. ***If approved, please replace the existing Section 13.0 from the Solid Waste Expansion permit application binder 1 and replace with the revised Section 13.0.***

Permit Typographical Error

On April 15, 2022, a revision to the Laraway RCRA Post-Closure permit was issued (Log #B-141R-M-161 & M-162). Attachment A to the permit indicated that for Log No. B-141R-M-161, Condition IV.24 had been removed. Per communications with the Agency, the information from this permit condition was to be transferred to Condition IV.17. The information transferred to Condition IV.17, omitted the language in bold italics noted below:

"In the event of a confirmed significant change in groundwater quality due to the facility has occurred, the groundwater monitoring at the affected monitoring well will immediately return to quarterly monitoring..."

As the Agency has indicted that this was an omission on their part, we are requesting to modify the permit to add this language back into the permit. Condition IV.17 of the permit would need to be modified upon approval of this request. There are no changes to the permit application required.

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

Illinois Environmental Protection Agency

R 000243

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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): 1970450002 USEPA ID Number: ILD074411745

Site Name: Laraway Recycling and Disposal Facility

Physical Site Location (street, road, etc.): 21233 W. Laraway Rd.

City: Joliet Zip Code: 60436 County: will

Existing RCRA Permit (if applicable): B-141R

II. Owner/Operator Identification

Owner Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.com

Operator Information

Name: Waste Management of Illinois, Inc.

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.com

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A 39(i) certification must be submitted for each of 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 officer of the owner or operator, including any officer that signed the permit application;
- each employee of the owner or operator who signed the permit application; 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

R 000244

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.)

UPDATE CLOSURE/POST-CLOSURE COSTS FOR SOLID WASTE UNIT, CORRECTIVE ACTION UNITS, AND RCRA UNIT. ALSO CORRECT TYPOGRAPHIC ERROR IN PERMIT.

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): Ian Johnson

Owner Signature: Ian Johnson Date: 5/3/22

Title: engineer

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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): Ian Johnson

Operator Signature: [signature] Date: 5/3/22

Title: engineer

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 3rd day of May 2022.

Notary Signature: [signature]

My commission expires on: 7/12/23

OFFICIAL SEAL
JENNIE M LUBIC
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES:07/12/23

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): Ian Johnson

Engineer Signature: [signature]

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Illinois License No.: 062-048790

Expiration Date of License: Nov 30, 2023

Engineer Phone No. 815-280-6301

Email: ijohnson@wm.com

Engineer Address:

Prairie View RDF
29755 S. Prairie View Dr.
Wilmington, IL 60481

IAN C. JOHNSON
062-048790
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))

Illinois Environmental Protection Agency

IEPA/BOL/0246

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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: Laraway RDF IEPA BOL No.: 1970450002

Site Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip Code: 60436

Permit Numbers (if applicable): B-141R

Owner

Owner Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

Operator

Operator Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

II. Officers and Employees with Site Responsibility

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
NA, no active or personal involvement in operation or mgmt	

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
Doug Tomczak	District Manager
Ian Johnson	Engineer
Mike Toufar	Operations Manager

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III. Owner, Operator, Officer, and Employee Information

A. Prior Conduct Identification

R 000247

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. R 000248

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	5/3/22 Date
Ian Johnson Printed Name	Engineer Title

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SECRETARY'S CERTIFICATE

WASTE MANAGEMENT OF ILLINOIS, INC.

I, Courtney A. Tippy, Secretary of WASTE MANAGEMENT OF ILLINOIS, INC., a(n) Delaware corporation (the "Company"), do hereby certify that the following is a true and complete copy of resolutions adopted by written consent of the Board of Directors of the Company, which resolutions have not been amended, modified or rescinded and are in full force and effect as of the date hereof:

Environmental Compliance Signature Authority

RESOLVED, that the Area Vice President, Area Director of Disposal Operations, Area Director of Collection Operations, District Manager, Director of Safety, Plant Manager, Environmental Protection Manager, Manager Engineering, District Operations Manager, MRF Manager, Facility or Site Engineer and Environmental Protection Specialist, and each of them, for each facility owned or operated by the Company, subject to compliance with applicable corporate policies and procedures and subject to specific regulatory signature requirements, are hereby authorized to prepare, execute and/or submit on behalf of the Company, as a responsible official, authorized signatory or designated representative, any and all reports, affidavits, applications, modifications, instruments, documents or papers, necessary or appropriate with respect to such facility in order to maintain compliance with federal, state and local permits, laws and/or regulations pertaining to protection of the environment, and to take any required or desired action in connection therewith, as such individual shall deem necessary or advisable, and that any such action taken to date is hereby ratified and approved; and

RESOLVED FURTHER, that any environmental compliance signature authority previously granted by the Board of Directors that is in direct conflict with, or more restrictive than, this resolution is hereby superseded; and

RESOLVED FURTHER, that the foregoing authority shall continue in full force and effect until revoked or modified by a subsequent resolution of the Board of Directors; and

RESOLVED FURTHER, that the Secretary or any Assistant Secretary of the Company may certify these resolutions to any party requesting the same to be certified.

Dated: June 13, 2019

DocuSigned by:
Courtney A. Tippy
9E0CD492EB6C4D1...

Courtney A. Tippy
Secretary

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ATTACHMENT 1

UPDATED RCRA POST-CLOSURE COST ESTIMATES

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	2	$40,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	2	$4,400
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	1	$3,600
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	2	$2,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	2	$4,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Sample	$528	10	2	$10,560
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Sample	$536	27	2	$28,944
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Sample	$431	40	2	$34,480
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	2	$10,800
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	24	$16,800
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	2	$70,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	2	$397,800
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	2	$100,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	2	$30,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$786,384
2010 thru 2021 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%						**$972,130**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2023.
(2) Includes sampling, evaluation, development of contour maps.

ATTACHMENT 2

UPDATED CORRECTIVE ACTION CLOSURE PLAN

10.0 CLOSURE PLAN AND COST ESTIMATE

10.1 INTRODUCTION

The closure plan contained in this section describes the closure activities necessary for closure of the South Stack SWMU. An associated cost estimate has also been prepared.

10.2 CLOSURE PLAN

The closure plan described herein differs slightly from the activities described in Section 8.0 in that it assumes that the original 184 acre stack area and the current areas that have soils placed outside of the original 184 acre area would need final capping. Currently, there are approximately 10 acres that contain soils outside of the original stack footprint, of which all 10 acres have already been final covered. A total of 21.4 acres of final cap have been completed in 2022. Therefore, 172.6 acres of the south stack would require final capping if closure were to be initiated. This scenario results in a different landform and the surface water management system from that presented in Section 8.0. The closure activities are described as follows and shown conceptually on Figures 10-1 through 10-4.

Phase 1 Closure Activities – Figure 10-1

- Preparation of the South Stack sideslopes and top slope surface, including removal of decant structures and other miscellaneous structures, sealing of shrinkage cracks, and removal and grading of interior compartment berms has been completed. The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. Therefore, no costs are included for this activity.

Phase 2 Closure Activities – Figure 10-2

- Installation of a 60-mil thick geomembrane on the flat top slope of the South Stack and final cover on geomembrane has been completed. Approximately 102 acres of geomembrane was installed in 2010 through 2013. Costs to complete this work have been removed from the estimate.

- Construction of the top slope sedimentation basin to control surface water runoff from the covered top slope. This basin was completed in 2011 and costs to complete this work have been removed from the estimate.

- Installation of the sideslope drain around perimeter of South Stack and installation of wet well/lift station at sideslope drain discharge point along south side of stack has been completed. An additional lift station may need to be installed near the existing pump station.

Phase 3 Closure Activities – Figure 10-3

- Cleanout of moat and return water pond for conversion to perimeter run-off channel and sedimentation basin, respectively. Material removed from the moat will be spread on South Stack benches and slopes. Approximately 9,850' (77%) of the moat have been cleaned out and filled with clean soil through 2021.

- Placement of final cover system on upper slope and midlevel bench.

Phase 4 Closure Activities – Figure 10-4

- Placement of final cover system on portions of the lower slope including seeding and erosion control.

- Installation of downslope channel to replace above ground discharge from the top slope sedimentation basin.

An estimate of the costs for these activities is provided in Table 10-1. Specific closure tasks are discussed in the following sections.

10.2.1 South Stack Preparation and Grading

The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. No costs are associated for this task.

10.2.2 North Stack Excavation

The excavation of the North Stack included removal of phosphogypsum and was completed in 2011. Phosphogypsum was placed on the South Stack and graded as shown on Figure 10-1. This activity is not included in the closure cost estimate.

10.2.3 Sideslope Drain

The sideslope drain was installed near the toe of the lower slope around the perimeter of the South Stack. The sideslope drain discharges by gravity to a wet well/ lift station along the south side of the stack as shown on Figure 10-2. The perimeter sideslope drain was completed in 2016. No costs are associated for this task.

10.2.4 Forcemain, Pump and Manholes

A wet well/lift station was installed at the slopeside drain discharge point along the south side of the stack to manage slopeside drain discharge during 2018. From this lift station, liquids will be conveyed to a second pump station as shown on Figure 10-3. Approximately 2870' of forcemain was constructed in 2018. Based upon current flows from the sideslope drain, the existing pumps and overhead piping system may or may not be used to convey the collected seepage off-site to the Olin wastewater treatment plant. Alternatively, storage tanks with direct trucking to the Olin treatment plant may be used.

10.2.5 Final Cover System

The geomembrane has been placed on the South Stack top slope. The soil final cover will be placed over the entire South Stack as shown on Figure 10-3. Approximately 102 acres of geomembrane was installed in 2010 through 2013. The soil cover will consist of a minimum of 2 feet of compacted low-permeability soil and 1 foot of vegetative cover soil. A total of 21.4 acres of final cap have been completed in 2022. Based upon the current south stack soil configuration, approximately 172.6 acres would require final capping if closure were required.

Final cover construction includes excavating, hauling, spreading, and compacting of the 2-foot compacted low-permeability soil layer; and placing the 1-foot vegetative cover soil. Soils will be obtained from the Facility property.

10.2.6 Conversion of Moat and Return Water Pond

The moat and return water pond will be converted to a perimeter run-off channel and sedimentation basin, respectively. This will require the removal of phosphogypsum-contaminated sediment. Sediment removed will be placed on the South Stack slopes and mid-level bench to dry before the final cover system is placed. Concurrent with sediment removal, the moat will be graded for use as a perimeter run-off channel for the surface water management system and the return water pond will be graded for use as a sedimentation basin, as shown on Figure 10-3. Approximately 9,850 feet of the moat were cleaned and backfilled through 2021.

10.2.7 Surface Water Management System

The surface water management system associated with the closure scenario will include four sedimentation basins and a perimeter run-off channel.

During 2010 and 2011, the top slope area on the South Stack was graded to drain to the south and west. In addition, a berm was constructed along the west and south sides of the top slope and is maintained as a sedimentation basin. Discharge from the top slope sedimentation basin is through a perforated riser and discharge barrel which discharges to the southwest sedimentation basin. The return water pond will be converted into a sedimentation basin. This closure sedimentation basin will have a perforated discharge riser and discharge will be to the west to the existing channel that discharges to the Des Plaines River. Discharge from the north end of the stack will flow to the existing North sedimentation basin which was completed in 2011. Discharge from south and eastern portions of the stack will flow to the existing south sedimentation basin, which was partially constructed in 2016.

10.2.8 Establishment of Vegetation

The area receiving final cover will require establishment of vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the requirements of Section 8.3.6.3. Mulching and erosion control matting may be used as necessary to provide erosion control. Seeding and mulching will be required on approximately 200 acres at final closure.

10.2.9 Construction Quality Assurance

Construction oversight will be required during each component of closure. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan.

10.2.10 Monitoring

During closure of the South Stack SWMU, groundwater monitoring will be performed in accordance with Section 9.0. If the Agency determines closure is necessary, it is estimated that closure activities could take up to 2 years. Therefore, sampling, analysis, and reporting for the 12 groundwater monitoring wells will be conducted semi-annually for the anticipated 2 year closure period. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well will be replaced during the closure period.

10.2.11 Certification of Closure

All activities will be conducted in accordance with the approved CQA Plan. Within 60 days after completion of closure of the South Stack SWMU, a certification will be submitted to the IEPA, by registered mail, that the South Stack SWMU has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification will be placed in the operating record and will be available to IEPA upon request until the IEPA releases the owner or operator from the closure financial assurance requirements of 35 IAC Section 724.243(i).

10.2.12 Survey Plat

No later than the submission of the certification of closure of the South Stack SWMU, a survey plat will be prepared which includes the following information:

- The location and dimensions of the South Stack SWMU, surveyed with respect to site coordinates.

- The plat will contain a note, prominently displayed, that states:

    1. This land has been used to manage phosphogypsum.
    2. The obligations of the owner and operator to restrict the disturbance of the South Stack SWMU in accordance with the applicable 35 IAC 724 Subpart G regulations.

The plat will be prepared and certified by a professional land surveyor using the wording in 35 IAC 702.126(d)(1).

The plat will be filed with the Will County zoning authority and the IEPA. In addition, the plat will be recorded with the property deed.

10.3 COST ESTIMATE

The cost estimate is prepared assuming a third party will be contracted to complete all closure activities. In addition, the cost estimate is not reduced by allowance for salvage value of equipment or resale value of the land. The estimated cost for closure is summarized in Table 10-1.

10.4 SCHEDULE

Completion of closure activities will be weather dependent. A timeline schedule for closure activities is presented on Figure 10-5. A time period has been included in each task to account for potential inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 25 weeks to complete. The extensive nature of closure activities requires a closure period beyond 180 days.

10.5 FINANCIAL ASSURANCE

In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.

R 000257



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

SCALE 0 300' 600

ACTIVITIES:

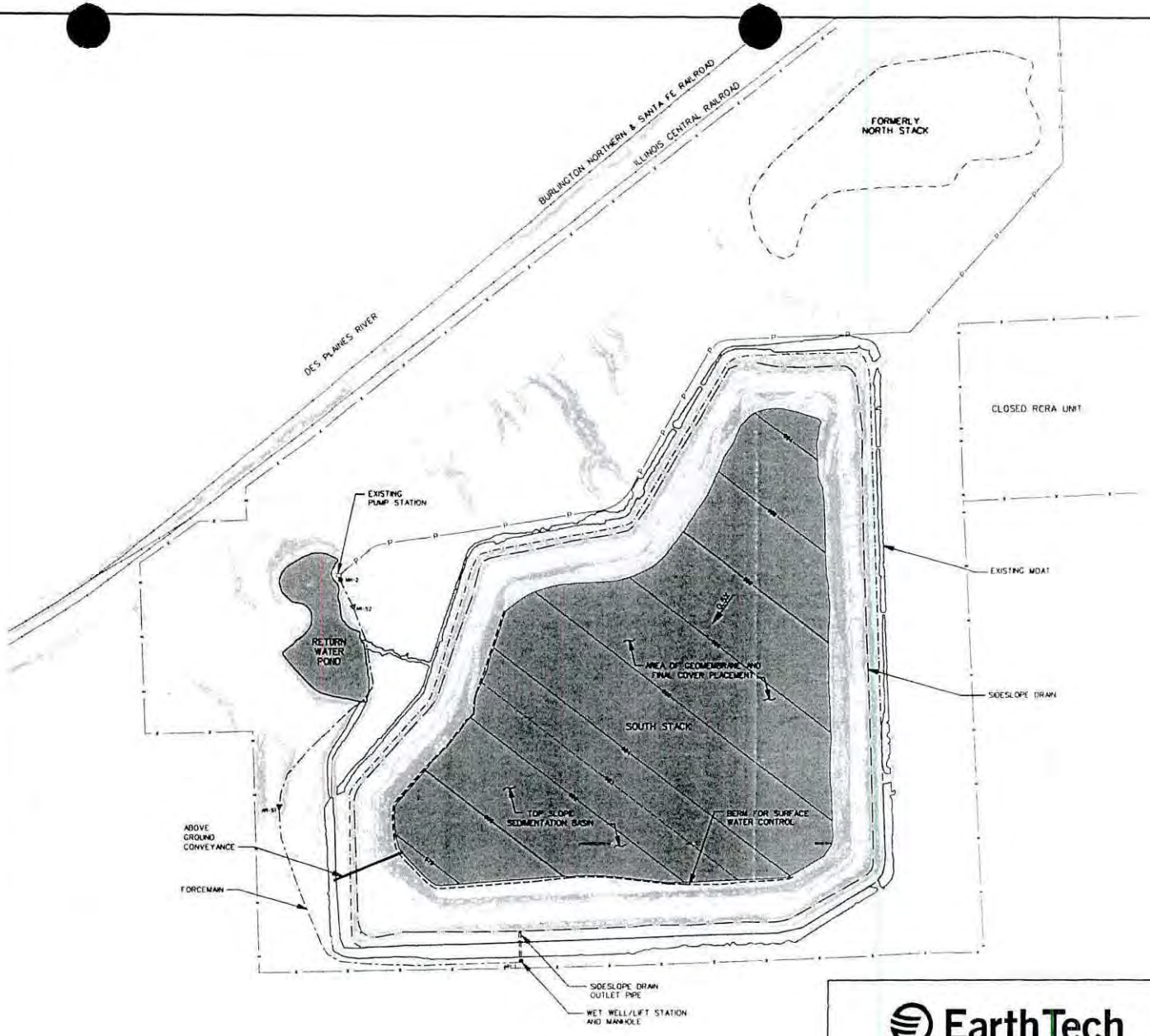
- SITE PREPARATION AND GRADING
- NORTH STACK EXCAVATION

] COMPLETED

EarthTech
A Tyco International Ltd. Company

FIGURE 10-1
PHASE I CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2008 100079

R 000258



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

SCALE 0' 300' 600'

ACTIVITIES:

- PLACE GEOMEMBRANE ON TOP SLOPE COMPLETE
- PLACE FINAL COVER ON TOP SLOPE
- CONSTRUCT TOP SLOPE BASIN COMPLETE
- INSTALL SIDESLOPE DRAIN COMPLETE
- INSTALL FORCEMAIN, PUMP AND MANHOLES 90% COMPLETE

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FIGURE 10-2
PHASE II CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008

100079

R 000259



LEGEND

EXISTING TOPOGRAPHY

APPROXIMATE FACILITY BOUNDARY

APPROXIMATE LIMITS NORTH AND SOUTH STACK

APPROXIMATE LOCATION OF EXISTING PIPELINES

APPROXIMATE LOCATION OF EXISTING RAILROADS

APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

SCALE 0 300' 600'

ACTIVITIES:

- CLEAN OUT MOAT AND RETURN WATER POND PLACE SEDIMENTS ON MID-LEVEL BENCH — PARTIAL COMPLETE
- CONVERT MOAT AND RETURN WATER POND INTO PERIMETER CHANNEL AND MINIMUM CLOSURE SEDIMENTATION BASIN — PARTIAL
- PLACE FINAL COVER ON UPPER SIDESLOPE AND MID-LEVEL BENCH

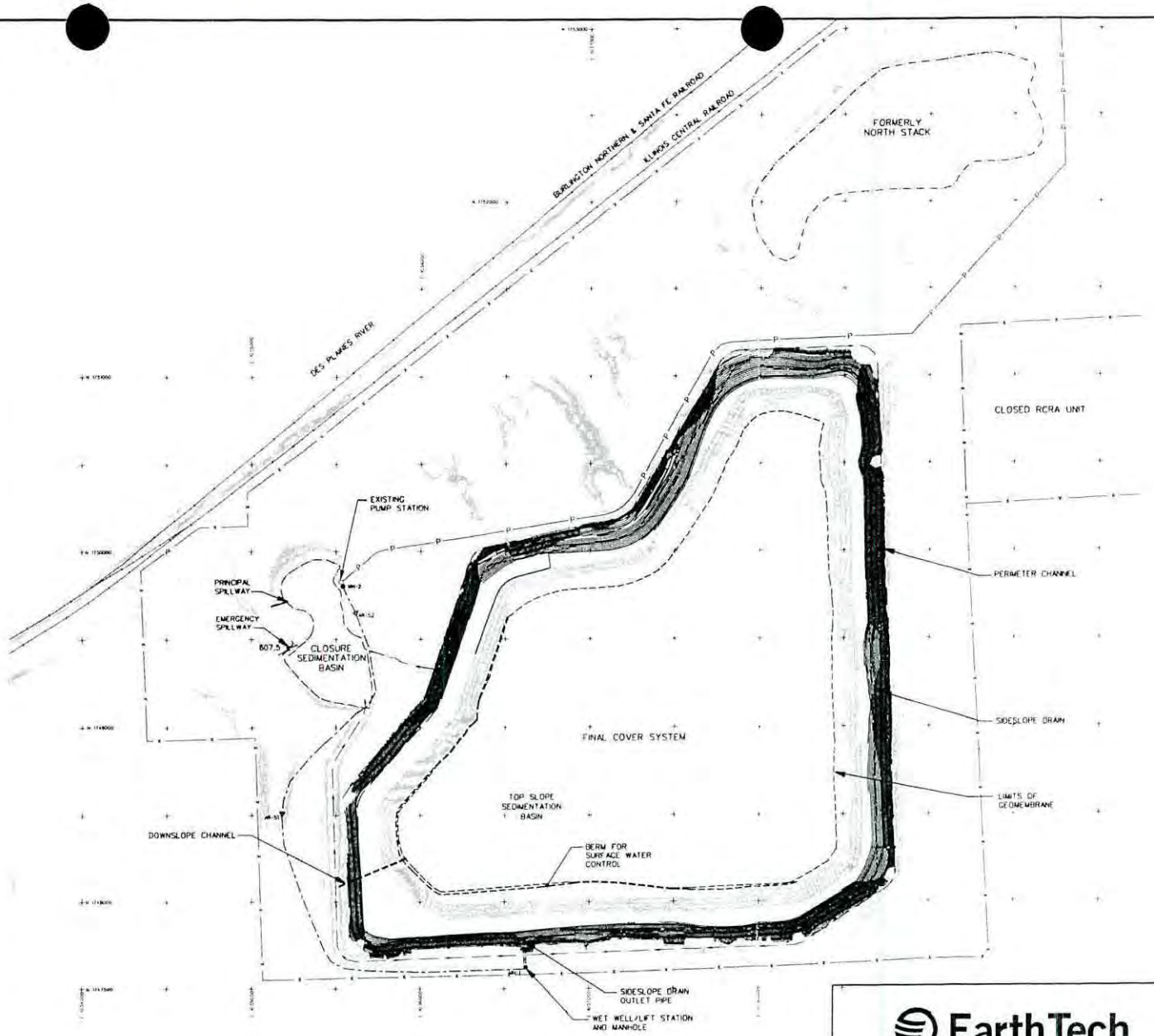
EarthTech
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FIGURE 10-3
PHASE III CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008

100079

R 000260



LEGEND

EXISTING TOPOGRAPHY

APPROXIMATE FACILITY BOUNDARY

APPROXIMATE LIMITS NORTH AND SOUTH STACK

APPROXIMATE LOCATION OF EXISTING PIPELINES

APPROXIMATE LOCATION OF EXISTING RAILROADS

APPROXIMATE LOCATION OF EXISTING FENCE LINES

SURFACE WATER FLOW LINE

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

SCALE 0 300' 600'

FINAL ACTIVITIES:

- PLACE FINAL COVER ON LOWER SLOPE PARTIAL
- VEGETATE DISTURBED AREA
- CONVERT ABOVE GROUND CONVEYANCE TO DOWNSLOPE CHANNEL

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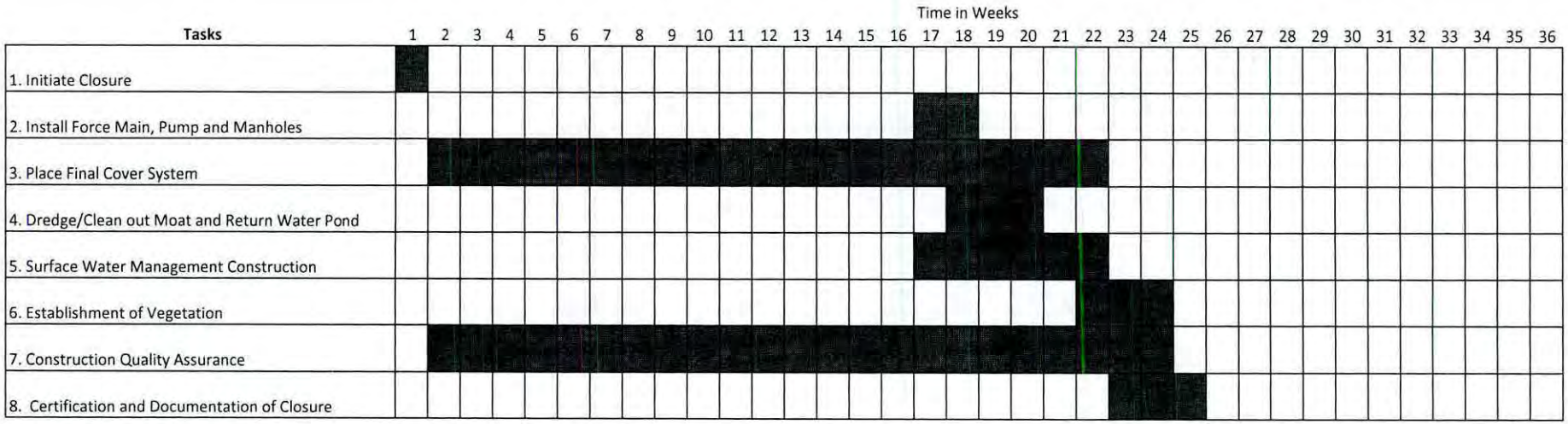
FIGURE 10-4
PHASE IV CLOSURE PLAN
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008

100079

FIGURE 10-5

SCHEDULE FOR SOUTH STACK CLOSURE



May 2022

Table 10-1

ESTIMATED CLOSURE COSTS - SOUTH STACK SWMU

R 000262

Item	Quantity	Units	Unit Cost	Approximate Cost
1. South Stack Preparation and Grading (Completed)	0	cy	$1.50	$ -
2. Install Sideslope Drain (completed)	0	linear feet	$200.00	$ -
3. Install Force Main and Wet Well/Lift Stations				
a. Forcemain (completed)	0	linear feet	$100.00	$ -
b. Wet Well/Lift Stations[1]	1	each	$250,000	$ 250,000
4. Place Final Cover System				
a. 2-foot Low-Permeability Soil Layer (172.6 ac)	556,923	cy	$4.00	$ 2,227,692
b. 1-foot Vegetative Soil Layer (172.6 ac)	278,462	cy	$4.00	$ 1,113,848
5. Dredge/Clean-out Moat and Return Water Pond				
a. Moat (77% complete)	14,467	cy	$7.00	$ 101,269
b. Return Water Pond	31,500	cy	$10.00	$ 315,000
c. Soil Testing and Documentation	1	lump sum	$150,000	$ 150,000
6. Surface Water Management System Construction				
a. Sedimentation Basin Conversion	1	lump sum	$20,000	$ 20,000
b. Run-off Channel Construction	1	lump sum	$40,000	$ 40,000
7. Establishment of Vegetation: Seed and Mulch	200	acres	$1,850	$ 370,000
8. Construction Quality Assurance:				
a. Inspectors (2 @ 50 hrs/wk x 25 wks)	2,500	hours	$60.00	$ 150,000
b. Engineer (10 hrs/wk x 25 wks)	250	hours	$75.00	$ 18,750
c. Senior Engineer (4 hrs/wk x 25 wks)	100	hours	$90.00	$ 9,000
9. Groundwater Semi-Annual Sampling[2]				
(24 hours/event) x (2 events) x 2 years	96	hours	$100.00	$ 9,600
10. Groundwater Semi-Annual Monitoring List G1				$ -
(12 wells/event) x (2 events) x 2 years	48	samples	$300.00	$ 14,400
11. Semi-Annual Groundwater Data Review and Report				
(12 hours/event) x (2 events) x 2 years	48	hours	$80.00	$ 3,840
12. Groundwater Monitoring Well Replacement (1 well total)	1	lump sum	$12,000	$ 12,000
13. Certification and Documentation of Closure	1	lump sum	$150,000	$ 150,000
14. Preparation and Filing of Plat	1	lump sum	$10,000	$ 10,000
			SUBTOTAL	**$ 4,965,399**
Annual inflation increases of 1.2%, 1.2%, 2.1%, 1.8%, 1.5%, 1.4%,1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13% for 2009 thru 2021			**GRAND TOTAL**	**$ 6,211,897**

Notes:

1. Wet Well/Lift Station costs include pump and appurtenances.

2. Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

May 2022

ATTACHMENT 3

UPDATED CORRECTIVE ACTION POST-CLOSURE PLAN

11.0 POST-CLOSURE CARE PLAN AND COST ESTIMATE

11.1 INTRODUCTION

The post-closure care plan presented herein describes inspection, maintenance and monitoring activities to be performed after implementation of the corrective action activities described in Section 8.0, i.e., after the South Stack SWMU closure has been completed. Implementation of post-closure care activities ensures the integrity and/or operability of environmental systems for the South Stack SWMU. In addition, groundwater monitoring activities are included for the former North Stack program.

Environmental systems for the South Stack SWMU include the following:

- Final cover system;
- Surface water management structures;
- Stack seepage collection system;
- Groundwater monitoring; and
- Security system

The mechanisms for ensuring the integrity and/or operability of these environmental systems will be provided by inspections and maintenance activities. In addition, the groundwater monitoring program described in Section 9.0 will continue to be implemented throughout the post-closure care period.

The post-closure care plan and associated cost estimate have been prepared based on a minimum 30-year post-closure care period. The post-closure care cost estimates have been prepared assuming a third party will be contracted to perform the work. The components of the post-closure care plan are discussed in the following sections. The post-closure care cost estimate is discussed in Section 11.5.

11.2 INSPECTIONS

Inspection of the South Stack SWMU will be conducted on a regular basis during the post-closure care period. Inspection items, along with associated inspection procedures and inspection frequencies, are shown on Table 11-1.

A written record of each inspection will be made and retained at WMII offices. The inspector will assess the condition and need for repair of the final cover and vegetation, surface water management system components, stack seepage collection system components, groundwater monitoring wells and security system. Documentation of all repairs performed or replacements made (excluding minor grading, vegetation replacement or similar minor maintenance activities) will be documented and retained with the inspection records.

11.3 MAINTENANCE ACTIVITIES

During the post-closure care period, maintenance activities will include the following:

11.3.1 Final Cover Maintenance

Repairs to the final cover due to erosion and differential settlement of the underlying phosphogypsum will be performed as required during the post-closure care period. These areas will be repaired in order to maintain the integrity of the final cover. Areas of differential settlement and erosion will be repaired with additional cover soils, as required. Off-site soil material will be utilized to maintain final cover. Final cover repairs will be performed in accordance with the CQA plan.

For purposes of the cost estimate, final cover repair is estimated to average 2 acres per year during the 30-year post-closure care period at an average soil thickness of 1 foot.

11.3.2 Vegetation Repair

Final cover areas repaired as part of final cover maintenance described above will require re-establishment of vegetative cover. In addition, barren areas noted during the inspections will also require re-vegetation. Reworked surfaces and areas of failed or eroded vegetation will be revegetated. It is anticipated this rate will be reduced approximately 5 years after initial seeding as vegetation becomes well established.

Vegetation repair is estimated to average 3.3 acres per year during the 30-year post-closure period. This average is equivalent to 10 acres per year being repaired during the first 5 years of post-closure care, 5 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

11.3.3 Vegetation Maintenance

As discussed in Section 8.0, the vegetation selected for planting on the final landform consists of native species. These species are well adapted to harsh climates and conditions, such as high temperatures and drought. Native species require no fertilization and the preferred management technique for native plant species is prescribed or controlled burning. For the cost estimate, annual controlled burning and mowing is assumed during the first 5 years of post-closure care and every 5 years thereafter.

11.3.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water management system components, and monitoring points. Repairs will be made as warranted. An annual cost is provided for such work.

11.3.5 Stack Seepage Collection System Operation and Maintenance

Seepage collection from the South Stack during the post-closure care period will be performed as described previously in Section 8.0. Seepage collected by the side slope drain will be conveyed by gravity to a wet well/lift station along the south side of the stack. From this lift station liquids may be conveyed to a second lift station adjacent to the former return water pond. From this point, liquids will be conveyed via overhead pipeline to the Olin wastewater treatment plant. Alternatively, a storage tank and tankers may be used to haul seepage to the Olin treatment plant

Maintenance of the seepage collection system during the post-closure care period will include inspection of the system, repairs as warranted, and periodic replacement of pumps. The system

will be inspected quarterly and at other times, as required. Costs to maintain the seepage collection system include cleaning of the side slope drain, replacement of pumps, repair of control panels, and associated labor costs. It is estimated that the pumps will be replaced once every 10 years. These costs have been normalized on an annual basis.

11.4 MONITORING

Groundwater monitoring will be performed in accordance with Section 9.0. Sampling, analysis, and reporting for the 12 groundwater monitoring wells at the South Stack, and the 7 wells at the North Stack will be conducted semi-annually for a minimum of 30 years. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well is replaced every 5 years, i.e., six wells during the post-closure care period. This cost has been normalized on an annual basis.

11.5 RECORDKEEPING

During the 30-year post-closure care period, records of inspections, sampling and repair activities will be maintained at WMII offices. All records will indicate date, location, and corrective action taken.

11.6 COST ESTIMATE

A cost estimate for post-closure care is included in Table 11-2. These estimates reflect current costs for third party contractors to complete the post-closure care work.

11.7 FINANCIAL ASSURANCE

In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU post-closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.

TABLE 11-1

TYPICAL POST-CLOSURE CARE INSPECTIONS SOUTH STACK SWMU

Inspection Item	Inspection Procedure	Frequency
Final Cover System	Check for the presence of: 1. Areas of sparse vegetation; 2. Excessive erosion; 3. Differential settlement; 4. Ponding of water; and 5. Animal burrowing.	Quarterly
Surface Water Management System Components	1. Diversion berms: verify positive drainage and no excessive erosion. 2. Downslope channels: verify erosion control in place and functional; no excessive erosion. 3. Energy dissipators: verify no blockages and no scour around structure. 4. Permit channels: verify positive drainage and no excessive erosion. 5. Culverts: verify no blockages. 6. Sedimentation basins: Verify no excessive erosion at basin inlets and outlets; no blockages at basin inlet and outlet; riser pipe perforations clear with no blockages; sluice gate/valve functional.	Quarterly
Stack Seepage Collection System Components	Check condition and operation of components: wet well/lift stations, control panels, overhead pipeline.	Daily when personnel are onsite, but no less frequent than quarterly
Groundwater Monitoring Wells	Check condition of: 1. Outer protective casing, lock on well and bumper posts, if present. 2. Verify positive drainage around well. 3. Sampling equipment functional.	During each routine groundwater sampling event.
Fencing/Security	Check condition of fencing; verify no holes or gaps in fencing.	Quarterly

TABLE 11-2

COST ESTIMATE FOR POST-CLOSURE CARE SOUTH STACK SWMU

For Post-Closure Care: Annual Cost for Years 1 through 30:				
	Item	Quantity	Unit Cost	Approximate Annual Cost
1.	Site Inspections (20 hours/quarter)	80 hours	$50.00	$4,000
2.	Final Cover Maintenance (2 acres at 1-foot)	3,226 cy	$5.50	$17,750
3.	Vegetation Maintenance[1]- Mowing/Controlled Burn (estimated annualized unit cost)	200 acres	$33.00	$6,600
4.	Vegetation Repair	3.3 acres	$1,850.00	$6,100
5.	Miscellaneous Repairs	Lump Sum	--	$20,000
6.	Stack Seepage Collection System Maintenance			
	a. Labor (10 hours/week) x (52 weeks/year)	520 hours	$45.00	$23,400
	b. Pump replacement (estimated annualized cost)	Lump sum	--	$20,000
	c. Miscellaneous repairs	Lump sum	--	$5,000
7.	Groundwater Semi-Annual Sampling[2] (Both Stacks) (29 hours/event) x (2 events)	58 hours	$100.00	$5,800
8.	Groundwater Semi-Annual Monitoring - South Stack (12 wells/event) x (2 events)	24 samples	$300.00	$7,200
9.	Groundwater Semi-Annual Monitoring - North Stack (7 wells/event) x (2 events)	14 samples	$481.00	$6,734
10.	Semi-Annual Groundwater Data Review and Report (14 hrs/event) x (2 events)	28 hours	$80.00	$2,240
11.	Groundwater Monitoring Well Replacement (annualized lump sum cost)	Lump sum	--	$2,000
12.	Annual Report Preparation	80 hours	$80.00	$6,400
	Total Annual Cost			$133,224
	Updated Annual Cost with 2009 through 2021 Inflation factors of 1.2%,1.2%,2.1%,1.8%,1.5%,1.4%,1%,1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%			$166,668 x 30 years
	30-YEAR COST			$5,000,040
	13. Decommission 19 groundwater wells at end of PC	each	$527	$10,013
	GRAND TOTAL POST CLOSURE COST			$5,010,053

NOTES:

[1] Vegetation maintenance including mowing and controlled burning will be performed on the entire landform.

[2] Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

ATTACHMENT 4

UPDATED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN

13.0 CLOSURE/POST-CLOSURE CARE PLAN AND COST ESTIMATES

13.1 INTRODUCTION

The closure/post-closure care plan and cost estimates presented herein are prepared in accordance with the requirements of 35 IAC 811.110, 811.111, 812.114, 812.115, and 812.116. The regulations require that: 1) a closure/post-closure care plan be developed by the site operator, 2) cost estimates be prepared for the closure/post-closure care plan elements, and 3) the site operator provide financial assurance to guarantee closure and post-closure care of the Expansion. The purpose of these requirements is to assure that closure/post-closure care can be implemented in the event of operator default.

A closure plan has been prepared to address three differentthe closure scenario for the Expansion as described as follows:

- Closure for areas for which authorization to operate has been obtained or is being requested;

Additionally, a post-closure care plan which addresses maintenance and monitoring of the Expansion following certification of closure of for areas for which authorization to operate has been obtained or is being requested has been prepared. The following sections also address how the landfill will be developed to allow for contemporaneous closure and stabilization of the Expansion.

All cost estimates are prepared assuming IEPA will contract with a third party to implement the work. Cost estimates are not reduced by allowance for salvage value of equipment or waste, resale value of the land, or sale of landfill gas. Pursuant to 35 IAC 811.705, cost estimates will be revised annually for inflation during the active life and post-closure care period, or whenever a change in the closure plan or post-closure care plan results in an increase in the cost estimate. In accordance with Permit No. B-141R, Condition III.K.5., the value of financial assurance is determined by the sum of the closure and post-closure care cost estimates for areas for which authorization to operate has been obtained or is being requested.

Fencing and/or natural barriers will remain intact and will act as security to prevent access to the Expansion. Additionally, a sign will be posted at the entrance to the Facility indicating that the Expansion is closed and is no longer accepting waste.

13.2 CLOSURE PLAN FOR CURRENT/REQUESTED OPERATIONAL AREAS

In accordance with Permit No. B-141R, Condition III.K.5., financial assurance for closure and post-closure care is only required for areas for which authorization to operate has been obtained or is being requested. Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner and Phases 3 through 8 and portions of 10 through 14 in the Expansion area would require final capping. 19.2 acres of final cap was completed in 2017 and certified by the IEPA. In addition, 24.2 acres of final capping were completed in the Spring 2020. Therefore, the total area that would require final cover is approximately 134.94 acres.

Major closure activities include the placement of final cover, establishment of vegetative cover, construction of surface water control features, and inspection and certification activities, as discussed below. A landfill gas management system is not proposed for the Expansion. However, gas monitoring will be performed on a monthly basis pursuant to 35 IAC 811.310(c). In accordance with the gas probe installation schedule approved in permit B-141R, gas probes will be installed outside the limits of waste and within the waste mass. Closure activities will be conducted in

accordance with the approved Construction Quality Assurance Plan All activities will be documented by a professional engineer. An estimate of these costs is provided in Section 13.2.9.

13.2.1 Equipment Decontamination

Decontamination of equipment used in the operation will not be required, as no hazardous waste will be accepted at the Expansion. Equipment that has been in contact with the waste material will be manually cleaned (e.g., waste removed from tracks and undercarriage). Cleaning residue generated by these activities will be placed in the Expansion at the time of covering. Equipment used in covering activities will not become contaminated.

Cleaned equipment or structures not necessary for post-closure care will be removed and utilized at other WMII facilities. After completion of closure activities, it is anticipated that the ticket/administration building, the scalehouse, and the maintenance facility will remain. All equipment will be removed after certification of closure, except those necessary to perform post-closure activities at the landfill.

13.2.2 Backfilling and Grading

As the annual development schedule previously described in Section 3.3 indicates, waste placement will be on-going in Phase 3. It is assumed that all of Phase 3 will have been excavated and constructed and that waste will have been placed over approximately one-third of the base. It is further assumed that additional fill will be required over those areas of the base that have yet to receive waste so as to provide positive surface water drainage. Therefore, approximately 488,00020 yd^3 of additional fill will be required in Phases 312 through 14, .

13.2.3 Final Cover Placement

For the purposes of this cost estimate, it is assumed that the existing solid waste unit, Interim Horizontal Overlay area, and Phases 3 through 8 and portions of 10 through 14 will have received waste and will require final cover placement as shown on Figure 13-1. Therefore, approximately 134.94 acres of final cover would be required. Soil materials necessary to construct the final cover will be obtained from on-site sources.

All closure activities will be conducted in accordance with the approved CQA Plan. Required records and certification of final cover placement will be submitted to IEPA and maintained by the site operator.

Soils used for protective cover will be capable of supporting the final cover vegetation either as they are, or fertilizer will be introduced as needed. Installation of the protective cover layer will occur concurrent with the installation of the geomembrane, geocomposite drainage layer, and grading layer soil.

13.2.4 Vegetation

The area receiving final cover, as well as those areas disturbed at closure at the end of the first permit term, will require establishment of a vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the permit. The mixtures of grasses and forbs will be selected to be amenable to the soil quality/thickness, slopes, and moisture conditions that are proposed for the Expansion, without the need for continued maintenance. Mulch will also be used at rates necessary to provide erosion control. Approximately **60**134.94 acres will receive seed and mulch at the time of the first permit term closure.

13.2.5 Surface Water Management

Upon backfilling of excavated areas and minor grading work, surface water management features at the Expansion will be constructed. It is anticipated that a surface water channel will be required to direct surface water runoff and the solid waste unit to the existing sedimentation basin by the maintenance shop. A total of approximately 25,4**15,000** lineal feet of surface water diversion berms and surface water channels will be constructed. The surface water control features will be constructed to the same specifications and details shown on the engineering drawings.

13.2.6 Certification

The operator and an Illinois-registered professional engineer will certify to IEPA that the closure of the landfill is in accordance with the closure plan. Closure documentation drawings depicting closure conditions will accompany the certification. All activities will be conducted in accordance with the approved CQA Plan.

13.2.7 Documentation

A plat of the closed areas will be filed with the Will County Recorder's office. An Illinois-registered land surveyor will be retained for preparation and filing of the plat.

Following closure of the landfill, the operator will record a notation on the deed to the property to notify, in perpetuity, that:

1. The land has been used as a landfill facility.
2. Its use is restricted under 35 IAC 811.111(d).

The operator will also notify IEPA that the notation has been recorded and a copy has been placed in the operating record.

13.2.8 Closure Notice Procedures

If closure is necessary, IEPA will be notified of closure within 30 days after receipt of the final volume of waste, and the operator will treat, remove, or dispose of all wastes and waste residue in accordance with 35 IAC 811.111(a). Closure activities, including placement of the geomembrane, will be initiated within 60 days after receipt of the final volume of waste and in accordance with the closure plan. In accordance with 35 IAC 811.110(f), an extension will have to be approved by the Agency as closure will take longer than 180 days.

13.2.9 Cost Estimate

A cost estimate to perform closure activities for existing and requested operational areas and establish financial assurance in accordance with 35 IAC 811 requirements includes tasks of final cover system installation, construction of surface water control features, landscaping, construction quality assurance, and documentation of closure. Final cover construction includes excavating, hauling, placing, and compacting the 1-foot grading layer soil; placing the geomembrane; placing the geocomposite drainage layer; excavating, hauling, and spreading of the 2.5-foot protective cover layer; and placing a 0.5-foot topsoil layer. Landscaping includes placement of seed and mulch. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan. A cost has also been included for surveying of the closed surfaces and filing of the plat map. The estimated closure cost for the existing and requested operational areas is summarized and presented in Table 13-1. The closure cost estimate was prepared under the assumption that an independent third party will complete all activities associated with closure.

13.2.10 Schedule

Completion of the closure activities for the existing and requested operational areas will be weather dependent. A timeline schedule for closure activities is presented in Figure 13-2. A time period has been included in each task to account for inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 2329 weeks to complete. First permit term closure may also require additional time for procuring and delivering required materials.

13.3 POST-CLOSURE CARE PLAN

The post-closure care plan presented herein addresses post-closure care for the fully developed Expansion. Post-closure assumes and s through 8 and portions of 10 through 14178.41the entire Expansion has been filled and closed. Estimated costs for performing the activities for the 30-year post-closure care period are presented in Section 13.3. These costs will be placed in the operating record.

13.3.1 Post-Closure Monitoring and Maintenance

The post-closure monitoring and maintenance program will include the following:

13.3.1.1 Site Inspections

Inspection of the Expansion will be conducted on a quarterly basis for a minimum period of 30 years after closure. A written record of the inspection(s) will be made and retained at the closed Expansion. The inspector will assess the condition and need for repair of final cover and vegetation, as well as fencing, monitoring points, and surface water control features.

During the 30-year post-closure care period, corrective action, including soil filling and reseeding, will be taken if ponding is observed, cracks greater than 1-inch wide or gullies 6 inches or deeper have formed, gas odor is present, vegetative or vector problems arise, or if leachate seeps are present. Areas that have been identified by the inspector or IEPA as particularly susceptible to erosion will be recontoured and reseeded. All eroded and scoured drainage channels will be repaired, and the lining material replaced if necessary. All vegetated areas, the stormwater basin, and associated inlet and outlet structures will be inspected on a quarterly basis for 5 years after closure. After 5 years, all vegetated areas, the sedimentation basin and structures will be inspected annually until settling has stopped and there are no eroded or scoured areas. The post-closure inspection report(s) will include a statement regarding correction of items previously identified as needing repair.

13.3.1.2 Final Cover Maintenance

Residual settlement and erosion may require minor final cover repairs. Areas where ponding occurs or erosion appears will be repaired in order to maintain the integrity of the final cover. Recently filled and covered areas will require the most maintenance; however, the landfill will stabilize with time so that little, if any, maintenance will ultimately be required during the post-closure period. Generally, a 3- to 5-year stabilization period is anticipated. Residual settlement of the closed landfill is not anticipated. If it occurs at all, it is expected to be minimal and confined to localized areas. Areas of settlement will be repaired with additional cover soils, as required. Off-site material will be secured to maintain final cover.

Final cover repair is estimated to average 1.5 acre per year during the 30-year post-closure care period. This average is equivalent to 6 acres per year being repaired during the first 5 years of post-closure care, 1.5 acres per year being repaired in years 6 through 15 and no repairs being made after year 15.

13.3.1.3 Vegetation Repair

Areas repaired as noted above will require re-establishment of vegetative cover. Barren areas noted during the inspection(s) will also require repair. All reworked surfaces, and areas of failed or eroded vegetation in excess of 100 square feet cumulatively, will be revegetated. As with cover repair, it is anticipated this rate will be reduced after 5 years of stabilization.

Vegetation repair is estimated to average 4 acres per year during the 30-year post-closure period. This average is equivalent to 12 acres per year being repaired during the first 5 years of post-closure care, 6 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 38 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

13.3.4 Gas Monitoring/Sampling

R 000276

The gas monitoring program at the Expansion will be installed to detect any gas migration at the property line or 100 feet from the limits of waste (whichever is less). Nineteen gas monitoring probes outside the limits of waste and 9 gas monitoring probes within the limits of waste will be monitored quarterly for pressure, methane, oxygen, and carbon dioxide. Four ambient air monitoring locations will be monitored quarterly for methane.

The following items will constitute the need for corrective action:

- A methane concentration exceeding 50 percent of the lower explosive limit in air detected at a gas monitoring probe or an ambient air monitoring location at the property boundary or 100 feet from the edge of the unit (whichever is less); or
- A methane concentration greater than 25 percent of the lower explosive limit in air detected in any building on or near the Expansion; or
- Malodors detected beyond the property boundary.

Monitoring for the presence of methane will occur on an quarterly basis to determine if corrective action is required. Should methane gas levels exceed the limits stated above, the operator will notify the IEPA in writing, within 2 business days, of an observed exceedance and implement the requirements of 35 IAC 811.311 to ensure the protection of human health.

In accordance with 35 IAC 811 requirements, the gas monitoring system will be operated until the waste has stabilized enough to no longer produce methane in quantities that exceed the allowable concentrations. Results of quarterly gas monitoring and ambient air testing during post-closure care will be reviewed and will be the basis for continuing or ceasing the gas monitoring system. The individual conducting the inspections of the closed Expansion will note the presence of any odors. Monitoring of landfill gas will continue throughout the post-closure care period. The gas monitoring plan also contains provisions for reducing the frequency of testing. An annual cost to monitor landfill gas has been included in the cost estimate.

13.3.5 Property Use During the Post-Closure Care Period

The planned use for the property during the 30-year post-closure period is anticipated to be passive recreation. This use will not disturb the integrity of the final cover, liner, or any other component of the containment system, nor will it inhibit the functioning of the monitoring systems.

13.3.6 Recordkeeping

During the 30-year post-closure care period, records of field investigations, quarterly inspections, sampling and corrective action will be maintained at the office of the site operator. All records will indicate date, program, location, and corrective action taken.

13.3.7 Security

Existing fencing, gates, berms, and other required security measures around ancillary structures will be inspected and maintained during the 30-year post-closure care period. The end use for the Expansion will be passive recreation. Therefore, limited access controls similar to that of a park would be in place.

13.3.8 Cost Estimates

R 000277

A cost estimate for post-closure care is included in Table 13-2. These estimates reflect current third party costs, assuming IEPA will contract for all closure and post-closure care work. Cost items are based on current engineering and laboratory fees, and construction costs.

13.4 FINANCIAL ASSURANCE

35 IAC 811 describes the procedures by which an operator of a waste disposal facility can give "financial assurance" satisfying the requirements of Section 21.1(a) of the Illinois Environmental Protection Act. The regulations require that the operator post with IEPA a performance bond or other security for the purpose of insuring closure of the Expansion and post-closure care. Financial assurance may be given through a combination of a trust agreement, a bond guaranteeing payments or performance, a letter of credit, insurance, or self-insurance. The cost estimates and the amount of financial assurance are to be updated in accordance with 35 IAC 811 requirements.

Cost estimates for closure and post-closure care were developed based on IEPA securing a third party to implement the plans. A summary of the estimated closure and post-closure care costs for which financial assurance is required is summarized in Table 13-3. Financial assurance documents for WMII will be submitted to IEPA as part of the request for authorization to operate.

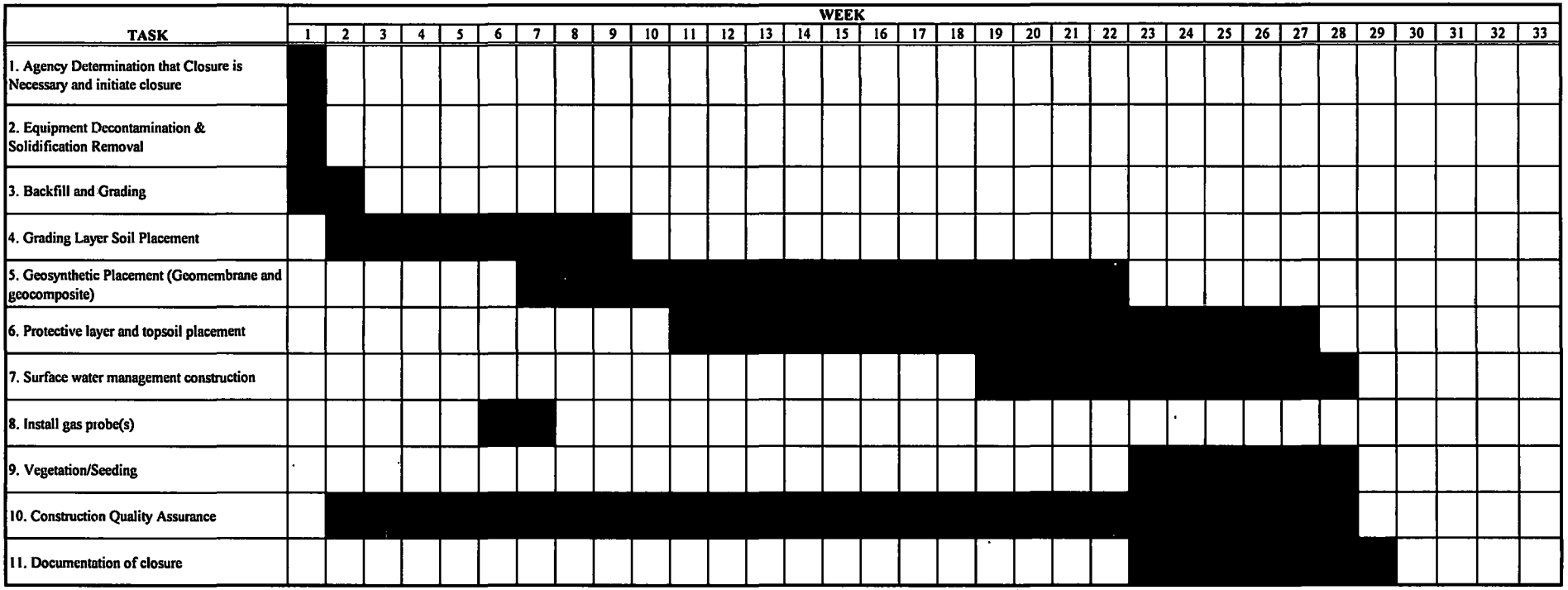
TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2021)	Inflation Factor (%)	Unit Price (2022)	Amount
1. Equipment Cleaning	10	hours	$120.58	4.13	$125.56	$1,256
2. Backfill and Grading	20,000	cubic yards	$3.02	4.13	$3.14	$62,895
3. Solidfication Dismantlement	400	cubic yards	$33.64	4.13	$35.03	$14,012
4. Final Cover (On-Site Material 134.94 acres)						
a. Grading Layer Soil Placement (1.0 ft)	217,703	cubic yards	$3.61	4.13	$3.76	$818,366
b. Protective Soil Cover (2.5 ft)	544,258	cubic yards	$3.02	4.13	$3.14	$1,711,542
c. Topsoil Cover (0.5 ft)	108,851	cubic yards	$3.02	4.13	$3.14	$342,307
d. Geocomposite Drainage Layer	5,877,986	square feet	$0.449	4.13	$0.468	$2,748,215
e. Geomembrane	5,877,986	square feet	$0.406	4.13	$0.423	$2,485,023
5. Landscaping (Seed and Mulch)	134.84	acres	$1,981	4.13	$2,063	$278,150
6. Construct Surface Water Diversion Ditches	25,400	feet	$3.61	4.13	$3.76	$95,481
7. Install Gas Monitoring Probes[1]	4	each	$6,008	4.13	$6,256	$25,025
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 29 wks)	2900	hours	$81	4.13	$84	$244,601
b. Engineer (8 hrs/wk x 29 wks)	232	hours	$94	4.13	$98	$22,709
c. Senior Engineer (2 hrs/wk x 29 wks)	58	hours	$128	4.13	$133	$7,731
9. Closure Certification	1	lump sum	$60,070	4.13	$62,551	$62,551
10. Plat Preparation and Recording	1	lump sum	$7,208	4.13	$7,506	$7,506
					Total	**$8,927,368**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2022

FIGURE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS CLOSURE SCHEDULE



Revised May 2022

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2020 Unit Price	Inflation (%)	2021 Unit Price	Annual Cost (2021)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$60.08	4.13	$62.56	$751	$22,530
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$6.60	4.13	$6.88	$3,783	$113,490
3. Vegetation Maintenance/Mowing	178.41	acres	-	-	$56.44	4.13	$58.77	$10,485	$314,550
4. Vegetation Repair	0.66	acres	-	-	$1,982.36	4.13	$2,064.23	$1,363	$40,890
5. Miscellaneous Repairs	1	lump sum	-	-	$1,201.43	4.13	$1,251.05	$1,252	$37,560
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	749.00	gallons/day	365	days	$0.121	4.13	$0.126	$34,314	$1,029,420
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$42.05	4.13	$43.79	$9,109	$273,270
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.62	4.13	$0.64	$8,754	$262,620
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$810.85	4.13	$844.34	$8,444	$253,320
List L2: 1 samples/year[2]	1	samples	1	year	$696.81	4.13	$725.59	$726	$21,780
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$162.86	4.13	$169.58	$17,637	$529,110
10. a. Groundwater Monitoring List G2 semi-annual wells	10	wells	2	events	$129.21	4.13	$134.55	$2,691	$80,730
b. Groundwater Monitoring List G1 semi-annual wells	10	wells	2	events	$124.87	4.13	$130.03	$2,601	$78,030
11. a. Groundwater Monitoring List G2 quarterly wells	28	wells	4	events	$129.21	4.13	$134.55	$15,070	$452,100
b. Groundwater Monitoring List G1 quarterly wells	28	wells	4	events	$124.87	4.13	$130.03	$14,564	$436,920
12. Groundwater Data Review	12	hours	4	events	$60.08	4.13	$62.56	$3,004	$90,120
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$42.05	4.13	$43.79	$1,139	$34,170
b. Gas probe analysis	28	samples	4	year	$42.05	4.13	$43.79	$4,905	$147,150
c. Ambient air monitoring	4	samples	4	year	$42.05	4.13	$43.79	$701	$21,030
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$96.12	4.13	$100.09	$3,203	$96,090
15. Decommission Groundwater wells	39	wells	1	one time	$506.00	4.13	$526.90	$20,550	$20,550
								Total	**$4,355,430**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2022

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$8,927,368
2. Current Operating Areas Post-Closure	$4,355,430
Total	**$13,282,798**

Revised May 2022

WM

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

May 31, 2023

Ms. Jacki Cooperider, P.E.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
JUN 02 2023
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification Log B-141R-M-167

Dear Ms. Cooperider:

This letter and its attachments are being submitted as additional information for the pending Class 1* permit modification (M-167) for Laraway RDF.

Revised Solid Waste Unit Closure/Post-Closure Plans

The May 2022 Section 13 Closure/Post-Closure plan narrative from the original application contained a bunch of typographical errors. The errors were corrected. The entire Section 13 and associated cost tables are being resubmitted in their entirety so as to avoid any confusion. ***If approved, please replace the existing Section 13.0 from the Solid Waste Expansion permit application binder 1 and replace with the revised Section 13.0.***

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

REVISED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN

13.0 CLOSURE/POST-CLOSURE CARE PLAN AND COST ESTIMATES

13.1 INTRODUCTION

The closure/post-closure care plan and cost estimates presented herein are prepared in accordance with the requirements of 35 IAC 811.110, 811.111, 812.114, 812.115, and 812.116. The regulations require that: 1) a closure/post-closure care plan be developed by the site operator, 2) cost estimates be prepared for the closure/post-closure care plan elements, and 3) the site operator provide financial assurance to guarantee closure and post-closure care of the Expansion. The purpose of these requirements is to assure that closure/post-closure care can be implemented in the event of operator default.

A closure plan has been prepared to address the closure scenario for the Expansion as described as follows:

- Closure for areas for which authorization to operate has been obtained or is being requested;

Additionally, a post-closure care plan which addresses maintenance and monitoring of the Expansion following certification of closure of for areas for which authorization to operate has been obtained or is being requested has been prepared. The following sections also address how the landfill will be developed to allow for contemporaneous closure and stabilization of the Expansion.

All cost estimates are prepared assuming IEPA will contract with a third party to implement the work. Cost estimates are not reduced by allowance for salvage value of equipment or waste, resale value of the land, or sale of landfill gas. Pursuant to 35 IAC 811.705, cost estimates will be revised annually for inflation during the active life and post-closure care period, or whenever a change in the closure plan or post-closure care plan results in an increase in the cost estimate. In accordance with Permit No. B-141R, Condition III.K.5., the cost of financial assurance is determined by the sum of the closure and post-closure care cost estimates for areas for which authorization to operate has been obtained or is being requested.

Fencing and/or natural barriers will remain intact and will act as security to prevent access to the Expansion. Additionally, a sign will be posted at the entrance to the Facility indicating that the Expansion is closed and is no longer accepting waste.

13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS

In accordance with Permit No. B-141R, Condition III.K.5., financial assurance for closure and post-closure care is only required for areas for which authorization to operate has been obtained or is being requested. Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 3 through 8 and portions of 10 through 14 in the Expansion would require final capping. 19.2 acres of final cap was completed in 2017 and certified by the IEPA. In addition, 24.2 acres of final capping were completed in the Spring 2020. Therefore, the total area that would require final cover is approximately 134.94 acres.

Major closure activities include the placement of final cover, establishment of vegetative cover, construction of surface water control features, and inspection and certification activities, as discussed below. A landfill gas management system is not proposed for the Expansion. However, gas monitoring will be performed on a monthly basis pursuant to 35 IAC 811.310(c). In accordance with the gas probe installation schedule approved in permit B-141R, gas probes will be installed outside the limits of waste and within the waste mass. Closure activities will be conducted in

accordance with the approved Construction Quality Assurance Plan. All activities will be documented by a professional engineer.

13.2.1 Equipment Decontamination

Decontamination of equipment used in the operation will not be required, as no hazardous waste will be accepted at the Expansion. Equipment that has been in contact with the waste material will be manually cleaned (e.g., waste removed from tracks and undercarriage). Cleaning residue generated by these activities will be placed in the Expansion at the time of covering. Equipment used in covering activities will not become contaminated.

Cleaned equipment not necessary for post-closure care will be removed and utilized at other WMII facilities. After completion of closure activities, it is anticipated that the ticket/administration building, the scalehouse, and the maintenance facility will remain. All equipment will be removed after certification of closure, except those necessary to perform post-closure activities at the landfill.

13.2.2 Backfilling and Grading

It is further assumed that additional fill will be required over those waste disposal areas that have yet to receive waste so as to provide positive surface water drainage. Therefore, approximately 20,000 yd^3 of additional fill will be required in Phases 12 through 14, and over top portions of the existing unit.

13.2.3 Final Cover Placement

For the purposes of this cost estimate, it is assumed that the existing solid waste unit, Interim Horizontal Overlay area, and Phases 3 through 8 and portions of 10 through 14 will have received waste and will require final cover placement as shown on Figure 13-1. Therefore, approximately 134.94 acres of final cover would be required. Soil materials necessary to construct the final cover will be obtained from on-site sources.

All closure activities will be conducted in accordance with the approved CQA Plan. Required records and certification of final cover placement will be submitted to IEPA and maintained by the site operator.

Soils used for protective cover will be capable of supporting the final cover vegetation either as they are, or fertilizer will be introduced as needed. Installation of the protective cover layer will occur concurrent with the installation of the geomembrane, geocomposite drainage layer, and grading layer soil.

13.2.4 Vegetation

The area receiving final cover, as well as those areas disturbed, will require establishment of a vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the permit. The mixtures of grasses and forbs will be selected to be amenable to the soil quality/thickness, slopes, and moisture conditions that are proposed for the Expansion, without the need for continued maintenance. Mulch will also be used at rates necessary to provide erosion control. Approximately 134.94 acres will receive seed and mulch at the time of the first permit term closure.

13.2.5 Surface Water Management

Upon backfilling of excavated areas and minor grading work, surface water management features at the Expansion will be constructed. It is anticipated that a surface water channel will be required to direct surface water runoff to the existing sedimentation basin by the maintenance shop. A total of approximately 25,400 lineal feet of surface water diversion berms and surface water channels will be constructed. The surface water control features will be constructed to the same specifications and details shown on the engineering drawings.

13.2.6 Solidification Areas Dismantlement

Solidification will only occur in areas that provide sufficient remaining fill height to allow for abandonment of temporary liner soils in place (i.e., the top elevation of the liner soils would be at or below the permitted waste grades). Therefore, the only remaining dismantlement costs are for the removal and disposal of the in-process waste materials and reagents contained inside the containers. The waste material would be disposed of at Laraway RDF. The mobile equipment and containers would be re-used elsewhere on site or at another Waste Management site and, thus would only require basic washing to facilitate re-use (negligible expense).

The estimated wastes and reagents that would need to be disposed off-site amount to 400 cy of material (10 containers at 40 cy per container – the maximum proposed number of boxes). Excavators and other mobile equipment perform dual duty with other site operations and thus, would be washed (if necessary) on-site and re-used for closure and post-closure operations.

13.2.7 Certification

The operator and an Illinois-registered professional engineer will certify to IEPA that the closure of the landfill is in accordance with the closure plan. Closure documentation drawings depicting closure conditions will accompany the certification. All activities will be conducted in accordance with the approved CQA Plan.

13.2.8 Documentation

A plat of the closed areas will be filed with the Will County Recorder's office. An Illinois-registered land surveyor will be retained for preparation and filing of the plat.

Following closure of the landfill, the operator will record a notation on the deed to the property to notify, in perpetuity, that:

1. The land has been used as a landfill facility.
2. Its use is restricted under 35 IAC 811.111(d).

The operator will also notify IEPA that the notation has been recorded and a copy has been placed in the operating record.

13.2.9 Closure Notice Procedures

If closure is necessary, IEPA will be notified of closure within 30 days after receipt of the final volume of waste, and the operator will treat, remove, or dispose of all wastes and waste residue in accordance with 35 IAC 811.111(a). Closure activities, including placement of the geomembrane, will be initiated within 60 days after receipt of the final volume of waste and in accordance with the closure plan. In accordance with 35 IAC 811.110(f), an extension will have to be approved by the Agency as closure will take longer than 180 days.

13.2.10 Cost Estimate

A cost estimate to perform closure activities for existing and requested operational areas and establish financial assurance in accordance with 35 IAC 811 requirements includes tasks of final cover system installation, construction of surface water control features, landscaping, construction quality assurance, and documentation of closure. Final cover construction includes excavating, hauling, placing, and compacting the 1-foot grading layer soil; placing the geomembrane; placing the geocomposite drainage layer; excavating, hauling, and spreading of the 2.5-foot protective cover layer; and placing a 0.5-foot topsoil layer. Landscaping includes placement of seed and mulch. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan. A cost has also been included for surveying of the closed surfaces and filing of the plat map. The estimated closure cost for the existing and requested operational areas is summarized and presented in Table 13-1. The closure cost estimate was prepared under the assumption that an independent third party will complete all activities associated with closure.

13.2.11 Schedule

Completion of the closure activities for the existing and requested operational areas will be weather dependent. A timeline schedule for closure activities is presented in Figure 13-2. A time period has been included in each task to account for inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 29 weeks to complete.

13.2.12 Temporary Suspension of Waste Acceptance

Pursuant to 35 IAC 812.114(d), if the solid waste unit chooses to temporarily suspend the acceptance of waste for a period of less than 30 days, no significant operational or regulatory impact will be created. A temporary shutdown of more than 30 days will be accompanied by a permit application and revision of the closure and post-closure care plan to reflect the impact of the temporary shutdown.

13.3 POST-CLOSURE CARE PLAN

In accordance with Permit No. B-141R, Condition III.J.5., the post-closure care plan presented herein addresses post-closure care for areas for which authorization to operate has been obtained or is being requested. Therefore, post-closure activities and costs are for the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 8 and portions of 10 through 14 in the Expansion, which equates to approximately 178.41 acres. Estimated costs for performing the activities for the 30-year post-closure care period are presented in Section 13.3. These costs will be placed in the operating record.

13.3.1 Post-Closure Monitoring and Maintenance

The post-closure monitoring and maintenance program will include the following:

13.3.1.1 Site Inspections

Inspection of the Expansion will be conducted on a quarterly basis for a minimum period of 30 years after closure. A written record of the inspection(s) will be made and retained at the closed Expansion. The inspector will assess the condition and need for repair of final cover and vegetation, as well as fencing, monitoring points, and surface water control features.

During the 30-year post-closure care period, corrective action, including soil filling and reseeding, will be taken if ponding is observed, cracks greater than 1-inch wide or gullies 6 inches or deeper have formed, gas odor is present, vegetative or vector problems arise, or if leachate seeps are present. Areas that have been identified by the inspector or IEPA as particularly susceptible to erosion will be recontoured and reseeded. All eroded and scoured drainage channels will be repaired, and the lining material replaced if necessary. All vegetated areas, the stormwater basin, and associated inlet and outlet structures will be inspected on a quarterly basis for 5 years after closure. After 5 years, all vegetated areas, the sedimentation basin and structures will be inspected annually until settling has stopped and there are no eroded or scoured areas. The post-closure inspection report(s) will include a statement regarding correction of items previously identified as needing repair.

13.3.1.2 Final Cover Maintenance

Residual settlement and erosion may require minor final cover repairs. Areas where ponding occurs or erosion appears will be repaired in order to maintain the integrity of the final cover. Recently filled and covered areas will require the most maintenance; however, the landfill will stabilize with time so that little, if any, maintenance will ultimately be required during the post-closure period. Generally, a 3- to 5-year stabilization period is anticipated. Residual settlement of the closed landfill is not anticipated. If it occurs at all, it is expected to be minimal and confined to localized areas. Areas of settlement will be repaired with additional cover soils, as required. On-site material will be secured to maintain final cover.

Final cover repair is estimated to average 0.33 acre per year during the 30-year post-closure care period. This average is equivalent to 1 acre per year being repaired during the first 5 years of post-closure care, 0.5 acres per year being repaired in years 6 through 15 and no repairs being made after year 15.

13.3.1.3 Vegetation Repair

Areas repaired as noted above will require re-establishment of vegetative cover. Barren areas noted during the inspection(s) will also require repair. All reworked surfaces, and areas of failed or eroded vegetation in excess of 100 square feet cumulatively, will be revegetated. As with cover repair, it is anticipated this rate will be reduced after 5 years of stabilization.

Vegetation repair is estimated to average 0.66 acres per year during the 30-year post-closure period. This average is equivalent to 2 acres per year being repaired during the first 5 years of post-closure care, 1 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 38 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

13.3.4 Gas Monitoring/Sampling

The gas monitoring program at the Expansion will be installed to detect any gas migration at the property line or 100 feet from the limits of waste (whichever is less). Nineteen gas monitoring probes outside the limits of waste and 9 gas monitoring probes within the limits of waste will be monitored quarterly for pressure, methane, oxygen, and carbon dioxide. Four ambient air monitoring locations will be monitored quarterly for methane.

The following items will constitute the need for corrective action:

- A methane concentration exceeding 50 percent of the lower explosive limit in air detected at a gas monitoring probe or an ambient air monitoring location at the property boundary or 100 feet from the edge of the unit (whichever is less); or

- A methane concentration greater than 25 percent of the lower explosive limit in air detected in any building on or near the Expansion; or

- Malodors detected beyond the property boundary.

Monitoring for the presence of methane will occur on an quarterly basis to determine if corrective action is required. Should methane gas levels exceed the limits stated above, the operator will notify the IEPA in writing, within 2 business days, of an observed exceedance and implement the requirements of 35 IAC 811.311 to ensure the protection of human health.

In accordance with 35 IAC 811 requirements, the gas monitoring system will be operated until the waste has stabilized enough to no longer produce methane in quantities that exceed the allowable concentrations. Results of quarterly gas monitoring and ambient air testing during post-closure care will be reviewed and will be the basis for continuing or ceasing the gas monitoring system. The individual conducting the inspections of the closed Expansion will note the presence of any odors. Monitoring of landfill gas will continue throughout the post-closure care period. The gas monitoring plan also contains provisions for reducing the frequency of testing. An annual cost to monitor landfill gas has been included in the cost estimate.

13.3.5 Property Use During the Post-Closure Care Period

The planned use for the property during the 30-year post-closure period is anticipated to be passive recreation. This use will not disturb the integrity of the final cover, liner, or any other component of the containment system, nor will it inhibit the functioning of the monitoring systems.

13.3.6 Recordkeeping

During the 30-year post-closure care period, records of field investigations, quarterly inspections, sampling and corrective action will be maintained at the office of the site operator. All records will indicate date, program, location, and corrective action taken.

13.3.7 Security

Existing fencing, gates, berms, and other required security measures around ancillary structures will be inspected and maintained during the 30-year post-closure care period. The end use for the Expansion will be passive recreation. Therefore, limited access controls similar to that of a park would be in place.

13.3.8 Cost Estimates

A cost estimate for post-closure care is included in Table 13-2. These estimates reflect current third party costs, assuming IEPA will contract for all closure and post-closure care work. Cost items are based on current engineering and laboratory fees, and construction costs.

13.4 FINANCIAL ASSURANCE

35 IAC 811 describes the procedures by which an operator of a waste disposal facility can give "financial assurance" satisfying the requirements of Section 21.1(a) of the Illinois Environmental Protection Act. The regulations require that the operator post with IEPA a performance bond or other security for the purpose of insuring closure of the Expansion and post-closure care. Financial assurance may be given through a combination of a trust agreement, a bond guaranteeing payments or performance, a letter of credit, insurance, or self-insurance. The cost estimates and the amount of financial assurance are to be updated in accordance with 35 IAC 811 requirements.

Cost estimates for closure and post-closure care were developed based on IEPA securing a third party to implement the plans. A summary of the estimated closure and post-closure care costs for which financial assurance is required is summarized in Table 13-3. Financial assurance documents for WMII will be submitted to IEPA as part of the request for authorization to operate.

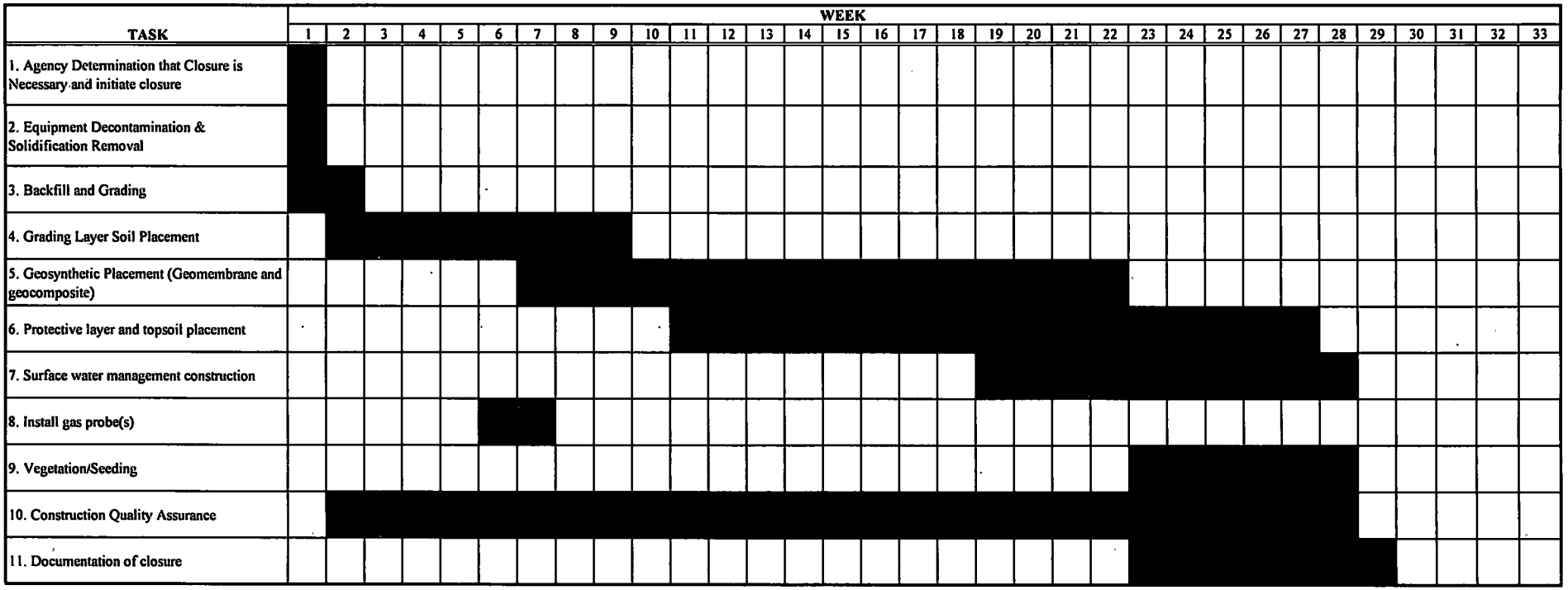
TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2021)	Inflation Factor (%)	Unit Price (2022)	Amount
1. Equipment Cleaning	10	hours	$120.58	4.13	$125.56	$1,256
2. Backfill and Grading	20,000	cubic yards	$3.02	4.13	$3.14	$62,895
3. Solidfication Dismantlement	400	cubic yards	$33.64	4.13	$35.03	$14,012
4. Final Cover (On-Site Material 134.94 acres)						
a. Grading Layer Soil Placement (1.0 ft)	217,703	cubic yards	$3.61	4.13	$3.76	$818,366
b. Protective Soil Cover (2.5 ft)	544,258	cubic yards	$3.02	4.13	$3.14	$1,711,542
c. Topsoil Cover (0.5 ft)	108,851	cubic yards	$3.02	4.13	$3.14	$342,307
d. Geocomposite Drainage Layer	5,877,986	square feet	$0.449	4.13	$0.468	$2,748,215
e. Geomembrane	5,877,986	square feet	$0.406	4.13	$0.423	$2,485,023
5. Landscaping (Seed and Mulch)	134.84	acres	$1,981	4.13	$2,063	$278,150
6. Construct Surface Water Diversion Ditches	25,400	feet	$3.61	4.13	$3.76	$95,481
7. Install Gas Monitoring Probes[1]	4	each	$6,008	4.13	$6,256	$25,025
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 29 wks)	2900	hours	$81	4.13	$84	$244,601
b. Engineer (8 hrs/wk x 29 wks)	232	hours	$94	4.13	$98	$22,709
c. Senior Engineer (2 hrs/wk x 29 wks)	58	hours	$128	4.13	$133	$7,731
9. Closure Certification	1	lump sum	$60,070	4.13	$62,551	$62,551
10. Plat Preparation and Recording	1	lump sum	$7,208	4.13	$7,506	$7,506
					Total	**$8,927,368**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2022

FIGURE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS CLOSURE SCHEDULE



Revised May 2022

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2020 Unit Price	Inflation (%)	2021 Unit Price	Annual Cost (2021)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$60.08	4.13	$62.56	$751	$22,530
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$6.60	4.13	$6.88	$3,783	$113,490
3. Vegetation Maintenance/Mowing	178.41	acres	-	-	$56.44	4.13	$58.77	$10,485	$314,550
4. Vegetation Repair	0.66	acres	-	-	$1,982.36	4.13	$2,064.23	$1,363	$40,890
5. Miscellaneous Repairs	1	lump sum	-	-	$1,201.43	4.13	$1,251.05	$1,252	$37,560
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	749.00	gallons/day	365	days	$0.121	4.13	$0.126	$34,314	$1,029,420
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$42.05	4.13	$43.79	$9,109	$273,270
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.62	4.13	$0.64	$8,754	$262,620
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$810.85	4.13	$844.34	$8,444	$253,320
List L2: 1 samples/year[2]	1	samples	1	year	$696.81	4.13	$725.59	$726	$21,780
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$162.86	4.13	$169.58	$17,637	$529,110
10. a. Groundwater Monitoring List G2 semi-annual wells	10	wells	2	events	$129.21	4.13	$134.55	$2,691	$80,730
b. Groundwater Monitoring List G1 semi-annual wells	10	wells	2	events	$124.87	4.13	$130.03	$2,601	$78,030
11. a. Groundwater Monitoring List G2 quarterly wells	28	wells	4	events	$129.21	4.13	$134.55	$15,070	$452,100
b. Groundwater Monitoring List G1 quarterly wells	28	wells	4	events	$124.87	4.13	$130.03	$14,564	$436,920
12. Groundwater Data Review	12	hours	4	events	$60.08	4.13	$62.56	$3,004	$90,120
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$42.05	4.13	$43.79	$1,139	$34,170
b. Gas probe analysis	28	samples	4	year	$42.05	4.13	$43.79	$4,905	$147,150
c. Ambient air monitoring	4	samples	4	year	$42.05	4.13	$43.79	$701	$21,030
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$96.12	4.13	$100.09	$3,203	$96,090
15. Decommission Groundwater wells	39	wells	1	one time	$506.00	4.13	$526.90	$20,550	$20,550
								Total	**$4,355,430**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2022

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$8,927,368
2. Current Operating Areas Post-Closure	$4,355,430
Total	**$13,282,798**

Revised May 2022

B-141R-M-174

R 000296

WM.

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

May 12, 2023

Ms. Jacki Cooperider, P.E.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
MAY 18 2023
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification

Dear Ms. Cooperider:

This letter and its attachments are being submitted as a Class 1* permit modification to request authorization to 1) update the post-closure cost estimate for the closed RCRA unit, 2) update the closure/post-closure plans and cost estimates for the stack corrective action, 3) update the closure/post-closure plans and cost estimates for the solid waste expansion. This application consists of the following:

1. This letter;
2. LPC-PA23, RCRA Permit Application Form;
3. Attachment 1 – Updated Post-Closure Cost Estimate (Table I-2);
4. Attachment 2 – Updated Corrective Action Closure Plan;
5. Attachment 3 – Updated Corrective Action Post-Closure Plan;
6. Attachment 4 – Updated Solid Waste Expansion Closure/Post-Closure Plan;
7. Section 39(i) Certification.

Updated RCRA Post-Closure Cost Estimate

In accordance with Permit No. B-141R, condition VIII.34, the RCRA unit post-closure costs have been revised to reflect current costs and have been increased by the 2022 CPI of 7.0%. Post-closure costs have been estimated until September 2024. Financial assurance documentation will be submitted within 90 days of Agency approval for the amount outlined on Table I-2 from the post-closure plan. The revised cost estimate is included in Attachment 1 to this submittal. ***If approved, please replace the existing Table I-2 from the RCRA post closure plan contained in the approved Part B permit application binder 1 and replace with the revised Table I-2.***

Updated Corrective Action Closure/Post-Closure Plans

In accordance with Permit No. B-141R, the closure and post-closure plans and associated cost estimates for the stack corrective action have been revised to reflect current costs and have been increased by the 2022 CPI of 7.0 %. The south stack top slope sedimentation basin, 104 acres of geomembrane cap, south stack grading, perimeter toe drain, forcemain, wet well/lift station and a portion of the moat cleaning have been completed to date and are noted in the revised closure plan. Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts outlined on Tables 10-1 and 11-2 of the revised plans contained in Attachments 2 and 3 of this submittal. ***If approved, please replace the existing Sections 10.0 and 11.0 from the North and South Stack Corrective Action Plan permit application binder 1 and replace with the revised Sections 10.0 and 11.0.***

Updated Solid Waste Unit Closure/Post-Closure Plans

In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 7.0%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 9 and portions of Phases 10 through 14 are in place (9.2 acres of Phases 9/10 will be constructed in 2023). Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts as outlined on Table 13-3 of the closure/post-closure plan contained in Attachment 4. ***If approved, please replace the existing Section 13.0 from the Solid Waste Expansion permit application binder 1 and replace with the revised Section 13.0.***

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

Illinois Environmental Protection Agency

2300298

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): 1970450002 USEPA ID Number: ILD074411745

Site Name: Laraway RDF

Physical Site Location (street, road, etc.): 21233 W. Laraway Rd.

City: Joliet Zip Code: 60436 County: Will

Existing RCRA Permit (if applicable): B-141R

II. Owner/Operator Identification

Owner Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.com

Operator Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

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Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.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

R 000299

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.)

Provide updated closure/post-closure costs for RCRA unit, corrective actions units, and solid waste unit.

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): Ian Johnson

Owner Signature: Ian John Date: 5/12/23

Title: Engineer

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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): Ian Johnson

Operator Signature: Ian Johnson Date: 5/12/23

Title: Engineer

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 12th day of May 2023.

OFFICIAL SEAL
GLORIA WENDEL
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES October 27, 2026

Notary Signature: Gloria Wendel

My commission expires on: 10/27/26

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.

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MAY 18 2023
IEPA-BOL
PERMIT SECTION

Engineer Name (Print or Type): Ian Johnson

Engineer Signature: Ian Johnson

Illinois License No.: 062-048790

Expiration Date of License: Nov 30, 2023

Engineer Phone No. 815-280-6301

Email: ijohnson@wm.com

Engineer Address:

Prairie View RDF
29755 S. Prairie View Dr.
Wilmington, IL 60481

IAN C. JOHNSON
062-048790
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))

DocuSign Envelope ID: AE691776-2AE2-4DC1-9D3D-1C961720311A

SECRETARY'S CERTIFICATE

WASTE MANAGEMENT OF ILLINOIS, INC.

I, Courtney A. Tippy, Secretary of WASTE MANAGEMENT OF ILLINOIS, INC., a(n) Delaware corporation (the "Company"), do hereby certify that the following is a true and complete copy of resolutions adopted by written consent of the Board of Directors of the Company, which resolutions have not been amended, modified or rescinded and are in full force and effect as of the date hereof:

Environmental Compliance Signature Authority

RESOLVED, that the Area Vice President, Area Director of Disposal Operations, Area Director of Collection Operations, District Manager, Director of Safety, Plant Manager, Environmental Protection Manager, Manager Engineering, District Operations Manager, MRF Manager, Facility or Site Engineer and Environmental Protection Specialist, and each of them, for each facility owned or operated by the Company, subject to compliance with applicable corporate policies and procedures and subject to specific regulatory signature requirements, are hereby authorized to prepare, execute and/or submit on behalf of the Company, as a responsible official, authorized signatory or designated representative, any and all reports, affidavits, applications, modifications, instruments, documents or papers, necessary or appropriate with respect to such facility in order to maintain compliance with federal, state and local permits, laws and/or regulations pertaining to protection of the environment, and to take any required or desired action in connection therewith, as such individual shall deem necessary or advisable, and that any such action taken to date is hereby ratified and approved; and

RESOLVED FURTHER, that any environmental compliance signature authority previously granted by the Board of Directors that is in direct conflict with, or more restrictive than, this resolution is hereby superseded; and

RESOLVED FURTHER, that the foregoing authority shall continue in full force and effect until revoked or modified by a subsequent resolution of the Board of Directors; and

RESOLVED FURTHER, that the Secretary or any Assistant Secretary of the Company may certify these resolutions to any party requesting the same to be certified.

Dated: June 13, 2019

DocuSigned by:
Courtney A. Tippy
9E0CD492E86C4D1...

Courtney A. Tippy
Secretary

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PERMIT SECTION

Illinois Environmental Protection Agency

RV0302

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: Laraway RDF — IEPA BOL No.: 1970450002

Site Address: 21233 W. Laraway Rd.

City: Joliet — State: IL — Zip Code: 60436

Permit Numbers (if applicable): B-141R

Owner

Owner Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet — State: IL — Zip: 60436

Operator

Operator Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet — State: IL — Zip: 60436

II. Officers and Employees with Site Responsibility

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
NA, no active or personal involvement in operation or mgmt	

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
Doug Tomczak	District Manager
Ian Johnson	Engineer
Mike Toufar	Operations Manager

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III. Owner, Operator, Officer, and Employee Information

R 000303

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.

R 000304

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	Date
	5/12/23
Ian Johnson	Engineer
Printed Name	Title

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ATTACHMENT 1

UPDATED RCRA POST-CLOSURE COST ESTIMATES

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	1	$20,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	1	$2,200
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	1	$3,600
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	1	$1,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	1	$2,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Sample	$528	10	1	$5,280
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Sample	$536	27	1	$14,472
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Sample	$431	40	1	$17,240
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	1	$5,400
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	12	$8,400
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	1	$35,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	1	$198,900
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	1	$50,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	1	$15,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$407,492
2010 thru 2022 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%,7%						**$539,005**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2024.
(2) Includes sampling, evaluation, development of contour maps.

ATTACHMENT 2

UPDATED CORRECTIVE ACTION CLOSURE PLAN

10.0 CLOSURE PLAN AND COST ESTIMATE

10.1 INTRODUCTION

The closure plan contained in this section describes the closure activities necessary for closure of the South Stack SWMU. An associated cost estimate has also been prepared.

10.2 CLOSURE PLAN

The closure plan described herein differs slightly from the activities described in Section 8.0 in that it assumes that the original 184 acre stack area and the current areas that have soils placed outside of the original 184 acre area would need final capping. A total of 21.4 acres of final cap have been completed as of 2022. Currently, there are approximately 10 acres that contain soils outside of the original stack footprint, of which all 10 acres have already been final covered as part of the 21.4 acre total. Therefore, 172.6 acres of the south stack would require final capping if closure were to be initiated. This scenario results in a different landform and the surface water management system from that presented in Section 8.0. The closure activities are described as follows and shown conceptually on Figures 10-1 through 10-4.

Phase 1 Closure Activities – Figure 10-1

- Preparation of the South Stack sideslopes and top slope surface, including removal of decant structures and other miscellaneous structures, sealing of shrinkage cracks, and removal and grading of interior compartment berms has been completed. The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. Therefore, no costs are included for this activity.

Phase 2 Closure Activities – Figure 10-2

- Installation of a 60-mil thick geomembrane on the flat top slope of the South Stack and final cover on geomembrane has been completed. Approximately 102 acres of geomembrane was installed in 2010 through 2013. Costs to complete this work have been removed from the estimate.

- Construction of the top slope sedimentation basin to control surface water runoff from the covered top slope. This basin was completed in 2011 and costs to complete this work have been removed from the estimate.

- Installation of the sideslope drain around perimeter of South Stack and installation of wet well/lift station at sideslope drain discharge point along south side of stack has been completed. An additional lift station may need to be installed near the existing pump station.

Phase 3 Closure Activities – Figure 10-3

- Cleanout of moat and return water pond for conversion to perimeter run-off channel and sedimentation basin, respectively. Material removed from the moat will be spread on South Stack benches and slopes. Approximately 9,850' (77%) of the moat have been cleaned out and filled with clean soil through 2022.

- Placement of final cover system on upper slope and midlevel bench.

Phase 4 Closure Activities – Figure 10-4

- Placement of final cover system on portions of the lower slope including seeding and erosion control.

- Installation of downslope channel to replace above ground discharge from the top slope sedimentation basin.

An estimate of the costs for these activities is provided in Table 10-1. Specific closure tasks are discussed in the following sections.

10.2.1 South Stack Preparation and Grading

The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. No costs are associated for this task.

10.2.2 North Stack Excavation

The excavation of the North Stack included removal of phosphogypsum and was completed in 2011. Phosphogypsum was placed on the South Stack and graded as shown on Figure 10-1. This activity is not included in the closure cost estimate.

10.2.3 Sideslope Drain

The sideslope drain was installed near the toe of the lower slope around the perimeter of the South Stack. The sideslope drain discharges by gravity to a wet well/ lift station along the south side of the stack as shown on Figure 10-2. The perimeter sideslope drain was completed in 2016. No costs are associated for this task.

10.2.4 Forcemain, Pump and Manholes

A wet well/lift station was installed at the slopeside drain discharge point along the south side of the stack to manage slopeside drain discharge during 2018. From this lift station, liquids will be conveyed to a second pump station as shown on Figure 10-3. Approximately 2870' of forcemain was constructed in 2018. Based upon current flows from the sideslope drain, the existing pumps and overhead piping system may or may not be used to convey the collected seepage off-site to the Olin wastewater treatment plant. Alternatively, storage tanks with direct trucking to the Olin treatment plant may be used.

10.2.5 Final Cover System

The geomembrane has been placed on the South Stack top slope. The soil final cover will be placed over the entire South Stack as shown on Figure 10-3. Approximately 102 acres of geomembrane was installed in 2010 through 2013. The soil cover will consist of a minimum of 2 feet of compacted low-permeability soil and 1 foot of vegetative cover soil. A total of 21.4 acres of final cap have been completed in 2022. Based upon the current south stack soil configuration, approximately 172.6 acres would require final capping if closure were required.

Final cover construction includes excavating, hauling, spreading, and compacting of the 2-foot compacted low-permeability soil layer; and placing the 1-foot vegetative cover soil. Soils will be obtained from the Facility property.

10.2.6 Conversion of Moat and Return Water Pond

The moat and return water pond will be converted to a perimeter run-off channel and sedimentation basin, respectively. This will require the removal of phosphogypsum-contaminated sediment. Sediment removed will be placed on the South Stack slopes and mid-level bench to dry before the final cover system is placed. Concurrent with sediment removal, the moat will be graded for use as a perimeter run-off channel for the surface water management system and the return water pond will be graded for use as a sedimentation basin, as shown on Figure 10-3. Approximately 9,850 feet of the moat were cleaned and backfilled through 2022.

10.2.7 Surface Water Management System

The surface water management system associated with the closure scenario will include four sedimentation basins and a perimeter run-off channel.

During 2010 and 2011, the top slope area on the South Stack was graded to drain to the south and west. In addition, a berm was constructed along the west and south sides of the top slope and is maintained as a sedimentation basin. Discharge from the top slope sedimentation basin is through a perforated riser and discharge barrel which discharges to the southwest sedimentation basin. The return water pond will be converted into a sedimentation basin. This closure sedimentation basin will have a perforated discharge riser and discharge will be to the west to the existing channel that discharges to the Des Plaines River. Discharge from the north end of the stack will flow to the existing North sedimentation basin which was completed in 2011. Discharge from south and eastern portions of the stack will flow to the existing south sedimentation basin, which was partially constructed in 2016.

10.2.8 Establishment of Vegetation

The area receiving final cover will require establishment of vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the requirements of Section 8.3.6.3. Mulching and erosion control matting may be used as necessary to provide erosion control. Seeding and mulching will be required on approximately 200 acres at final closure.

10.2.9 Construction Quality Assurance

Construction oversight will be required during each component of closure. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan.

10.2.10 Monitoring

During closure of the South Stack SWMU, groundwater monitoring will be performed in accordance with Section 9.0. If the Agency determines closure is necessary, it is estimated that closure activities could take up to 2 years. Therefore, sampling, analysis, and reporting for the 12 groundwater monitoring wells will be conducted semi-annually for the anticipated 2 year closure period. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well will be replaced during the closure period.

10.2.11 Certification of Closure

All activities will be conducted in accordance with the approved CQA Plan. Within 60 days after completion of closure of the South Stack SWMU, a certification will be submitted to the IEPA, by registered mail, that the South Stack SWMU has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification will be placed in the operating record and will be available to IEPA upon request until the IEPA releases the owner or operator from the closure financial assurance requirements of 35 IAC Section 724.243(i).

10.2.12 Survey Plat

No later than the submission of the certification of closure of the South Stack SWMU, a survey plat will be prepared which includes the following information:

- The location and dimensions of the South Stack SWMU, surveyed with respect to site coordinates.

- The plat will contain a note, prominently displayed, that states:

    1. This land has been used to manage phosphogypsum.
    2. The obligations of the owner and operator to restrict the disturbance of the South Stack SWMU in accordance with the applicable 35 IAC 724 Subpart G regulations.

The plat will be prepared and certified by a professional land surveyor using the wording in 35 IAC 702.126(d)(1).

The plat will be filed with the Will County zoning authority and the IEPA. In addition, the plat will be recorded with the property deed.

10.3 COST ESTIMATE

The cost estimate is prepared assuming a third party will be contracted to complete all closure activities. In addition, the cost estimate is not reduced by allowance for salvage value of equipment or resale value of the land. The estimated cost for closure is summarized in Table 10-1.

10.4 SCHEDULE

Completion of closure activities will be weather dependent. A timeline schedule for closure activities is presented on Figure 10-5. A time period has been included in each task to account for potential inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 25 weeks to complete. The extensive nature of closure activities requires a closure period beyond 180 days.

10.5 FINANCIAL ASSURANCE

In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.

R 000312



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

SCALE 0' 300' 600'

ACTIVITIES:

- SITE PREPARATION AND GRADING] COMPLETED
- NORTH STACK EXCAVATION

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A Tyco International Ltd. Company

FIGURE 10-1
PHASE I CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008 100079

R 000313



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

SCALE 0' 300' 600'

ACTIVITIES:

- PLACE GEOMEMBRANE ON TOP SLOPE COMPLETE
- PLACE FINAL COVER ON TOP SLOPE
- CONSTRUCT TOP SLOPE BASIN COMPLETE
- INSTALL SIDESLOPE DRAIN COMPLETE
- INSTALL FORCEMAIN, PUMP AND MANHOLES 96% COMPLETE

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FIGURE 10-2
PHASE II CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008 100079

R 000314



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

SCALE 0' 300' 600'

ACTIVITIES:

- CLEAN OUT MOAT AND RETURN WATER POND PLACE SEDIMENTS ON MID-LEVEL BENCH PARTIAL COMPLETE
- CONVERT MOAT AND RETURN WATER POND INTO PERIMETER CHANNEL AND MINIMUM CLOSURE SEDIMENTATION BASIN PARTIAL
- PLACE FINAL COVER ON UPPER SIDESLOPE AND MID-LEVEL BENCH

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FIGURE 10-3
PHASE III CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2008 100079

R 000315



LEGEND

- EXISTING TOPOGRAPHY
- APPROXIMATE FACILITY BOUNDARY
- APPROXIMATE LIMITS NORTH AND SOUTH STACK
- APPROXIMATE LOCATION OF EXISTING PIPELINES
- APPROXIMATE LOCATION OF EXISTING RAILROADS
- APPROXIMATE LOCATION OF EXISTING FENCE LINES
- SURFACE WATER FLOW LINE

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

SCALE 0' 300' 600'

FINAL ACTIVITIES:

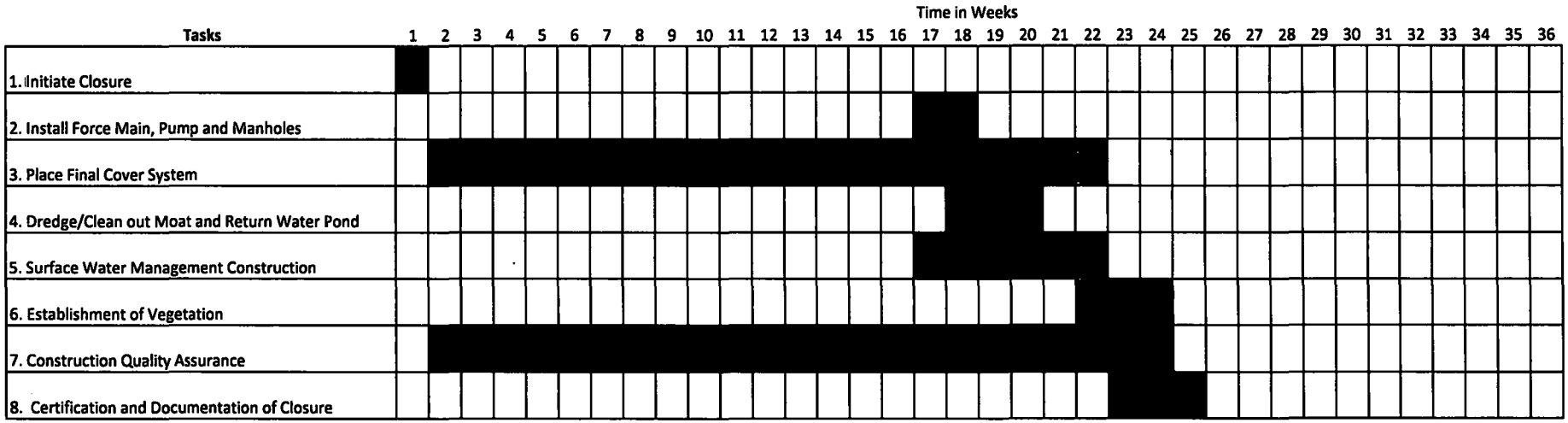
- PLACE FINAL COVER ON LOWER SLOPE PARTIAL
- VEGETATE DISTURBED AREA
- CONVERT ABOVE GROUND CONVEYANCE TO DOWNSLOPE CHANNEL

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FIGURE 10-4
PHASE IV CLOSURE PLAN
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2008 100079

FIGURE 10-5

SCHEDULE FOR SOUTH STACK CLOSURE



May 2023

Table 10-1

ESTIMATED CLOSURE COSTS - SOUTH STACK SWMU

R 000317

Item	Quantity	Units	Unit Cost	Approximate Cost
1. South Stack Preparation and Grading (Completed)	0	cy	$1.50	$ -
2. Install Sideslope Drain (completed)	0	linear feet	$200.00	$ -
3. Install Force Main and Wet Well/Lift Stations				
a. Forcemain (completed)	0	linear feet	$100.00	$ -
b. Wet Well/Lift Stations[1]	1	each	$250,000	$ 250,000
4. Place Final Cover System				
a. 2-foot Low-Permeability Soil Layer (172.6 ac)	556,923	cy	$4.00	$ 2,227,692
b. 1-foot Vegetative Soil Layer (172.6 ac)	278,462	cy	$4.00	$ 1,113,848
5. Dredge/Clean-out Moat and Return Water Pond				
a. Moat (77% complete)	14,467	cy	$7.00	$ 101,269
b. Return Water Pond	31,500	cy	$10.00	$ 315,000
c. Soil Testing and Documentation	1	lump sum	$150,000	$ 150,000
6. Surface Water Management System Construction				
a. Sedimentation Basin Conversion	1	lump sum	$20,000	$ 20,000
b. Run-off Channel Construction	1	lump sum	$40,000	$ 40,000
7. Establishment of Vegetation: Seed and Mulch	200	acres	$1,850	$ 370,000
8. Construction Quality Assurance:				
a. Inspectors (2 @ 50 hrs/wk x 25 wks)	2,500	hours	$60.00	$ 150,000
b. Engineer (10 hrs/wk x 25 wks)	250	hours	$75.00	$ 18,750
c. Senior Engineer (4 hrs/wk x 25 wks)	100	hours	$90.00	$ 9,000
9. Groundwater Semi-Annual Sampling[2]				
(24 hours/event) x (2 events) x 2 years	96	hours	$100.00	$ 9,600
10. Groundwater Semi-Annual Monitoring List G1				$ -
(12 wells/event) x (2 events) x 2 years	48	samples	$300.00	$ 14,400
11. Semi-Annual Groundwater Data Review and Report				
(12 hours/event) x (2 events) x 2 years	48	hours	$80.00	$ 3,840
12. Groundwater Monitoring Well Replacement (1 well total)	1	lump sum	$12,000	$ 12,000
13. Certification and Documentation of Closure	1	lump sum	$150,000	$ 150,000
14. Preparation and Filing of Plat	1	lump sum	$10,000	$ 10,000
			SUBTOTAL	**$ 4,965,399**
Annual inflation increases of 1.2%, 1.2%, 2.1%, 1.8%, 1.5%, 1.4%,1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%, 7% for 2009 thru 2022			**GRAND TOTAL**	**$ 6,646,730**

Notes:

1. Wet Well/Lift Station costs include pump and appurtenances.

2. Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

May 2023

ATTACHMENT 3

UPDATED CORRECTIVE ACTION POST-CLOSURE PLAN

11.0 POST-CLOSURE CARE PLAN AND COST ESTIMATE

11.1 INTRODUCTION

The post-closure care plan presented herein describes inspection, maintenance and monitoring activities to be performed after implementation of the corrective action activities described in Section 8.0, i.e., after the South Stack SWMU closure has been completed. Implementation of post-closure care activities ensures the integrity and/or operability of environmental systems for the South Stack SWMU. In addition, groundwater monitoring activities are included for the former North Stack program.

Environmental systems for the South Stack SWMU include the following:

- Final cover system;
- Surface water management structures;
- Stack seepage collection system;
- Groundwater monitoring; and
- Security system

The mechanisms for ensuring the integrity and/or operability of these environmental systems will be provided by inspections and maintenance activities. In addition, the groundwater monitoring program described in Section 9.0 will continue to be implemented throughout the post-closure care period.

The post-closure care plan and associated cost estimate have been prepared based on a minimum 30-year post-closure care period. The post-closure care cost estimates have been prepared assuming a third party will be contracted to perform the work. The components of the post-closure care plan are discussed in the following sections. The post-closure care cost estimate is discussed in Section 11.5.

11.2 INSPECTIONS

Inspection of the South Stack SWMU will be conducted on a regular basis during the post-closure care period. Inspection items, along with associated inspection procedures and inspection frequencies, are shown on Table 11-1.

A written record of each inspection will be made and retained at WMII offices. The inspector will assess the condition and need for repair of the final cover and vegetation, surface water management system components, stack seepage collection system components, groundwater monitoring wells and security system. Documentation of all repairs performed or replacements made (excluding minor grading, vegetation replacement or similar minor maintenance activities) will be documented and retained with the inspection records.

11.3 MAINTENANCE ACTIVITIES

During the post-closure care period, maintenance activities will include the following:

11.3.1 Final Cover Maintenance

Repairs to the final cover due to erosion and differential settlement of the underlying phosphogypsum will be performed as required during the post-closure care period. These areas will be repaired in order to maintain the integrity of the final cover. Areas of differential settlement and erosion will be repaired with additional cover soils, as required. Off-site soil material will be utilized to maintain final cover. Final cover repairs will be performed in accordance with the CQA plan.

For purposes of the cost estimate, final cover repair is estimated to average 2 acres per year during the 30-year post-closure care period at an average soil thickness of 1 foot.

11.3.2 Vegetation Repair

Final cover areas repaired as part of final cover maintenance described above will require re-establishment of vegetative cover. In addition, barren areas noted during the inspections will also require re-vegetation. Reworked surfaces and areas of failed or eroded vegetation will be revegetated. It is anticipated this rate will be reduced approximately 5 years after initial seeding as vegetation becomes well established.

Vegetation repair is estimated to average 3.3 acres per year during the 30-year post-closure period. This average is equivalent to 10 acres per year being repaired during the first 5 years of post-closure care, 5 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

11.3.3 Vegetation Maintenance

As discussed in Section 8.0, the vegetation selected for planting on the final landform consists of native species. These species are well adapted to harsh climates and conditions, such as high temperatures and drought. Native species require no fertilization and the preferred management technique for native plant species is prescribed or controlled burning. For the cost estimate, annual controlled burning and mowing is assumed during the first 5 years of post-closure care and every 5 years thereafter.

11.3.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water management system components, and monitoring points. Repairs will be made as warranted. An annual cost is provided for such work.

11.3.5 Stack Seepage Collection System Operation and Maintenance

Seepage collection from the South Stack during the post-closure care period will be performed as described previously in Section 8.0. Seepage collected by the side slope drain will be conveyed by gravity to a wet well/lift station along the south side of the stack. From this lift station liquids may be conveyed to a second lift station adjacent to the former return water pond. From this point, liquids will be conveyed via overhead pipeline to the Olin wastewater treatment plant. Alternatively, a storage tank and tankers may be used to haul seepage to the Olin treatment plant

Maintenance of the seepage collection system during the post-closure care period will include inspection of the system, repairs as warranted, and periodic replacement of pumps. The system

will be inspected quarterly and at other times, as required. Costs to maintain the seepage collection system include cleaning of the side slope drain, replacement of pumps, repair of control panels, and associated labor costs. It is estimated that the pumps will be replaced once every 10 years. These costs have been normalized on an annual basis.

11.4 MONITORING

Groundwater monitoring will be performed in accordance with Section 9.0. Sampling, analysis, and reporting for the 12 groundwater monitoring wells at the South Stack, and the 7 wells at the North Stack will be conducted semi-annually for a minimum of 30 years. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well is replaced every 5 years, i.e., six wells during the post-closure care period. This cost has been normalized on an annual basis.

11.5 RECORDKEEPING

During the 30-year post-closure care period, records of inspections, sampling and repair activities will be maintained at WMII offices. All records will indicate date, location, and corrective action taken.

11.6 COST ESTIMATE

A cost estimate for post-closure care is included in Table 11-2. These estimates reflect current costs for third party contractors to complete the post-closure care work.

11.7 FINANCIAL ASSURANCE

In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU post-closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.

TABLE 11-1

TYPICAL POST-CLOSURE CARE INSPECTIONS SOUTH STACK SWMU

Inspection Item	Inspection Procedure	Frequency
Final Cover System	Check for the presence of: 1. Areas of sparse vegetation; 2. Excessive erosion; 3. Differential settlement; 4. Ponding of water; and 5. Animal burrowing.	Quarterly
Surface Water Management System Components	1. Diversion berms: verify positive drainage and no excessive erosion. 2. Downslope channels: verify erosion control in place and functional; no excessive erosion. 3. Energy dissipators: verify no blockages and no scour around structure. 4. Permit channels: verify positive drainage and no excessive erosion. 5. Culverts: verify no blockages. 6. Sedimentation basins: Verify no excessive erosion at basin inlets and outlets; no blockages at basin inlet and outlet; riser pipe perforations clear with no blockages; sluice gate/valve functional.	Quarterly
Stack Seepage Collection System Components	Check condition and operation of components: wet well/lift stations, control panels, overhead pipeline.	Daily when personnel are onsite, but no less frequent than quarterly
Groundwater Monitoring Wells	Check condition of: 1. Outer protective casing, lock on well and bumper posts, if present. 2. Verify positive drainage around well. 3. Sampling equipment functional.	During each routine groundwater sampling event.
Fencing/Security	Check condition of fencing; verify no holes or gaps in fencing.	Quarterly

TABLE 11-2

COST ESTIMATE FOR POST-CLOSURE CARE SOUTH STACK SWMU

For Post-Closure Care: Annual Cost for Years 1 through 30:			
Item	Quantity	Unit Cost	Approximate Annual Cost
1. Site Inspections (20 hours/quarter)	80 hours	$50.00	$4,000
2. Final Cover Maintenance (2 acres at 1-foot)	3,226 cy	$5.50	$17,750
3. Vegetation Maintenance[1]- Mowing/Controlled Burn (estimated annualized unit cost)	200 acres	$33.00	$6,600
4. Vegetation Repair	3.3 acres	$1,850.00	$6,100
5. Miscellaneous Repairs	Lump Sum	--	$20,000
6. Stack Seepage Collection System Maintenance			
a. Labor (10 hours/week) x (52 weeks/year)	520 hours	$45.00	$23,400
b. Pump replacement (estimated annualized cost)	Lump sum	--	$20,000
c. Miscellaneous repairs	Lump sum	--	$5,000
7. Groundwater Semi-Annual Sampling[2] (Both Stacks) (29 hours/event) x (2 events)	58 hours	$100.00	$5,800
8. Groundwater Semi-Annual Monitoring - South Stack (12 wells/event) x (2 events)	24 samples	$300.00	$7,200
9. Groundwater Semi-Annual Monitoring - North Stack (7 wells/event) x (2 events)	14 samples	$481.00	$6,734
10. Semi-Annual Groundwater Data Review and Report (14 hrs/event) x (2 events)	28 hours	$80.00	$2,240
11. Groundwater Monitoring Well Replacement (annualized lump sum cost)	Lump sum	--	$2,000
12. Annual Report Preparation	80 hours	$80.00	$6,400
Total Annual Cost			$133,224
Updated Annual Cost with 2009 through 2022 Inflation factors of 1.2%,1.2%,2.1%,1.8%,1.5%,1.4%,1%,1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%, 7%			$178,335 x 30 years
30-YEAR COST			$5,350,050
13. Decommission 19 groundwater wells at end of PC	each	$564	$10,716
GRAND TOTAL POST CLOSURE COST			$5,360,766

NOTES:

[1] Vegetation maintenance including mowing and controlled burning will be performed on the entire landform.

[2] Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

ATTACHMENT 4

UPDATED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN

13.0 CLOSURE/POST-CLOSURE CARE PLAN AND COST ESTIMATES

13.1 INTRODUCTION

The closure/post-closure care plan and cost estimates presented herein are prepared in accordance with the requirements of 35 IAC 811.110, 811.111, 812.114, 812.115, and 812.116. The regulations require that: 1) a closure/post-closure care plan be developed by the site operator, 2) cost estimates be prepared for the closure/post-closure care plan elements, and 3) the site operator provide financial assurance to guarantee closure and post-closure care of the Expansion. The purpose of these requirements is to assure that closure/post-closure care can be implemented in the event of operator default.

A closure plan has been prepared to address the closure scenario for the Expansion as described as follows:

- Closure for areas for which authorization to operate has been obtained or is being requested;

Additionally, a post-closure care plan which addresses maintenance and monitoring of the Expansion following certification of closure of for areas for which authorization to operate has been obtained or is being requested has been prepared. The following sections also address how the landfill will be developed to allow for contemporaneous closure and stabilization of the Expansion.

All cost estimates are prepared assuming IEPA will contract with a third party to implement the work. Cost estimates are not reduced by allowance for salvage value of equipment or waste, resale value of the land, or sale of landfill gas. Pursuant to 35 IAC 811.705, cost estimates will be revised annually for inflation during the active life and post-closure care period, or whenever a change in the closure plan or post-closure care plan results in an increase in the cost estimate. In accordance with Permit No. B-141R, Condition III.K.5., the cost of financial assurance is determined by the sum of the closure and post-closure care cost estimates for areas for which authorization to operate has been obtained or is being requested.

Fencing and/or natural barriers will remain intact and will act as security to prevent access to the Expansion. Additionally, a sign will be posted at the entrance to the Facility indicating that the Expansion is closed and is no longer accepting waste.

13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS

In accordance with Permit No. B-141R, Condition III.K.5., financial assurance for closure and post-closure care is only required for areas for which authorization to operate has been obtained or is being requested. Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 9 and portions of 10 through 14 in the Expansion would contain waste. 19.2 acres, 24,2 acres, and 14.5 acres of final cap were completed in 2017, 2020, and 2022, respectively. Therefore, the total area that would require final cover is approximately 129.64 acres.

Major closure activities include the placement of final cover, establishment of vegetative cover, construction of surface water control features, and inspection and certification activities, as discussed below. A landfill gas management system is not proposed for the Expansion. However, gas monitoring will be performed on a monthly basis pursuant to 35 IAC 811.310(c). In accordance with the gas probe installation schedule approved in permit B-141R, gas probes will be installed outside the limits of waste and within the waste mass. Closure activities will be conducted in

accordance with the approved Construction Quality Assurance Plan. All activities will be documented by a professional engineer.

13.2.1 Equipment Decontamination

Decontamination of equipment used in the operation will not be required, as no hazardous waste will be accepted at the Expansion. Equipment that has been in contact with the waste material will be manually cleaned (e.g., waste removed from tracks and undercarriage). Cleaning residue generated by these activities will be placed in the Expansion at the time of covering. Equipment used in covering activities will not become contaminated.

Cleaned equipment not necessary for post-closure care will be removed and utilized at other WMII facilities. After completion of closure activities, it is anticipated that the ticket/administration building, the scalehouse, and the maintenance facility will remain. All equipment will be removed after certification of closure, except those necessary to perform post-closure activities at the landfill.

13.2.2 Backfilling and Grading

It is further assumed that additional fill will be required over those waste disposal areas that have yet to receive waste so as to provide positive surface water drainage. Therefore, approximately 20,000 yd^3 of additional fill will be required in Phases 12 through 14, and over top portions of the existing unit.

13.2.3 Final Cover Placement

For the purposes of this cost estimate, it is assumed that the existing solid waste unit, Interim Horizontal Overlay area, and Phases 1 through 9 and portions of 10 through 14 will have received waste. 57.9 acres of final capping have been completed in 2017, 2020, and 2022. Therefore, approximately 129.64 acres of final cover would be required. Soil materials necessary to construct the final cover will be obtained from on-site sources.

All closure activities will be conducted in accordance with the approved CQA Plan. Required records and certification of final cover placement will be submitted to IEPA and maintained by the site operator.

Soils used for protective cover will be capable of supporting the final cover vegetation either as they are, or fertilizer will be introduced as needed. Installation of the protective cover layer will occur concurrent with the installation of the geomembrane, geocomposite drainage layer, and grading layer soil.

13.2.4 Vegetation

The area receiving final cover, as well as those areas disturbed, will require establishment of a vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the permit. The mixtures of grasses and forbs will be selected to be amenable to the soil quality/thickness, slopes, and moisture conditions that are proposed for the Expansion, without the need for continued maintenance. Mulch will also be used at rates necessary to provide erosion control. Approximately 129.64 acres will receive seed and mulch at the time of the first permit term closure.

13.2.5 Surface Water Management

Upon backfilling of excavated areas and minor grading work, surface water management features at the Expansion will be constructed. It is anticipated that surface water channels will be required to direct surface water runoff to the existing sedimentation basins. A total of approximately 25,400 lineal feet of surface water diversion berms and surface water channels will be constructed. The surface water control features will be constructed to the same specifications and details shown on the engineering drawings.

13.2.6 Solidification Areas Dismantlement

Solidification will only occur in areas that provide sufficient remaining fill height to allow for abandonment of temporary liner soils in place (i.e., the top elevation of the liner soils would be at or below the permitted waste grades). Therefore, the only remaining dismantlement costs are for the removal and disposal of the in-process waste materials and reagents contained inside the containers. The waste material would be disposed of at Laraway RDF. The mobile equipment and containers would be re-used elsewhere on site or at another Waste Management site and, thus would only require basic washing to facilitate re-use (negligible expense).

The estimated wastes and reagents that would need to be disposed off-site amount to 400 cy of material (10 containers at 40 cy per container – the maximum proposed number of boxes). Excavators and other mobile equipment perform dual duty with other site operations and thus, would be washed (if necessary) on-site and re-used for closure and post-closure operations.

13.2.7 Certification

The operator and an Illinois-registered professional engineer will certify to IEPA that the closure of the landfill is in accordance with the closure plan. Closure documentation drawings depicting closure conditions will accompany the certification. All activities will be conducted in accordance with the approved CQA Plan.

13.2.8 Documentation

A plat of the closed areas will be filed with the Will County Recorder's office. An Illinois-registered land surveyor will be retained for preparation and filing of the plat.

Following closure of the landfill, the operator will record a notation on the deed to the property to notify, in perpetuity, that:

1. The land has been used as a landfill facility.
2. Its use is restricted under 35 IAC 811.111(d).

The operator will also notify IEPA that the notation has been recorded and a copy has been placed in the operating record.

13.2.9 Closure Notice Procedures

If closure is necessary, IEPA will be notified of closure within 30 days after receipt of the final volume of waste, and the operator will treat, remove, or dispose of all wastes and waste residue in accordance with 35 IAC 811.111(a). Closure activities, including placement of the geomembrane, will be initiated within 60 days after receipt of the final volume of waste and in accordance with the closure plan. In accordance with 35 IAC 811.110(f), an extension will have to be approved by the Agency as closure will take longer than 180 days.

13.2.10 Cost Estimate

A cost estimate to perform closure activities for existing and requested operational areas and establish financial assurance in accordance with 35 IAC 811 requirements includes tasks of final cover system installation, construction of surface water control features, landscaping, construction quality assurance, and documentation of closure. Final cover construction includes excavating, hauling, placing, and compacting the 1-foot grading layer soil; placing the geomembrane; placing the geocomposite drainage layer; excavating, hauling, and spreading of the 2.5-foot protective cover layer; and placing a 0.5-foot topsoil layer. Landscaping includes placement of seed and mulch. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan. A cost has also been included for surveying of the closed surfaces and filing of the plat map. The estimated closure cost for the existing and requested operational areas is summarized and presented in Table 13-1. The closure cost estimate was prepared under the assumption that an independent third party will complete all activities associated with closure.

13.2.11 Schedule

Completion of the closure activities for the existing and requested operational areas will be weather dependent. A timeline schedule for closure activities is presented in Figure 13-2. A time period has been included in each task to account for inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 28 weeks to complete.

13.2.12 Temporary Suspension of Waste Acceptance

Pursuant to 35 IAC 812.114(d), if the solid waste unit chooses to temporarily suspend the acceptance of waste for a period of less than 30 days, no significant operational or regulatory impact will be created. A temporary shutdown of more than 30 days will be accompanied by a permit application and revision of the closure and post-closure care plan to reflect the impact of the temporary shutdown.

13.3 POST-CLOSURE CARE PLAN

In accordance with Permit No. B-141R, Condition III.J.5., the post-closure care plan presented herein addresses post-closure care for areas for which authorization to operate has been obtained or is being requested. Therefore, post-closure activities and costs are for the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 9 and portions of 10 through 14 in the Expansion, which equates to approximately 187.54 acres. Estimated costs for performing the activities for the 30-year post-closure care period are presented in Section 13.3. These costs will be placed in the operating record.

13.3.1 Post-Closure Monitoring and Maintenance

The post-closure monitoring and maintenance program will include the following:

13.3.1.1 Site Inspections

Inspection of the Expansion will be conducted on a quarterly basis for a minimum period of 30 years after closure. A written record of the inspection(s) will be made and retained at the closed Expansion. The inspector will assess the condition and need for repair of final cover and vegetation, as well as fencing, monitoring points, and surface water control features.

During the 30-year post-closure care period, corrective action, including soil filling and reseeding, will be taken if ponding is observed, cracks greater than 1-inch wide or gullies 6 inches or deeper have formed, gas odor is present, vegetative or vector problems arise, or if leachate seeps are present. Areas that have been identified by the inspector or IEPA as particularly susceptible to erosion will be recontoured and reseeded. All eroded and scoured drainage channels will be repaired, and the lining material replaced if necessary. All vegetated areas, the stormwater basin, and associated inlet and outlet structures will be inspected on a quarterly basis for 5 years after closure. After 5 years, all vegetated areas, the sedimentation basin and structures will be inspected annually until settling has stopped and there are no eroded or scoured areas. The post-closure inspection report(s) will include a statement regarding correction of items previously identified as needing repair.

13.3.1.2 Final Cover Maintenance

Residual settlement and erosion may require minor final cover repairs. Areas where ponding occurs or erosion appears will be repaired in order to maintain the integrity of the final cover. Recently filled and covered areas will require the most maintenance; however, the landfill will stabilize with time so that little, if any, maintenance will ultimately be required during the post-closure period. Generally, a 3- to 5-year stabilization period is anticipated. Residual settlement of the closed landfill is not anticipated. If it occurs at all, it is expected to be minimal and confined to localized areas. Areas of settlement will be repaired with additional cover soils, as required. On-site material will be secured to maintain final cover.

Final cover repair is estimated to average 0.33 acre per year during the 30-year post-closure care period. This average is equivalent to 1 acre per year being repaired during the first 5 years of post-closure care, 0.5 acres per year being repaired in years 6 through 15 and no repairs being made after year 15.

13.3.1.3 Vegetation Repair

Areas repaired as noted above will require re-establishment of vegetative cover. Barren areas noted during the inspection(s) will also require repair. All reworked surfaces, and areas of failed or eroded vegetation in excess of 100 square feet cumulatively, will be revegetated. As with cover repair, it is anticipated this rate will be reduced after 5 years of stabilization.

Vegetation repair is estimated to average 0.66 acres per year during the 30-year post-closure period. This average is equivalent to 2 acres per year being repaired during the first 5 years of post-closure care, 1 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 38 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

13.3.4 Gas Monitoring/Sampling

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The gas monitoring program at the Expansion will be installed to detect any gas migration at the property line or 100 feet from the limits of waste (whichever is less). Nineteen gas monitoring probes outside the limits of waste and 9 gas monitoring probes within the limits of waste will be monitored quarterly for pressure, methane, oxygen, and carbon dioxide. Four ambient air monitoring locations will be monitored quarterly for methane.

The following items will constitute the need for corrective action:

- A methane concentration exceeding 50 percent of the lower explosive limit in air detected at a gas monitoring probe or an ambient air monitoring location at the property boundary or 100 feet from the edge of the unit (whichever is less); or
- A methane concentration greater than 25 percent of the lower explosive limit in air detected in any building on or near the Expansion; or
- Malodors detected beyond the property boundary.

Monitoring for the presence of methane will occur on an quarterly basis to determine if corrective action is required. Should methane gas levels exceed the limits stated above, the operator will notify the IEPA in writing, within 2 business days, of an observed exceedance and implement the requirements of 35 IAC 811.311 to ensure the protection of human health.

In accordance with 35 IAC 811 requirements, the gas monitoring system will be operated until the waste has stabilized enough to no longer produce methane in quantities that exceed the allowable concentrations. Results of quarterly gas monitoring and ambient air testing during post-closure care will be reviewed and will be the basis for continuing or ceasing the gas monitoring system. The individual conducting the inspections of the closed Expansion will note the presence of any odors. Monitoring of landfill gas will continue throughout the post-closure care period. The gas monitoring plan also contains provisions for reducing the frequency of testing. An annual cost to monitor landfill gas has been included in the cost estimate.

13.3.5 Property Use During the Post-Closure Care Period

The planned use for the property during the 30-year post-closure period is anticipated to be passive recreation. This use will not disturb the integrity of the final cover, liner, or any other component of the containment system, nor will it inhibit the functioning of the monitoring systems.

13.3.6 Recordkeeping

During the 30-year post-closure care period, records of field investigations, quarterly inspections, sampling and corrective action will be maintained at the office of the site operator. All records will indicate date, program, location, and corrective action taken.

13.3.7 Security

Existing fencing, gates, berms, and other required security measures around ancillary structures will be inspected and maintained during the 30-year post-closure care period. The end use for the Expansion will be passive recreation. Therefore, limited access controls similar to that of a park would be in place.

13.3.8 Cost Estimates

A cost estimate for post-closure care is included in Table 13-2. These estimates reflect current third party costs, assuming IEPA will contract for all closure and post-closure care work. Cost items are based on current engineering and laboratory fees, and construction costs.

13.4 FINANCIAL ASSURANCE

35 IAC 811 describes the procedures by which an operator of a waste disposal facility can give "financial assurance" satisfying the requirements of Section 21.1(a) of the Illinois Environmental Protection Act. The regulations require that the operator post with IEPA a performance bond or other security for the purpose of insuring closure of the Expansion and post-closure care. Financial assurance may be given through a combination of a trust agreement, a bond guaranteeing payments or performance, a letter of credit, insurance, or self-insurance. The cost estimates and the amount of financial assurance are to be updated in accordance with 35 IAC 811 requirements.

Cost estimates for closure and post-closure care were developed based on IEPA securing a third party to implement the plans. A summary of the estimated closure and post-closure care costs for which financial assurance is required is summarized in Table 13-3. Financial assurance documents for WMII will be submitted to IEPA as part of the request for authorization to operate.

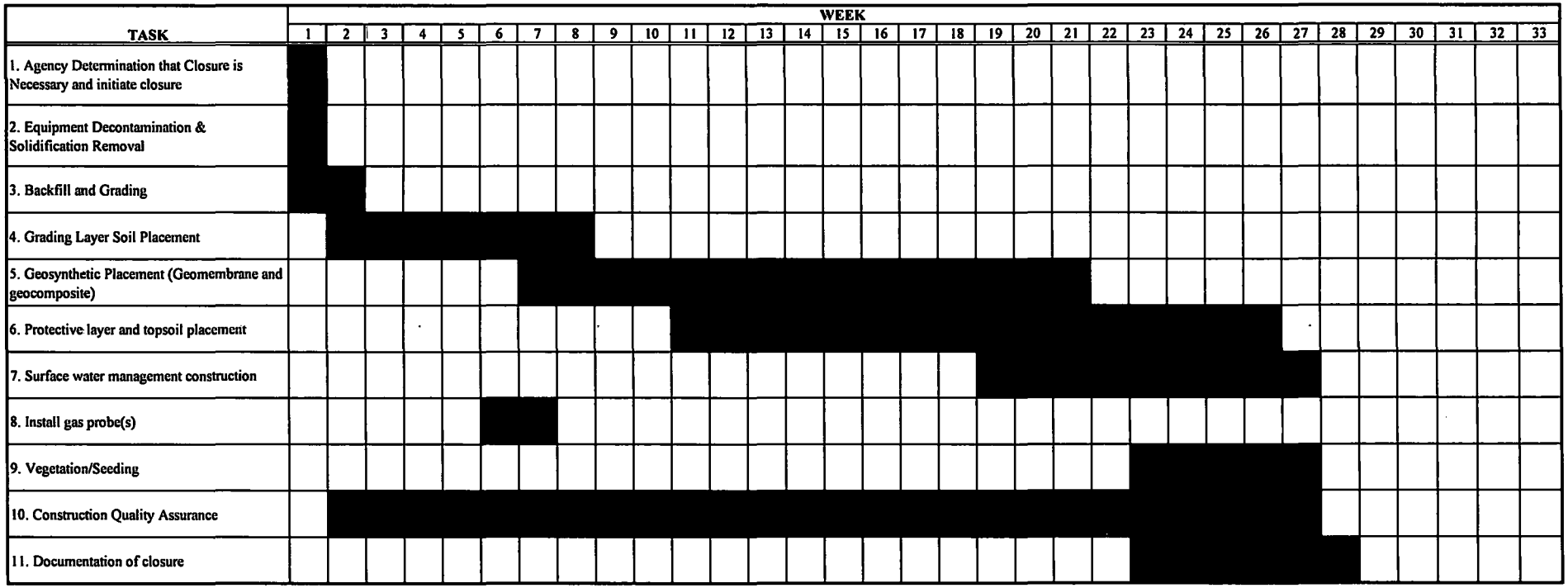
TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2022)	Inflation Factor (%)	Unit Price (2023)	Amount
1. Equipment Cleaning	10	hours	$125.56	7.00	$134.35	$1,343
2. Backfill and Grading	20,000	cubic yards	$3.14	7.00	$3.36	$67,196
3. Solidfication Dismantlement	400	cubic yards	$35.03	7.00	$37.48	$14,993
4. Final Cover (On-Site Material 129.64 acres)						
a. Grading Layer Soil Placement (1.0 ft)	209,152	cubic yards	$3.76	7.00	$4.02	$841,460
b. Protective Soil Cover (2.5 ft)	522,881	cubic yards	$3.14	7.00	$3.36	$1,756,776
c. Topsoil Cover (0.5 ft)	104,576	cubic yards	$3.14	7.00	$3.36	$351,354
d. Geocomposite Drainage Layer	5,647,118	square feet	$0.468	7.00	$0.501	$2,827,851
e. Geomembrane	5,647,118	square feet	$0.423	7.00	$0.453	$2,555,942
5. Landscaping (Seed and Mulch)	129.64	acres	$2,063	7.00	$2,207	$286,169
6. Construct Surface Water Diversion Ditches	25,400	feet	$3.76	7.00	$4.02	$102,189
7. Install Gas Monitoring Probes[1]	4	each	$6,256	7.00	$6,694	$26,776
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 28 wks)	2800	hours	$84	7.00	$90	$251,664
b. Engineer (8 hrs/wk x 28 wks)	224	hours	$98	7.00	$105	$23,489
c. Senior Engineer (2 hrs/wk x 28 wks)	56	hours	$133	7.00	$142	$7,969
9. Closure Certification	1	lump sum	$62,551	7.00	$66,930	$66,930
10. Plat Preparation and Recording	1	lump sum	$7,506	7.00	$8,031	$8,031
					Total	**$9,190,132**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2023

FIGURE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS CLOSURE SCHEDULE



Revised May 2023

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2022 Unit Price	Inflation (%)	2023 Unit Price	Annual Cost (2023)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$62.56	7.00	$66.94	$804	$24,120
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$6.88	7.00	$7.36	$4,047	$121,410
3. Vegetation Maintenance/Mowing	187.54	acres	-	-	$58.77	7.00	$62.88	$11,793	$353,790
4. Vegetation Repair	0.66	acres	-	-	$2,064.23	7.00	$2,208.73	$1,458	$43,740
5. Miscellaneous Repairs	1	lump sum	-	-	$1,251.05	7.00	$1,338.62	$1,339	$40,170
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	787.00	gallons/day	365	days	$0.126	7.00	$0.134	$38,579	$1,157,370
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$43.79	7.00	$46.86	$9,746	$292,380
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.64	7.00	$0.69	$9,367	$281,010
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$844.34	7.00	$903.44	$9,035	$271,050
List L2: 1 samples/year[2]	1	samples	1	year	$725.59	7.00	$776.38	$777	$23,310
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$169.58	7.00	$181.45	$18,872	$566,160
10. a. Groundwater Monitoring List G2 semi-annual wells	10	wells	2	events	$134.55	7.00	$143.96	$2,880	$86,400
b. Groundwater Monitoring List G1 semi-annual wells	10	wells	2	events	$130.03	7.00	$139.13	$2,783	$83,490
11. a. Groundwater Monitoring List G2 quarterly wells	28	wells	4	events	$134.55	7.00	$143.96	$16,124	$483,720
b. Groundwater Monitoring List G1 quarterly wells	28	wells	4	events	$130.03	7.00	$139.13	$15,583	$467,490
12. Groundwater Data Review	12	hours	4	events	$62.56	7.00	$66.94	$3,214	$96,420
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$43.79	7.00	$46.86	$1,219	$36,570
b. Gas probe analysis	28	samples	4	year	$43.79	7.00	$46.86	$5,248	$157,440
c. Ambient air monitoring	4	samples	4	year	$43.79	7.00	$46.86	$750	$22,500
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$100.09	7.00	$107.10	$3,428	$102,840
15. Decommission Groundwater wells	39	wells	1	one time	$526.90	7.00	$563.78	$21,988	$21,988
								Total	**$4,733,368**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2023

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$9,190,132
2. Current Operating Areas Post-Closure	$4,733,368
Total	**$13,923,500**

Revised May 2023

WM

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

July 26, 2023

RECEIVED
JUL 28 2023
IEPA-BOL
PERMIT SECTION

Ms. Reylin Dimayuga.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification Logs B-141R-M-167 and M-174

Dear Ms. Dimayuga:

This letter and its attachments are being submitted as additional information for the pending Class 1* permit modifications (M-167) and (M-174) for Laraway RDF.

Revised Solid Waste Unit Closure/Post-Closure Plans (M-167)
Phases 1 and 2 are already capped that is why they are not included in the closure plan narrative. Phase 1 and 2 capping was approved as part of M-128 on 2/18/18.

As listed in permit condition IV.9., there are 41 groundwater wells in the monitoring network. In accordance with permit condition IV.17., 27 of the groundwater wells are required to be monitored on a semi-annual basis, and the remaining 14 wells on a quarterly basis. The post-closure cost table 13-2 has been revised to reflect this. Well decommissioning has also been revised to 41 wells on Table 13-2. Finally, the closure table acreage for Landscaping has been revised to 134.94 acres on Table 13-1. The Section 13.3.3 was revised to reflect the correct number of wells.

Revised Solid Waste Unit Closure/Post-Closure Plans (M-174)
When this application was prepared, Phases 1-9 and portions of Phases 10-14 were included in the closure narrative, but denoted as areas that contained waste, and not areas requiring capping. The certified capping increments were then specifically listed out to further clarify the total areas requiring capping at closure. Currently, all areas that contain waste in the solid waste unit is 187.54 acres. Final cap was completed for three increments of 19.2 acres, 24.2 acres, and 14.5 acres in 2017, 2020, and 2022, respectively. Therefore, the total area that would require final cover is approximately 129.64 acres.

In addition as previously noted above for M-167, in permit condition IV.9, there are 41 groundwater wells in the monitoring network. In accordance with permit condition IV.17., 27 of the groundwater wells are required to be monitored on a semi-annual basis and the remaining 14 wells on a quarterly basis. Well decommissioning has also been revised to 41 wells. The

post-closure cost table has been revised to reflect this. The entire Section 13 and associated cost tables are being resubmitted in their entirety to avoid any confusion.

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

REVISED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN 2022
(only revised sheets)

M-167

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 41 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2021)	Inflation Factor (%)	Unit Price (2022)	Amount
1. Equipment Cleaning	10	hours	$120.58	4.13	$125.56	$1,256
2. Backfill and Grading	20,000	cubic yards	$3.02	4.13	$3.14	$62,895
3. Solidfication Dismantlement	400	cubic yards	$33.64	4.13	$35.03	$14,012
4. Final Cover (On-Site Material 134.94 acres)						
a. Grading Layer Soil Placement (1.0 ft)	217,703	cubic yards	$3.61	4.13	$3.76	$818,366
b. Protective Soil Cover (2.5 ft)	544,258	cubic yards	$3.02	4.13	$3.14	$1,711,542
c. Topsoil Cover (0.5 ft)	108,851	cubic yards	$3.02	4.13	$3.14	$342,307
d. Geocomposite Drainage Layer	5,877,986	square feet	$0.449	4.13	$0.468	$2,748,215
e. Geomembrane	5,877,986	square feet	$0.406	4.13	$0.423	$2,485,023
5. Landscaping (Seed and Mulch)	134.94	acres	$1,981	4.13	$2,063	$278,356
6. Construct Surface Water Diversion Ditches	25,400	feet	$3.61	4.13	$3.76	$95,481
7. Install Gas Monitoring Probes[1]	4	each	$6,008	4.13	$6,256	$25,025
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 29 wks)	2900	hours	$81	4.13	$84	$244,601
b. Engineer (8 hrs/wk x 29 wks)	232	hours	$94	4.13	$98	$22,709
c. Senior Engineer (2 hrs/wk x 29 wks)	58	hours	$128	4.13	$133	$7,731
9. Closure Certification	1	lump sum	$60,070	4.13	$62,551	$62,551
10. Plat Preparation and Recording	1	lump sum	$7,208	4.13	$7,506	$7,506
					Total	**$8,927,574**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2022

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2020 Unit Price	Inflation (%)	2021 Unit Price	Annual Cost (2021)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$60.08	4.13	$62.56	$751	$22,530
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$6.60	4.13	$6.88	$3,783	$113,490
3. Vegetation Maintenance/Mowing	178.41	acres	-	-	$56.44	4.13	$58.77	$10,485	$314,550
4. Vegetation Repair	0.66	acres	-	-	$1,982.36	4.13	$2,064.23	$1,363	$40,890
5. Miscellaneous Repairs	1	lump sum	-	-	$1,201.43	4.13	$1,251.05	$1,252	$37,560
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	749.00	gallons/day	365	days	$0.121	4.13	$0.126	$34,314	$1,029,420
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$42.05	4.13	$43.79	$9,109	$273,270
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.62	4.13	$0.64	$8,754	$262,620
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$810.85	4.13	$844.34	$8,444	$253,320
List L2: 1 samples/year[2]	1	samples	1	year	$696.81	4.13	$725.59	$726	$21,780
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$162.86	4.13	$169.58	$17,637	$529,110
10. a. Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$129.21	4.13	$134.55	$7,266	$217,980
b. Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$124.87	4.13	$130.03	$7,022	$210,660
11. a. Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$129.21	4.13	$134.55	$7,535	$226,050
b. Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$124.87	4.13	$130.03	$7,282	$218,460
12. Groundwater Data Review	12	hours	4	events	$60.08	4.13	$62.56	$3,004	$90,120
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$42.05	4.13	$43.79	$1,139	$34,170
b. Gas probe analysis	28	samples	4	year	$42.05	4.13	$43.79	$4,905	$147,150
c. Ambient air monitoring	4	samples	4	year	$42.05	4.13	$43.79	$701	$21,030
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$96.12	4.13	$100.09	$3,203	$96,090
15. Decommission Groundwater wells	41	wells	1	one time	$506.00	4.13	$526.90	$21,603	$21,603
								Total	**$4,181,853**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2022

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$8,927,574
2. Current Operating Areas Post-Closure	$4,181,853
Total	**$13,109,427**

Revised May 2022

REVISED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN 2023

(Entire plan and tables)

M-174

13.0 CLOSURE/POST-CLOSURE CARE PLAN AND COST ESTIMATES

13.1 INTRODUCTION

The closure/post-closure care plan and cost estimates presented herein are prepared in accordance with the requirements of 35 IAC 811.110, 811.111, 812.114, 812.115, and 812.116. The regulations require that: 1) a closure/post-closure care plan be developed by the site operator, 2) cost estimates be prepared for the closure/post-closure care plan elements, and 3) the site operator provide financial assurance to guarantee closure and post-closure care of the Expansion. The purpose of these requirements is to assure that closure/post-closure care can be implemented in the event of operator default.

A closure plan has been prepared to address the closure scenario for the Expansion as described as follows:

- Closure for areas for which authorization to operate has been obtained or is being requested;

Additionally, a post-closure care plan which addresses maintenance and monitoring of the Expansion following certification of closure of for areas for which authorization to operate has been obtained or is being requested has been prepared. The following sections also address how the landfill will be developed to allow for contemporaneous closure and stabilization of the Expansion.

All cost estimates are prepared assuming IEPA will contract with a third party to implement the work. Cost estimates are not reduced by allowance for salvage value of equipment or waste, resale value of the land, or sale of landfill gas. Pursuant to 35 IAC 811.705, cost estimates will be revised annually for inflation during the active life and post-closure care period, or whenever a change in the closure plan or post-closure care plan results in an increase in the cost estimate. In accordance with Permit No. B-141R, Condition III.K.5., the cost of financial assurance is determined by the sum of the closure and post-closure care cost estimates for areas for which authorization to operate has been obtained or is being requested.

Fencing and/or natural barriers will remain intact and will act as security to prevent access to the Expansion. Additionally, a sign will be posted at the entrance to the Facility indicating that the Expansion is closed and is no longer accepting waste.

13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS

In accordance with Permit No. B-141R, Condition III.K.5., financial assurance for closure and post-closure care is only required for areas for which authorization to operate has been obtained or is being requested. Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 9 and portions of 10 through 14 in the Expansion would contain waste. 19.2 acres, 24,2 acres, and 14.5 acres of final cap were completed in 2017, 2020, and 2022, respectively. Therefore, the total area that would require final cover is approximately 129.64 acres.

Major closure activities include the placement of final cover, establishment of vegetative cover, construction of surface water control features, and inspection and certification activities, as discussed below. A landfill gas management system is not proposed for the Expansion. However, gas monitoring will be performed on a monthly basis pursuant to 35 IAC 811.310(c). In accordance with the gas probe installation schedule approved in permit B-141R, gas probes will be installed outside the limits of waste and within the waste mass. Closure activities will be conducted in

accordance with the approved Construction Quality Assurance Plan. All activities will be documented by a professional engineer.

13.2.1 Equipment Decontamination

Decontamination of equipment used in the operation will not be required, as no hazardous waste will be accepted at the Expansion. Equipment that has been in contact with the waste material will be manually cleaned (e.g., waste removed from tracks and undercarriage). Cleaning residue generated by these activities will be placed in the Expansion at the time of covering. Equipment used in covering activities will not become contaminated.

Cleaned equipment not necessary for post-closure care will be removed and utilized at other WMII facilities. After completion of closure activities, it is anticipated that the ticket/administration building, the scalehouse, and the maintenance facility will remain. All equipment will be removed after certification of closure, except those necessary to perform post-closure activities at the landfill.

13.2.2 Backfilling and Grading

It is further assumed that additional fill will be required over those waste disposal areas that have yet to receive waste so as to provide positive surface water drainage. Therefore, approximately 20,000 yd^3 of additional fill will be required in Phases 12 through 14, and over top portions of the existing unit.

13.2.3 Final Cover Placement

For the purposes of this cost estimate, it is assumed that the existing solid waste unit, Interim Horizontal Overlay area, and Phases 1 through 9 and portions of 10 through 14 will have received waste. 57.9 acres of final capping have been completed in 2017, 2020, and 2022. Therefore, approximately 129.64 acres of final cover would be required. Soil materials necessary to construct the final cover will be obtained from on-site sources.

All closure activities will be conducted in accordance with the approved CQA Plan. Required records and certification of final cover placement will be submitted to IEPA and maintained by the site operator.

Soils used for protective cover will be capable of supporting the final cover vegetation either as they are, or fertilizer will be introduced as needed. Installation of the protective cover layer will occur concurrent with the installation of the geomembrane, geocomposite drainage layer, and grading layer soil.

13.2.4 Vegetation

The area receiving final cover, as well as those areas disturbed, will require establishment of a vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the permit. The mixtures of grasses and forbs will be selected to be amenable to the soil quality/thickness, slopes, and moisture conditions that are proposed for the Expansion, without the need for continued maintenance. Mulch will also be used at rates necessary to provide erosion control. Approximately 129.64 acres will receive seed and mulch at the time of the first permit term closure.

13.2.5 Surface Water Management

Upon backfilling of excavated areas and minor grading work, surface water management features at the Expansion will be constructed. It is anticipated that surface water channels will be required to direct surface water runoff to the existing sedimentation basins. A total of approximately 25,400 lineal feet of surface water diversion berms and surface water channels will be constructed. The surface water control features will be constructed to the same specifications and details shown on the engineering drawings.

13.2.6 Solidification Areas Dismantlement

Solidification will only occur in areas that provide sufficient remaining fill height to allow for abandonment of temporary liner soils in place (i.e., the top elevation of the liner soils would be at or below the permitted waste grades). Therefore, the only remaining dismantlement costs are for the removal and disposal of the in-process waste materials and reagents contained inside the containers. The waste material would be disposed of at Laraway RDF. The mobile equipment and containers would be re-used elsewhere on site or at another Waste Management site and, thus would only require basic washing to facilitate re-use (negligible expense).

The estimated wastes and reagents that would need to be disposed off-site amount to 400 cy of material (10 containers at 40 cy per container – the maximum proposed number of boxes). Excavators and other mobile equipment perform dual duty with other site operations and thus, would be washed (if necessary) on-site and re-used for closure and post-closure operations.

13.2.7 Certification

The operator and an Illinois-registered professional engineer will certify to IEPA that the closure of the landfill is in accordance with the closure plan. Closure documentation drawings depicting closure conditions will accompany the certification. All activities will be conducted in accordance with the approved CQA Plan.

13.2.8 Documentation

A plat of the closed areas will be filed with the Will County Recorder's office. An Illinois-registered land surveyor will be retained for preparation and filing of the plat.

Following closure of the landfill, the operator will record a notation on the deed to the property to notify, in perpetuity, that:

1. The land has been used as a landfill facility.
2. Its use is restricted under 35 IAC 811.111(d).

The operator will also notify IEPA that the notation has been recorded and a copy has been placed in the operating record.

13.2.9 Closure Notice Procedures

If closure is necessary, IEPA will be notified of closure within 30 days after receipt of the final volume of waste, and the operator will treat, remove, or dispose of all wastes and waste residue in accordance with 35 IAC 811.111(a). Closure activities, including placement of the geomembrane, will be initiated within 60 days after receipt of the final volume of waste and in accordance with the closure plan. In accordance with 35 IAC 811.110(f), an extension will have to be approved by the Agency as closure will take longer than 180 days.

13.2.10 Cost Estimate

A cost estimate to perform closure activities for existing and requested operational areas and establish financial assurance in accordance with 35 IAC 811 requirements includes tasks of final cover system installation, construction of surface water control features, landscaping, construction quality assurance, and documentation of closure. Final cover construction includes excavating, hauling, placing, and compacting the 1-foot grading layer soil; placing the geomembrane; placing the geocomposite drainage layer; excavating, hauling, and spreading of the 2.5-foot protective cover layer; and placing a 0.5-foot topsoil layer. Landscaping includes placement of seed and mulch. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan. A cost has also been included for surveying of the closed surfaces and filing of the plat map. The estimated closure cost for the existing and requested operational areas is summarized and presented in Table 13-1. The closure cost estimate was prepared under the assumption that an independent third party will complete all activities associated with closure.

13.2.11 Schedule

Completion of the closure activities for the existing and requested operational areas will be weather dependent. A timeline schedule for closure activities is presented in Figure 13-2. A time period has been included in each task to account for inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 28 weeks to complete.

13.2.12 Temporary Suspension of Waste Acceptance

Pursuant to 35 IAC 812.114(d), if the solid waste unit chooses to temporarily suspend the acceptance of waste for a period of less than 30 days, no significant operational or regulatory impact will be created. A temporary shutdown of more than 30 days will be accompanied by a permit application and revision of the closure and post-closure care plan to reflect the impact of the temporary shutdown.

13.3 POST-CLOSURE CARE PLAN

In accordance with Permit No. B-141R, Condition III.J.5., the post-closure care plan presented herein addresses post-closure care for areas for which authorization to operate has been obtained or is being requested. Therefore, post-closure activities and costs are for the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 9 and portions of 10 through 14 in the Expansion, which equates to approximately 187.54 acres. Estimated costs for performing the activities for the 30-year post-closure care period are presented in Section 13.3. These costs will be placed in the operating record.

13.3.1 Post-Closure Monitoring and Maintenance

The post-closure monitoring and maintenance program will include the following:

13.3.1.1 Site Inspections

Inspection of the Expansion will be conducted on a quarterly basis for a minimum period of 30 years after closure. A written record of the inspection(s) will be made and retained at the closed Expansion. The inspector will assess the condition and need for repair of final cover and vegetation, as well as fencing, monitoring points, and surface water control features.

During the 30-year post-closure care period, corrective action, including soil filling and reseeding, will be taken if ponding is observed, cracks greater than 1-inch wide or gullies 6 inches or deeper have formed, gas odor is present, vegetative or vector problems arise, or if leachate seeps are present. Areas that have been identified by the inspector or IEPA as particularly susceptible to erosion will be recontoured and reseeded. All eroded and scoured drainage channels will be repaired, and the lining material replaced if necessary. All vegetated areas, the stormwater basin, and associated inlet and outlet structures will be inspected on a quarterly basis for 5 years after closure. After 5 years, all vegetated areas, the sedimentation basin and structures will be inspected annually until settling has stopped and there are no eroded or scoured areas. The post-closure inspection report(s) will include a statement regarding correction of items previously identified as needing repair.

13.3.1.2 Final Cover Maintenance

Residual settlement and erosion may require minor final cover repairs. Areas where ponding occurs or erosion appears will be repaired in order to maintain the integrity of the final cover. Recently filled and covered areas will require the most maintenance; however, the landfill will stabilize with time so that little, if any, maintenance will ultimately be required during the post-closure period. Generally, a 3- to 5-year stabilization period is anticipated. Residual settlement of the closed landfill is not anticipated. If it occurs at all, it is expected to be minimal and confined to localized areas. Areas of settlement will be repaired with additional cover soils, as required. On-site material will be secured to maintain final cover.

Final cover repair is estimated to average 0.33 acre per year during the 30-year post-closure care period. This average is equivalent to 1 acre per year being repaired during the first 5 years of post-closure care, 0.5 acres per year being repaired in years 6 through 15 and no repairs being made after year 15.

13.3.1.3 Vegetation Repair

Areas repaired as noted above will require re-establishment of vegetative cover. Barren areas noted during the inspection(s) will also require repair. All reworked surfaces, and areas of failed or eroded vegetation in excess of 100 square feet cumulatively, will be revegetated. As with cover repair, it is anticipated this rate will be reduced after 5 years of stabilization.

Vegetation repair is estimated to average 0.66 acres per year during the 30-year post-closure period. This average is equivalent to 2 acres per year being repaired during the first 5 years of post-closure care, 1 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 41 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

13.3.4 Gas Monitoring/Sampling

The gas monitoring program at the Expansion will be installed to detect any gas migration at the property line or 100 feet from the limits of waste (whichever is less). Nineteen gas monitoring probes outside the limits of waste and 9 gas monitoring probes within the limits of waste will be monitored quarterly for pressure, methane, oxygen, and carbon dioxide. Four ambient air monitoring locations will be monitored quarterly for methane.

The following items will constitute the need for corrective action:

- A methane concentration exceeding 50 percent of the lower explosive limit in air detected at a gas monitoring probe or an ambient air monitoring location at the property boundary or 100 feet from the edge of the unit (whichever is less); or
- A methane concentration greater than 25 percent of the lower explosive limit in air detected in any building on or near the Expansion; or
- Malodors detected beyond the property boundary.

Monitoring for the presence of methane will occur on an quarterly basis to determine if corrective action is required. Should methane gas levels exceed the limits stated above, the operator will notify the IEPA in writing, within 2 business days, of an observed exceedance and implement the requirements of 35 IAC 811.311 to ensure the protection of human health.

In accordance with 35 IAC 811 requirements, the gas monitoring system will be operated until the waste has stabilized enough to no longer produce methane in quantities that exceed the allowable concentrations. Results of quarterly gas monitoring and ambient air testing during post-closure care will be reviewed and will be the basis for continuing or ceasing the gas monitoring system. The individual conducting the inspections of the closed Expansion will note the presence of any odors. Monitoring of landfill gas will continue throughout the post-closure care period. The gas monitoring plan also contains provisions for reducing the frequency of testing. An annual cost to monitor landfill gas has been included in the cost estimate.

13.3.5 Property Use During the Post-Closure Care Period

The planned use for the property during the 30-year post-closure period is anticipated to be passive recreation. This use will not disturb the integrity of the final cover, liner, or any other component of the containment system, nor will it inhibit the functioning of the monitoring systems.

13.3.6 Recordkeeping

During the 30-year post-closure care period, records of field investigations, quarterly inspections, sampling and corrective action will be maintained at the office of the site operator. All records will indicate date, program, location, and corrective action taken.

13.3.7 Security

Existing fencing, gates, berms, and other required security measures around ancillary structures will be inspected and maintained during the 30-year post-closure care period. The end use for the Expansion will be passive recreation. Therefore, limited access controls similar to that of a park would be in place.

13.3.8 Cost Estimates

A cost estimate for post-closure care is included in Table 13-2. These estimates reflect current third party costs, assuming IEPA will contract for all closure and post-closure care work. Cost items are based on current engineering and laboratory fees, and construction costs.

13.4 FINANCIAL ASSURANCE

35 IAC 811 describes the procedures by which an operator of a waste disposal facility can give "financial assurance" satisfying the requirements of Section 21.1(a) of the Illinois Environmental Protection Act. The regulations require that the operator post with IEPA a performance bond or other security for the purpose of insuring closure of the Expansion and post-closure care. Financial assurance may be given through a combination of a trust agreement, a bond guaranteeing payments or performance, a letter of credit, insurance, or self-insurance. The cost estimates and the amount of financial assurance are to be updated in accordance with 35 IAC 811 requirements.

Cost estimates for closure and post-closure care were developed based on IEPA securing a third party to implement the plans. A summary of the estimated closure and post-closure care costs for which financial assurance is required is summarized in Table 13-3. Financial assurance documents for WMII will be submitted to IEPA as part of the request for authorization to operate.

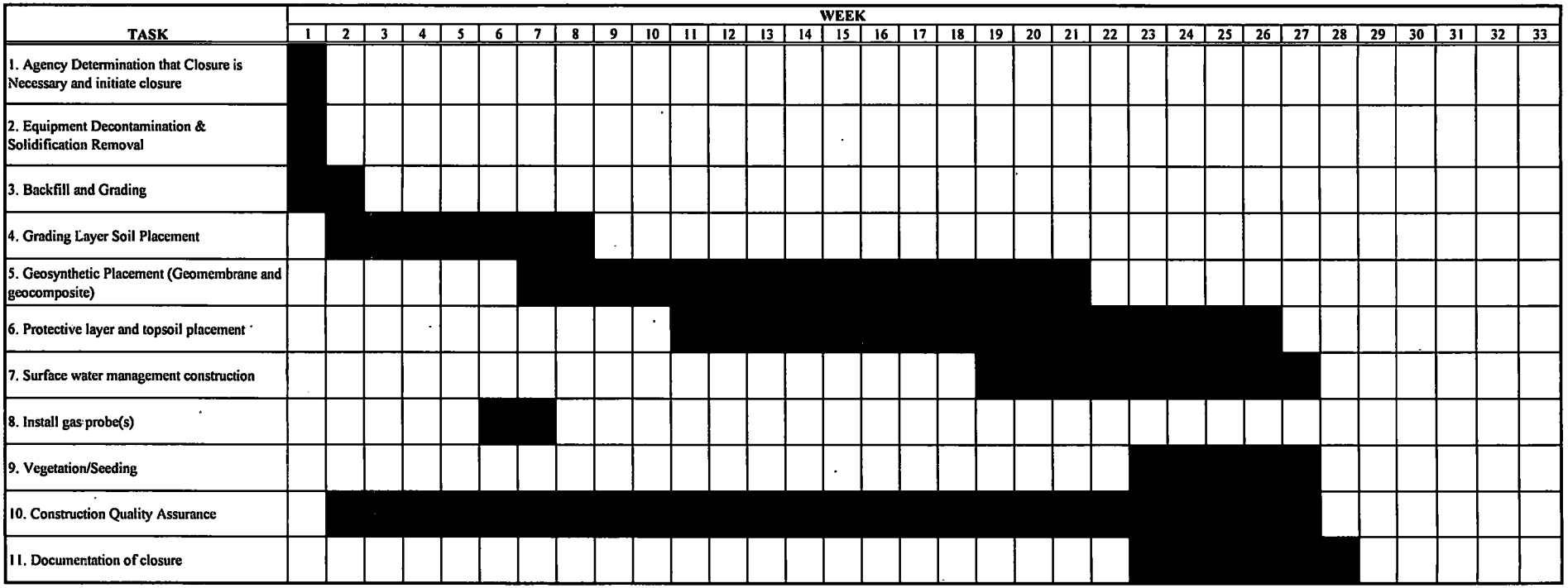
TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2022)	Inflation Factor (%)	Unit Price (2023)	Amount
1. Equipment Cleaning	10	hours	$125.56	7.00	$134.35	$1,343
2. Backfill and Grading	20,000	cubic yards	$3.14	7.00	$3.36	$67,196
3. Solidfication Dismantlement	400	cubic yards	$35.03	7.00	$37.48	$14,993
4. Final Cover (On-Site Material 129.64 acres)						
a. Grading Layer Soil Placement (1.0 ft)	209,152	cubic yards	$3.76	7.00	$4.02	$841,460
b. Protective Soil Cover (2.5 ft)	522,881	cubic yards	$3.14	7.00	$3.36	$1,756,776
c. Topsoil Cover (0.5 ft)	104,576	cubic yards	$3.14	7.00	$3.36	$351,354
d. Geocomposite Drainage Layer	5,647,118	square feet	$0.468	7.00	$0.501	$2,827,851
e. Geomembrane	5,647,118	square feet	$0.423	7.00	$0.453	$2,555,942
5. Landscaping (Seed and Mulch)	129.64	acres	$2,063	7.00	$2,207	$286,169
6. Construct Surface Water Diversion Ditches	25,400	feet	$3.76	7.00	$4.02	$102,189
7. Install Gas Monitoring Probes[1]	4	each	$6,256	7.00	$6,694	$26,776
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 28 wks)	2800	hours	$84	7.00	$90	$251,664
b. Engineer (8 hrs/wk x 28 wks)	224	hours	$98	7.00	$105	$23,489
c. Senior Engineer (2 hrs/wk x 28 wks)	56	hours	$133	7.00	$142	$7,969
9. Closure Certification	1	lump sum	$62,551	7.00	$66,930	$66,930
10. Plat Preparation and Recording	1	lump sum	$7,506	7.00	$8,031	$8,031
					Total	**$9,190,132**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2023

FIGURE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS CLOSURE SCHEDULE



Revised May 2023

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2022 Unit Price	Inflation (%)	2023 Unit Price	Annual Cost (2023)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$62.56	7.00	$66.94	$804	$24,120
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$6.88	7.00	$7.36	$4,047	$121,410
3. Vegetation Maintenance/Mowing	187.54	acres	-	-	$58.77	7.00	$62.88	$11,793	$353,790
4. Vegetation Repair	0.66	acres	-	-	$2,064.23	7.00	$2,208.73	$1,458	$43,740
5. Miscellaneous Repairs	1	lump sum	-	-	$1,251.05	7.00	$1,338.62	$1,339	$40,170
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	787.00	gallons/day	365	days	$0.126	7.00	$0.134	$38,579	$1,157,370
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$43.79	7.00	$46.86	$9,746	$292,380
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.64	7.00	$0.69	$9,367	$281,010
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$844.34	7.00	$903.44	$9,035	$271,050
List L2: 1 samples/year[2]	1	samples	1	year	$725.59	7.00	$776.38	$777	$23,310
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$169.58	7.00	$181.45	$18,872	$566,160
10. a. Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$134.55	7.00	$143.96	$7,775	$233,250
b. Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$130.03	7.00	$139.13	$7,514	$225,420
11. a. Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$134.55	7.00	$143.96	$8,062	$241,860
b. Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$130.03	7.00	$139.13	$7,792	$233,760
12. Groundwater Data Review	12	hours	4	events	$62.56	7.00	$66.94	$3,214	$96,420
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$43.79	7.00	$46.86	$1,219	$36,570
b. Gas probe analysis	28	samples	4	year	$43.79	7.00	$46.86	$5,248	$157,440
c. Ambient air monitoring	4	samples	4	year	$43.79	7.00	$46.86	$750	$22,500
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$100.09	7.00	$107.10	$3,428	$102,840
15. Decommission Groundwater wells	41	wells	1	one time	$526.90	7.00	$563.78	$23,116	$23,116
								Total	**$4,547,686**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2023

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$9,190,132
2. Current Operating Areas Post-Closure	$4,547,686
Total	**$13,737,818**

Revised May 2023

R 000357
January 22, 2024
0086-004-16-22

LARAWAY RECYCLING AND DISPOSAL FACILITY

CONSTRUCTION ACCEPTANCE REPORT
PHASE 9C & PHASE 10B

JOLIET, ILLINOIS

FOR SUBMISSION TO:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
SPRINGFIELD, ILLINOIS

IEPA - Division of Records Management
Releasable
OCT 17 2024
Reviewer: SAB

PREPARED BY

Weaver Consultants Group

WM

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

January 22, 2024

Ms. Jacki Cooperider, P.E.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
JAN 23 2024
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification – Phases 9C/10B CQA Report

Dear Ms. Cooperider:

This letter and its attachments are being submitted as a Class 1* permit modification to request authorization to operate the recently constructed Phases 9C/10B liner for the Laraway Recycling and Disposal Facility. This application consists of the following:

1. This letter;
2. LPC-PA23, RCRA Permit Application Form;
3. Construction Certification Form (Attachment E);
4. 39(i) Certifications;
5. Phases 9C/10B Construction Acceptance Report, prepared by Weaver Consultants Group, dated January 2024.

Construction Report

In accordance with 35 IAC 703.281 and Permit No. B141-R, conditions III.C.2. and III.C.6, this construction quality assurance report is being submitted to certify that the subgrade, compacted clay liner, geocomposite clay liner, geomembrane liner, geotextile cushion layer, leachate collection and drainage layer, and geotextile filter layer for Phases 9C/10B have been constructed in accordance with the permit and approved design plans. The clay liner portion consists of a minimum 3 feet of material with a permeability of less than 1×10^{-7} cm/sec. Copies of the daily inspection reports are contained in the appendices of the CQA report. The CQA officer certification statements and associated as-built drawings are also contained in the CQA report.

The required Attachment E Construction Certification Form is also included in this submittal.

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,

WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Tim Anderson – Will County
Doug Tomczak - WMII

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): 1970450002 USEPA ID Number: ILD074411745

Site Name: Laraway RDF

Physical Site Location (street, road, etc.): 21233 W. Laraway Rd.

City: Joliet Zip Code: 60436 County: Will

Existing RCRA Permit (if applicable): B-141R

II. Owner/Operator Identification

Owner Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.com

Operator Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.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.)

Application to provide construction report for Phases 9C/10B disposal cells.

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): Ian Johnson

Owner Signature: Ian Johnson Date: 1/22/24

Title: Engineer

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): Ian Johnson

Operator Signature: Ian John Date: 1/22/24

Title: Engineer

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 22 day of January 2024.

Notary Signature: Gloria Wendel

My commission expires on: October 27, 2026

GL NDEL
NOTAR E OF ILLINOIS
MY C S October 27, 2026

OFFICIAL SEAL
GLORIA WENDEL
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES October 27, 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): Ian Johnson

Engineer Signature: Ian John

Illinois License No.: 062-048790

Expiration Date of License: Nov 30, 2025

Engineer Phone No. 815-280-6301

Email: ijohnson@wm.com

Engineer Address:

Prairie View RDF
29755 S. Prairie View Dr.
Wilmington, IL 60481

IAN C. JOHNSON
062-048790
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))

Attachment E: Construction Certification

This statement is to be completed by both the responsible officer and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land #33
Permit Section
1021 North Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: Laraway Recycling and Disposal Facility
IEPA's SITE CODE: LPC #1970450002
U.S. EPA ID NO.: ILD074411745
PART B PERMIT LOG No. B-141R
PERMIT (OR MODIFICATION) ISSUANCE DATE: B-141R MOD 169 12/11/2023
PERMIT CONDITION NO. REQUIRING CERTIFICATION: III C. 2. AND C. 6

The PHASES 9C/10B CELLS has been constructed in accordance with the specifications in the Permit. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction of 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.

Signature of Owner/Operator

IAN JOHNSON - ENGINEER
Name and Title

Signature of Registered P.E.

ROBERT SCHUMANN
Name of Registered P.E. and Illinois Registration Number

062.063798
(P.E. SEAL)

Date 1/22/24



DocuSign Envelope ID: AE691776-2AE2-4DC1-9D3D-1C961720311A

SECRETARY'S CERTIFICATE

WASTE MANAGEMENT OF ILLINOIS, INC.

I, Courtney A. Tippy, Secretary of WASTE MANAGEMENT OF ILLINOIS, INC., a(n) Delaware corporation (the "Company"), do hereby certify that the following is a true and complete copy of resolutions adopted by written consent of the Board of Directors of the Company, which resolutions have not been amended, modified or rescinded and are in full force and effect as of the date hereof:

Environmental Compliance Signature Authority

RESOLVED, that the Area Vice President, Area Director of Disposal Operations, Area Director of Collection Operations, District Manager, Director of Safety, Plant Manager, Environmental Protection Manager, Manager Engineering, District Operations Manager, MRF Manager, Facility or Site Engineer and Environmental Protection Specialist, and each of them, for each facility owned or operated by the Company, subject to compliance with applicable corporate policies and procedures and subject to specific regulatory signature requirements, are hereby authorized to prepare, execute and/or submit on behalf of the Company, as a responsible official, authorized signatory or designated representative, any and all reports, affidavits, applications, modifications, instruments, documents or papers, necessary or appropriate with respect to such facility in order to maintain compliance with federal, state and local permits, laws and/or regulations pertaining to protection of the environment, and to take any required or desired action in connection therewith, as such individual shall deem necessary or advisable, and that any such action taken to date is hereby ratified and approved; and

RESOLVED FURTHER, that any environmental compliance signature authority previously granted by the Board of Directors that is in direct conflict with, or more restrictive than, this resolution is hereby superseded; and

RESOLVED FURTHER, that the foregoing authority shall continue in full force and effect until revoked or modified by a subsequent resolution of the Board of Directors; and

RESOLVED FURTHER, that the Secretary or any Assistant Secretary of the Company may certify these resolutions to any party requesting the same to be certified.

Dated: June 13, 2019

DocuSigned by:
Courtney A. Tippy
9E0CD492EB6C4D1...

Courtney A. Tippy
Secretary

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: Laraway RDF IEPA BOL No.: 1970450002

Site Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip Code: 60436

Permit Numbers (if applicable): B-141R

Owner

Owner Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

Operator

Operator Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

II. Officers and Employees with Site Responsibility

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
NA, no active or personal involvement in operation or mgmt	

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
Doug Tomczak	District Manager
Ian Johnson	Engineer
Mike Toufar	Operations 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 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 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.

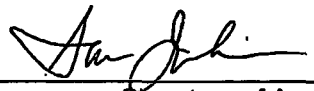
The undersigned authorizes any representative of the Illinois Environmental Protection Agency bearing this release to obtain any information from the Illinois State Police pertaining to the criminal records of the applicant and hereby directs the Illinois State Police to release such information upon 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))



Signature of Applicant Officer

1/22/24

Date

Ian Johnson

Printed Name

Engineer

Title

R 000368
January 22, 2024
0086-004-16-22

LARAWAY RECYCLING AND DISPOSAL FACILITY

CONSTRUCTION ACCEPTANCE REPORT
PHASE 9C & PHASE 10B

JOLIET, ILLINOIS

FOR SUBMISSION TO:
ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
SPRINGFIELD, ILLINOIS

PREPARED BY

Weaver Consultants Group

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1 INTRODUCTION

1.1 General

Laraway Recycling and Disposal Facility (RDF) is an operating solid waste disposal facility located in Will County, Illinois (Site I.D. No. 1970450002, and Illinois EPA Permit No. B-141R). The landfill is owned and operated by Waste Management of Illinois, Inc. (WMII). In 2023, an additional phase of the waste disposal footprint 2023 Cell Construction was constructed; including Phases 9C and 10B.

2023 Cell Construction is approximately 9.13 acres including areas constructed for overbuild into the next cell, and is located south of the existing solid waste unit. Pursuant to Permit No. B-141R, the 2023 Cell Construction liner system consists of the following components (in ascending order):

- A prepared subgrade foundation;
- A minimum three-foot thick compacted clay layer having a maximum hydraulic conductivity of 1×10^{-7} cm/sec;
- A Geosynthetic Clay Liner (GCL) (below leachate collection pipes only),
- A 60-mil thick High Density Polyethylene (HDPE) textured geomembrane,
- A 16-ounce cushion geotextile;
- A 12-inch thick leachate drainage layer with collection pipes and cleanout risers; and
- A minimum 4-ounce filter geotextile.

1.2 Report Content

This report describes the Construction Quality Assurance (CQA) documentation prepared during the construction activities at Laraway RDF. Special Condition III.C.6 of Permit No. B-141R requires certification by a Registered Professional Engineer that components of the liner be constructed in compliance with the permit requirements, the permitted Construction Quality Assurance Program (CQAP) and the approved permit drawings. Major development activities associated with 2023 Cell Construction documented in this report include:

- Excavation, grading, and preparation of the subgrade foundation to design parameters;
- Placement of the compacted low permeability soil liner;
- Placement of the geomembrane and GCL components;
- Installation of the geotextile cushion;

- Placement of the leachate drainage layer material;
- Installation of leachate collection pipe;
- Installation of filter fabric geotextile; and
- Installation of surface water management system.

Weaver Consultants Group (Weaver Consultants) provided CQA monitoring, testing, and surveying services to verify that the components of the landfill were constructed in compliance with permit requirements. Survey work performed for the project was provided under the direction of an Illinois Registered Land Surveyor. The survey information was used to document the work and prepare record drawings. All work was performed in accordance with the IEPA Permit No. B-141R and the permitted Construction Quality Assurance Program (CQAP).

2 PROJECT PERSONNEL AND REFERENCE DOCUMENTS

2.1 Project Participants

The principal project participants and their respective roles in the construction of 2023 Cell Construction are noted below:

- Owner – Waste Management of Illinois, Inc. (WMII);
- Operator – Waste Management of Illinois, Inc. (WMII);
- Construction Quality Assurance Engineer – Weaver Consultants Group (WCG);
- General Earthwork – Curran Contracting, Inc. (Curran);
- Geomembrane Supplier – Solmax Geosynthetics LLC (Solmax);
- Geotextile Supplier – Solmax Geosynthetics LLC (Solmax);
- GCL Manufacturer – American Colloid Company (CETCO);
- Geosynthetics Installer – Global Containment Solutions, LLC (GCS);
- Surveyor – Weaver Consultants Group (WCG);
- Soil Conformance Testing Laboratory – Weaver Consultants Group (WCG);
- Geosynthetic Conformance Testing Laboratory – TRI/Environmental, Inc.; and
- Surface Water Management System – Curran Contracting, Inc. (Curran).

2.2 Weaver Consultants Group CQA Project Participants

Weaver Consultants QA staff consisted of an Illinois Registered Professional Engineer (CQA Officer); Lead Soil CQA Monitor, and a Lead Geosynthetic CQA Monitor. The Lead CQA Monitor managed the day-to-day CQA activities associated with the construction of the 2023 Cell Construction liner system and served in the capacity of CQA Officer-in Absentia. The Lead CQA Monitor was responsible for observation, CQA testing, and documentation of the activities associated with construction. From time to time, additional monitors were added to the project to assist with observation and testing duties.

The Lead CQA Monitor was responsible for completing a daily field report summarizing the monitoring and testing activities performed, as well as construction progress. Copies of the daily field inspection reports are presented in Appendix A.

The CQA Officer monitored the testing and inspection activities throughout the duration of construction and documentation activities. The CQA Officer was present during the construction of each major landfill component and as frequently as required in his professional judgment. As required by the CQAP, the CQA Officer exercised their

professional judgment to be present on-site as required to assume full responsibility for the inspection and testing performed by those under their direct supervision.

The CQA Officer's statement certifying the work in the 2023 Cell Construction Liner is included in Section 12.0 of this report.

The Weaver Consultants CQA personnel directly involved in this project are listed below:

Project CQA Officer	Robert Schumann, P.E.
Lead Soils CQA Monitor/CQA Officer-in-Absentia	Dan Davis Andrew Montavon
Lead Geosynthetic CQA Monitor/CQA Officer-in-Absentia	Griffin Clarke Jordan Anderson Sean Butler
Lead Drainage Layer CQA Monitor/CQA Officer-in-Absentia	Sara Sukanen Griffin Clarke

2.3 Construction Documents

The following documents were utilized during the course of this project:

- Illinois Environmental Protection Agency Permit No. B-141R and associated documents; and
- Construction Quality Assurance Program (CQAP) approved by Permit No. B-141R

The CQAP established criteria for QA Personnel, observation activities, sampling and testing methods and frequencies, and construction documentation. Appropriate sections of the CQAP are referenced in this report where applicable.

3 PRECONSTRUCTION MATERIAL TESTING

3.1 Compacted Clay Liner Materials

The clay liner material used in the 2023 Cell Construction was derived from the borrow source that was used in the previously constructed test liner. Pursuant to the CQAP, preconstruction/borrow source laboratory testing was performed for full scale liner construction to verify that the materials met the required properties. Borrow source testing consisted of moisture/density relationship, Atterberg limits, hydraulic conductivity, grain size analysis and development of an acceptable zone at frequencies summarized as follows:

BORROW SOURCE MINIMUM TESTING REQUIREMENTS – COMPACTED CLAY

TEST	FREQUENCY
Moisture/Density Relationship - ASTM D698	1 Per Source
Atterberg Limits – ASTM D4318	1 Per Source
Hydraulic Conductivity – ASTM D5084	1 Per Source
Grain Size Analysis - ASTM D422	1 Per Source
Develop "Acceptable Zone"	Per Soil Type

A representative soil sample was collected during previous cell construction and tested for the moisture density relationship, Atterberg limits, and grain size analysis. The results of these tests are summarized on Table 1 and included in Appendix B. For laboratory hydraulic conductivity testing, a total of three (3) hydraulic conductivity tests of the brown/gray clay material were performed in accordance with the CQAP. The results of these tests are summarized on Table 1 and included in Appendix B and indicate that the borrow materials meet the requirements of the CQAP for liner construction.

Test results from the moisture content/density relationship and hydraulic conductivity test data collected during construction of the test liner was used to develop an "Acceptable Zone" for the material using the procedures specified in CQAP. The acceptability zone is included Appendix B. The "Acceptable Zone" was used in evaluating the results of field moisture content and dry density testing to verify the proper compaction of the clay liner.

3.2 Geosynthetic Materials

Geosynthetic materials for the composite liner system includes a 60-mil textured, HDPE geomembrane manufactured by Solmax, a geosynthetic clay liner manufactured by

CETCO, a 16 oz./yd^2 non-woven polyester geotextile cushion fabric supplied by Solmax, and a 4 oz./yd^2 non-woven polyester geotextile filter fabric supplied by Solmax.

3.2.1 Geosynthetic Materials

The 60-mil thick textured HDPE geomembrane panels were manufactured using Formosa Plastics Corporation resins. The Solmax rolls were delivered in 23-foot wide by approximately 480-foot long rolls. Geomembrane manufacturing quality control (MQC) certificates are provided in Appendix C.

The CQAP requires the following conformance testing be performed on the 60-mil geomembrane:

GEOMEMBRANE CONFORMANCE TESTING

TEST	FREQUENCY	MINIMUM VALUE
Density (ASTM D1505)	1 per 150,000 ft^2	0.94 g/cm^3
Thickness (ASTM D5994)	1 per 150,000 ft^2	57 mils
Tensile (ASTM D6693) Yield Strength, Elongation at Yield, & Break Strength	1 per 150,000 ft^2	126 ppi, 12% & 90 ppi
Carbon Content (ASTM D1603)	1 per 150,000 ft^2	2.0% – 3.0%
Tear Resistance (ASTM D1004)	1 per 150,000 ft^2	42 lb
Puncture Resistance (ASTM D4833)	1 per 150,000 ft^2	90 lb

Conformance testing was performed on samples collected from the geomembrane rolls prior to their delivery to the site. Testing was performed by TRI/Environmental, Inc. at the required frequencies and results are included in Appendix C. Based upon the test results, the textured geomembrane meets the minimum CQAP requirements.

3.2.2 GCL Materials

The geosynthetic clay liner (GCL) panels were delivered in 15-foot wide by approximately 150-foot long rolls. GCL manufacturing quality control (MQC) certificates are provided in Appendix E.

The CQAP requires the following conformance testing be performed on the GCL:

GCL CONFORMANCE TESTING

TEST	FREQUENCY	MINIMUM VALUE
Bentonite – Mass/Unit area (ASTM D5993)	1 per 150,000 ft^2	0.75 lb/ ft^2
Bentonite – Fluid Loss (ASTM D5891)	1 per 100,000 lb	18 ml (max)
Bentonite – Swell Index (ASTM D5890)	1 per 100,000 lb	24 ml/2g
Index Flux (ASTM D5887)	1 per week	$1x10^{-8}$ $m^3/m^2/sec$ (max)

Conformance testing was performed on samples collected from the GCL rolls prior to their delivery to the site. Testing was performed by TRI/Environmental, Inc. at the required frequencies and results are included in Appendix E. Based upon the test results, the GCL meets the minimum CQAP requirements.

3.2.3 Geotextile Materials

Cushion geotextile was delivered to the site in 15-foot wide by 300-foot long rolls. Filter geotextile was delivered to the site in 15-foot wide by 360-foot long. MQC certificates for the geotextiles are provided in Appendix D. The CQAP requires the following conformance testing be performed on the geotextiles:

GEOTEXTILE CONFORMANCE TESTING

MATERIAL	TEST	FREQUENCY	MINIMUM VALUE
Geotextile cushion	Weight (ASTM D5261)	1 per 150,000 ft^2 of material or once per lot, whichever dictates a higher testing frequency	16 oz/yd^2
	Grab Strength (ASTM D4632)		370 lbs
	Trapezoid Tear (ASTM 4533)		145 lbs
	Puncture (CBR) Strength (ASTM D6241)		900 lbs
4 $oz./yd^2$ geotextile filter	Weight (ASTM D5261)	1 per 150,000 ft^2 of material or once per lot, whichever dictates a higher testing frequency	4 oz/yd^2
	Permittivity (ASTM D4491)		0.5 sec^{-1}
	Apparent Opening Size (ASTM D4751)		40 (0.43 mm) maximum

Conformance testing was performed on samples collected from the geotextiles rolls prior to their delivery to the site. Testing was performed by TRI/Environmental, Inc. at the required frequencies and results are included in Appendix D. Based upon the test results, both geotextiles meet the minimum CQAP requirements.

4 SITE PREPARATION

4.1 Mass Excavation

Existing soil materials within 2023 Cell Construction were excavated to achieve subgrade elevations. The excavated soil materials were used as compacted clay liner, structural fill, daily/intermediate cover for landfill operations, or stockpiled for future use.

4.2 Subgrade Preparation

Prior to construction of the liner system, the liner subgrade surface was prepared for liner placement. Preparation activities included grading and proof-rolling the subgrade after excavation was complete. Upon completion of the subgrade surface, subgrade elevations were surveyed to verify compliance with design elevations. Subgrade survey data is compiled in Table 2 as well as illustrated in Figure 1.

5 CLAY LINER PLACEMENT

5.1 General

Soil materials were placed on the subgrade surface to construct the clay liner. Placement of these clay materials was performed in accordance with the CQAP and permit requirements. The clay materials were compacted to achieve a maximum hydraulic conductivity of 1×10^{-7} cm/sec. Materials used to construct the clay liner were obtained from on-site borrow area.

The clay liner for 2023 Cell Construction required approximately 44,200 cubic yards of material to be placed. The aerial extent of the 2023 Cell Construction was approximately 9.13 acres, including areas constructed for overbuild into the next cell.

5.2 Clay Liner Construction

After design subgrade elevations were established, surveyed, and approved by the CQA Officer, Curran began construction of the compacted clay layer portion of the liner system. Clay was excavated from the Phase 9C and 10B footprint or the onsite stockpile, hauled to the work area, and spread with a bulldozer.

The clay liner materials were placed in 6-inch thick compacted lifts throughout the cell area. The clay material was then moisture conditioned and compacted until testing indicated that it met the requirements of the "Acceptable Zone." Compaction was performed using a sheepsfoot "padfoot" type compactor using compaction procedures specified in the CQAP. Any exposed soils that were dry and exhibited desiccation cracking were wetted and recompacted in accordance with the CQAP. The final lift of the clay liner was rolled with a smooth drum roller to provide a smooth surface for geomembrane installation.

Upon completion of the compacted clay liner, top of clay liner grades were surveyed to verify compliance with the permitted design. Top of clay liner grades for 2023 Cell Construction are provided on Table 2, along with the calculated liner thickness. These liner thicknesses confirm that a minimum 3-foot thick clay liner was constructed.

During clay liner construction, soil testing for construction quality assurance was performed as described below.

5.2.1 Field Compaction Testing

Field compaction testing was performed as a part of the construction quality assurance of the clay liner. Throughout the construction of the clay liner, random, in-place testing for density and moisture content was performed, as well as observation of the

compaction process. Monitoring included observations that proper lift thickness was maintained, that proper grades were achieved, and that large size clods of incoming clay material were broken into smaller sizes by the compaction equipment. Testing was performed using a field nuclear density gauge. Pursuant to the CQAP, a testing frequency of four (4) tests per acre per lift or one (1) test per 200 cubic yards of liner soil placed is required. A total of 314 tests were performed on the 44,200 cubic yards of compacted clay placed for the 2023 Cell Construction Liner. This equates to 5.7 tests per acre/lift or 140.7 cubic yards per test, which exceeds the CQAP requirement. Field compaction test results and locations are presented in Table 3 for the 2023 Cell Construction.

In addition to the in-situ density testing performed, drive tube samples were also collected at a frequency of one test per week of construction. These samples were compared to the results of the nuclear density gauge. These results indicate that the gauge was operating properly. Prior to use on the site, the nuclear density gauge was calibrated by the manufacturer to confirm that it was operating properly. Copies of the drive tube sampling results and the calibration certificate are provided in Appendix F.

5.2.2 Moisture Content Testing

Moisture content tests were also performed with every field compaction test using the field nuclear density gauge described in previous section. Moisture content test results for construction evaluation are presented in Table 3 for 2023 Cell Construction.

5.2.3 Moisture Content/Density Relationship Testing

For construction quality assurance purposes, moisture content/density relationship testing was performed on samples obtained from the soil liner. Pursuant to the CQAP, a minimum of one (1) test per 10,000 cubic yards of clay liner material placed is required. Random samples of liner material were collected as construction progressed. A total of five (5) tests were performed on the 44,200 cubic yards of compacted clay placed for the 2023 Cell Construction Liner, using ASTM D698 procedures. This equates to one (1) test per 8,835 cubic yards, which exceeds the CQAP requirement. Based on the results of the testing performed, the compaction characteristics of clay material remained consistent throughout the project. Test results are summarized in Table 4 for the 2023 Cell Construction and are included in Appendix F.

5.2.4 Hydraulic Conductivity Testing for Construction Evaluation

For construction quality assurance purposes, hydraulic conductivity testing was performed on undisturbed samples obtained from the soil liner. The CQAP required a testing frequency of one (1) hydraulic conductivity test per 10,000 cubic yards of material placed and that each lift be tested. A total of six (6) samples, including 1 test per lift, were tested on the 44,200 cubic yards of compacted clay placed for the 2023 Cell Construction. This equates to one (1) test per 7,363 cubic yards, which exceeds the CQAP requirement. Samples were obtained by hydraulically pushing a 3-inch diameter Shelby tube into the

clay liner with the blade of a bulldozer or compactor. The resulting hole and surrounding areas were backfilled with a soil liner material. The samples were extruded in the laboratory and tested for hydraulic conductivity using the flex wall permeameter method in accordance with ASTM D5084. Testing of these undisturbed samples yielded an average hydraulic conductivity value 6.46×10^{-9} cm/sec for the 2023 Cell Construction. Results of this testing for 2023 Cell Construction are summarized in Table 4 and are included in Appendix F.

6 GCL PLACEMENT

The GCL placement activities included strictly following the requirements of the CQAP, conformance to the permitted design, and following generally accepted installation procedures for GCL. GCL manufacturing and conformance testing was previously discussed in Section 3.2.2. Once delivered to site, GCL rolls were inspected for damage and individual roll numbers were cataloged. Rolls were stored in a secure location, away from construction activity.

Construction quality assurance activities performed during GCL placement included:

- Documenting and observing the clay liner surface prior to GCL deployment;
- Monitoring, observing and documenting deployment procedures for the GCL; and
- Identifying defects, and observing repairs.

The following section describes the GCL placement activities.

6.1 GCL Deployment Monitoring

Global Containment Solutions, LLC (GCS) performed GCL installation for the 2023 Cell Construction. Each roll of GCL was carefully moved from the storage area with a loader. Prior to deployment of the GCL panels, the finished surface of the clay liner was inspected for the presence of sharp objects or debris, irregular surface features and excessively soft areas. Those areas that were noted were either removed and/or repaired by the earthwork contractor. Once complete, GCS executed a Subgrade Surface Acceptance certificate that is presented in Appendix G. The GCL was not installed when there was rain or standing water present in the cell. Each roll of GCL was carefully moved from the storage area to the area to be lined with a front-end loader. As each roll was moved, its label was checked by CQA personnel to verify and document the roll number. Each GCL roll was then placed over the prepared surface. After each panel had been deployed, adjoining panels were deployed 12-inch overlap on end seams. Each seam overlap on the bottom was placed so that the direction of flow is from the top sheet to the bottom sheet to form a shingle effect.

7 GEOMEMBRANE PLACEMENT

The geosynthetic liner placement activities included strictly following the requirements of the CQAP, conformance to the permitted design, and following generally accepted installation procedures for geosynthetic liners. Geomembrane manufacturing and conformance testing was previously discussed in Section 3.2.1. Once delivered to site, geomembrane rolls were inspected for damage and individual roll numbers were cataloged. Rolls were stored in a secure location, away from construction activity.

Construction quality assurance activities performed during Geomembrane placement included:

- Documenting and observing the clay liner surface prior to HDPE geomembrane deployment;
- Monitoring, observing and documenting deployment procedures for the geomembrane;
- Monitoring, observing and documenting trial seam procedures (trial welds) and evaluation of test results;
- Observing and documenting field seams and seaming operations;
- Observing, monitoring and documenting non-destructive seam continuity testing;
- Selecting destructive seam strength test sampling locations and observing field and laboratory testing; and
- Identifying and documenting defects, and observing and documenting repairs.

The following sections describe the individual activity of each geosynthetic liner placement activities.

7.1 Geomembrane Deployment Monitoring

GCS performed geomembrane installation for the 2023 Cell Construction. Each roll of geomembrane was carefully moved from the storage area with a loader. As part of the 2023 Cell Construction earthwork, an anchor trench was excavated along the top of the Sideslopes of Phase 9C and 10B. The trench was excavated to dimensions of approximately 3 feet in width by 3 feet in depth.

Prior to deployment of the geomembrane panels, the finished surface of the clay liner and grading layer was inspected for the presence of sharp objects or debris, irregular surface features and excessively soft areas. Those areas that were noted were either removed and/or repaired by the earthwork contractor. Once complete, GCS executed a Subgrade Surface Acceptance certificate that is presented in Appendix G. The term

"surface" utilized in the certificate refers to the top surface of the clay liner. Geomembrane panels were individually monitored during deployment from the rolls. This process included observation of geomembrane panel alignment, panel overlap with adjacent panels, panel surface quality, and panel identification (roll and panel number assignment). Deployment of the geomembrane was accomplished with the use of low ground pressure equipment and manual labor. Rolls of geomembrane were loaded onto the spreader bar attached to the low ground pressure equipment and deployed across the cell floor and side slopes. At the top of the slope, the geomembrane panels were cut from the roll and the ends were extended down, into and across the bottom of the anchor trench. Sandbags were used to secure the geomembrane in the anchor trench. In general, the geomembrane was installed in a loose, relaxed condition directly on the clay liner. After each panel of geomembrane had been deployed, adjoining panels were deployed with a 4-inch minimum overlap for hot wedge fusion welding. This provided sufficient overlap to allow peel tests to be performed on the seam. Seams were oriented parallel to the line of maximum slope.

During panel deployment, the panel identification number and roll number were recorded on each panel and logged on panel placement forms. Geomembrane panels were not deployed when there was rain or standing water present.

Isolated defects resulting from manufacturing, shipping, or deployment were noted and repaired in accordance with CQAP. Summaries of geomembrane panel deployment monitoring are presented in Appendix G.

Following deployment, sand bags were used to temporarily anchor the geomembrane panels until they were permanently joined. A plan view of the geomembrane panel layout for 2023 Cell Construction is presented in Figure 3.

7.2 Geomembrane Trial Seam Monitoring

Geomembrane trial seaming was performed by GCS to monitor the adequacy of the seaming apparatus, operators, and procedures. Each trial seam was sampled and tested by the installer for peel adhesion (peel) and bonded seam (shear) failure modes. The trial seaming was observed and documented by Weaver Consultants personnel. Summaries of the trial seam results for both the fusion and extrusion methods are presented in Appendix G.

7.3 Geomembrane Seam Monitoring

The principal seaming method used for joining of the geomembrane panels was the automated double wedge fusion process. The extrusion method was primarily utilized for patches and repairs.

Monitoring of the seaming methods consisted of frequent visual observation of the seaming procedures, visual examination of the completed seam, and verification that the seam was welded for its entire length. Seaming imperfections were marked and subsequently repaired in accordance with the CQAP. Summaries of the fusion seam monitoring observations are presented in Appendix G.

7.4 Non-Destructive Seam Continuity and Repair Monitoring

All seams, seam repairs, and patches were non-destructively tested for continuity by the installer using the air pressure method for double wedge fusion seams and the vacuum box method for extrusion seams. Each repair was assigned a unique number to facilitate data tracking and location of the repairs.

Weaver Consultants observed the testing procedures and documented the non-destructive continuity testing. At locations where the continuity testing indicated an imperfection, repairs were made and retested in accordance with the project specifications. Monitoring and documentation of defects and associated testing of repairs are summarized in Appendix G.

The results of all seam pressure and vacuum testing are presented in Appendix G.

7.5 Destructive Seam Strength Testing

Destructive seam strength testing was conducted in accordance with the CQAP with an average frequency of one (1) test per 500 linear feet of completed seam.

During the initial geomembrane installation, a total of 53 destructive samples were obtained by Weaver Consultants from approximately 22,100 linear feet of completed fusion seams, resulting in a sampling frequency of one (1) test per 417 linear feet of welding. This exceeds the CQAP requirement of one (1) test per an average of 500 feet of seam length. Results of the destructive seam strength testing are presented in Appendix G.

For each destructive sample, a section of the seam was removed and tested by TRI Environmental, Inc. WMII also retained one section as an archive sample.

The destructive samples sent to the geosynthetic laboratory were divided into ten specimens; five for bonded seam strength (shear) testing and five for peel adhesion (peel) testing. For the double track fusion samples, each track was tested as a separate destructive test resulting in five shear tests and ten peel tests. The specified acceptance criteria for shear tests were that the specimens must have yield strengths greater than or equal to 120 pounds per inch of specimen width. The criteria for peel tests were that, for each track, the fusion welded specimens should have minimum yield strengths of at least

91 pounds per inch, and 78 points per inch for extrusion welds. All samples met or exceeded the CQA criteria for a passing seam except DS-36, DS-41, DS-43, and DS-50.

For DS-36, two additional samples were taken, DS-36A and DS-36B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore, bound DS-36, and the capped seam and repair of the failing destruct was complete.

For DS-41, two additional samples were taken, DS-41A and DS-41B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore, bound DS-41, and the capped seam and repair of the failing destruct was complete.

For DS-43, two additional samples were taken, DS-43A and DS-43B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore, bound DS-43, and the capped seam and repair of the failing destruct was complete.

For DS-50, two additional samples were taken, DS-50A and DS-50B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore, bound DS-50, and the capped seam and repair of the failing destruct was complete.

8 LEACHATE COLLECTION SYSTEM

The leachate collection system consists of a 16-oz non-woven cushion geotextile placed over the geomembrane, a twelve-inch thick drainage layer atop the cushion geotextile, and a 4-oz. filter geotextile placed over the drainage layer. Perforated collection pipes were placed along the inverts of the cell floor. The perforated pipe was constructed of 6-inch diameter, HDPE, SDR 11 pipe.

8.1 Geotextile Installation

Each roll of cushion geotextile was carefully moved from the storage area to the area to be lined with a front-end loader. Each cushion geotextile roll was placed over the geomembrane as a cushioning fabric. After placement of the drainage layer was complete, a filter geotextile was installed as a filter fabric. After each panel had been deployed, adjoining panels were sewn together, or heat leistered together.

8.2 Leachate Collection Pipe

The leachate collection pipes used for 2023 Cell Construction were 6-inch diameter, HDPE, SDR 11 pipes. The pipes were inspected, and found to be free of any visible cracks, holes, foreign inclusions and any defects. Prior to installation of the piping, the pipe perforations were inspected and cleaned as necessary to allow the free flow of landfill leachate into the piping system. The perforated leachate collection pipe is shown on Figure 4. As shown on Figure 4, solid piping was extended up the sideslope in Phase 9C and Phase 10B to allow cleaning of the collection pipe. The solid pipe was constructed using 6-inch diameter, HDPE, SDR 11 pipe.

8.3 Drainage Layer Installation

A 12-inch granular drainage layer material was placed directly on top of the cushion geotextile. The 12-inch drainage layer required approximately 14,725 cubic yards of granular material. Material for the drainage layer was hauled from one (1) off-site source, Vulcan Materials Co. (Joliet). The granular drainage layer material was placed with small wide track, low ground pressure bulldozers. Granular drainage layer material was delivered onto the placement area by trucks. The granular drainage layer material was spread in a fanning method always maintaining at least 12 inches of granular drainage layer material beneath the bulldozer and 3 feet from the edge. The leading edge of granular drainage layer material placement was mounded to allow the granular drainage layer material to free-fall, minimizing displacement of the underlying geotextile.

Upon completion of the drainage layer, top of drainage layer grades were surveyed to verify compliance with the design. Top of drainage layer grades are provided on Table 5 with a calculated layer thickness. These layer thicknesses confirm that a minimum 1-foot thick layer was constructed.

The granular drainage layer material met the hydraulic conductivity requirements for the coarse aggregate surrounding the leachate collection pipes, however it did not meet the grain size requirements. The granular drainage layer material grain size was too small to prevent inclusion in the leachate collection pipe perforations. A separate coarse aggregate material to surround the leachate collection pipes was hauled from one (1) off-site source, Vulcan Materials Co. (Joliet). The coarse aggregate was placed surrounding the leachate collection pipes along the invert of the cell floor in Phase 9C and Phase 10B. The coarse aggregate required approximately 118 cubic yards of material.

8.3.1 Pre-Construction Testing

The CQA Plan required one grain size analysis and hydraulic conductivity test per source for the granular drainage material. Granular material was delivered Vulcan Materials Company in Joliet. One (1) test was performed for these analyses for each source. The testing indicated that the material is in conformance with the CQA Plan. Test results are summarized in Table 6 and provided in Appendix H.

The CQA Plan required one grain size analysis and hydraulic conductivity test per source for the coarse aggregate material surrounding the leachate collection pipes. One (1) test for each source was performed for each of these analyses. The testing indicated that the material is in conformance with the CQA Plan. Test results are summarized in Table 6 and provided in Appendix H.

8.3.2 Drainage Layer Quality Evaluation Testing

During drainage layer construction, drainage layer testing for construction quality evaluation was performed as described below.

8.3.3 Grain Size Analysis

Grain size analysis of the drainage layer material was performed for construction evaluation during placement. The CQA Plan required that one test be taken for every 3,000 cubic yards of material placed. Based on this frequency, five (5) tests were required. Five (5) tests were performed on the 14,725 cubic yards of granular drainage layer placed for the 2023 Cell Construction. This equates to one (1) test per 2,945 cubic yards, which exceeds the CQAP requirement. The project specifications state that each sample should contain no more than 5% finer than the No. 200 sieve. All samples tested met this specification. The grain size analysis testing results are summarized in Table 6 and provided in Appendix H.

Grain size analysis of the coarse aggregate material surrounding the leachate collection pipes was performed for construction evaluation during placement. The CQA Plan required that one test be taken for every 3,000 cubic yards of material placed. Based on this frequency, one (1) test was required. One (1) test was performed on the material. The grain size analysis testing results are summarized in Table 6 and provided in Appendix H.

8.3.4 Hydraulic Conductivity Testing

The project specifications required hydraulic conductivity tests on the drainage layer for every 10,000 cubic yards of material placed. Thus two (2) tests were required to be performed. Two (2) tests were performed on the 14,725 cubic yards of granular drainage layer placed for the 2023 Cell Construction. This equates to one (1) test per 7,362 cubic yards, which exceeds the CQAP requirement. Hydraulic conductivity tests performed on the drainage layer samples resulted in an average hydraulic conductivity of 23.5 cm/sec that exceeds the required minimum of 1×10^{-1} cm/sec for the granular drainage layer. These test results are summarized in Table 6 and provided in Appendix H.

Hydraulic conductivity testing of the coarse aggregate material surrounding the leachate collection pipes was performed for construction evaluation during placement. The CQA Plan required that one test be taken for every 10,000 cubic yards of material placed. Based on this frequency, one (1) test was required. A total of one (1) test was performed. The hydraulic conductivity test performed on the drainage layer samples resulted in an average hydraulic conductivity of 22.8 cm/sec that exceeds the required minimum of 1.0 cm/sec for the coarse aggregate surrounding the leachate collection pipe. The hydraulic conductivity testing results are summarized in Table 6 and provided in Appendix H.

9 BERMS

One (1) temporary leachate separation berm was installed during construction of 2023 Cell Construction. The berm was constructed from north to south along the west edge of Phase 10B, between Phase 10B and Phase 11C. The location of the berm is shown on Figure 4.

10 SURFACE WATER MANAGEMENT SYSTEMS

The perimeter surface water channel on the south side of the 2023 Cell Construction was constructed during the 2023 Construction event. A final survey of the constructed surface water features was performed to verify that the structure was completed in accordance with the permit requirements. A record drawing of the perimeter surface water channel is shown on Figure 5.

11 SURVEYING

Throughout the 2023 Cell Construction, Weaver Consultants performed surveying for the project to document compliance with the design. The survey work was performed under the supervision of an Illinois Registered Land Surveyor. Both horizontal and vertical surveying were performed. Record elevations and locations are shown on Figures 1, 2, 3, 4, and 5 and are provided on Tables 2 and 5.

All horizontal survey locations are based upon the state plane coordinate system. This coordinate system is shown on all design and record drawings. Vertical control is based upon USGS datum.

11.1 Survey Control

On July 25, 2023 four Site Survey Concrete Monuments were established or verified at Laraway Landfill by Weaver Consultants Group. The monuments were surveyed based upon the Illinois State Plane East coordinates and NAVD 88 elevations. The coordinates and elevations are noted on each monument.

SUMMARY OF SURVEY CONTROL MONUMENTS

MONUMENT ID	ELEVATION (feet MSL)	NORTHING COORINATE	EASTING COORDIANTE
CM-1	623.80	1752847.82	1042857.68
CM-3	614.38	1747668.18	1038708.08
CM-56	618.15	1751372.43	1038822.30
CM-6	616.62	1748482.67	1043125.16

12 CQA OFFICE DESIGNATION

Throughout the duration of the 2023 Cell Construction Liner constructions, there were times when the duties of CQA Officer required him to be off site. During the absence of the CQA Officer, an individual was designated to exercise professional judgment in carrying out the duties of the CQA Officer as the designated CQA Officer-in-Absentia. The CQA Officer assumes full personal responsibility for all inspections and reports prepared by the designated CQA Officer-in-Absentia during the absence of the CQA Officer. At various times throughout the construction of the liner system for 2023 Cell Construction, Dan Davis, Andrew Montavon, Griffin Clarke, Jordan Anderson, Sean Butler and Sara Sukanen were designated as CQA Officers-in Absentia.



Robert Schumann, P.E.
Project CQA Officer

13 ENGINEERING CERTIFICATION STATEMENT

This statement is provided in accordance with 35 IAC § 811.505(d); [Subpart E] construction quality assurance programs; documentation; acceptance reports. These regulations specify the following requirements:

1) *A certification by the CQA Officer that the construction has been prepared and constructed in accordance with the engineering design;*

2) *As-built drawings; and*

3) *All daily summary reports.*

The attached certification documentation is intended to fulfill these specifications.

Facility: Laraway Recycling and Disposal Facility

Component(s) or Phase(s) 2023 Cell Construction

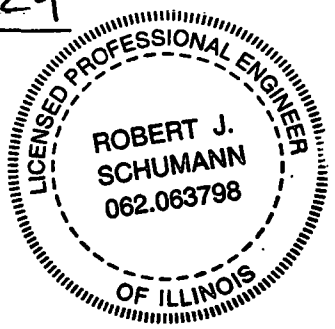
- Excavation of Subgrade to Design Parameters
- Installation of the Compacted Soil Liner
- Installation of GCL
- Installation of a Geomembrane and Geotextiles
- Installation of Leachate Collection System
- Installation of Surface Water Management System

The CQA monitoring activities performed by Weaver Consultants Group personnel were performed under my direct supervision. CQA officers in absentia Dan Davis, Andrew Montavon, Griffin Clarke, Jordan Anderson, Sean Butler and Sara Sukanen.

Certified by: _____ 1/22/24

Weaver Consultants Group
Robert Schumann
Professional Engineer Registration No. 062-063798
Expires November 30, 2025
Project CQA Officer

Date



TABLES

Table 1	Summary of Soil Laboratory Testing Results – Pre-Construction Clay Liner
Table 2	Liner Record Survey Data
Table 3	Summary of Nuclear Gauge In-situ Testing Results – Compacted Clay Liner Testing Results
Table 4	Summary of Soil Laboratory Testing Results – Compacted Clay Liner
Table 5	Drainage Layer Record Survey Data
Table 6	Summary of Drainage Layer Laboratory Testing Results

TABLE 1

Summary of Soil Laboratory Testing Results – Pre-Construction Clay Liner

Table 1
Summary of Soil Laboratory Testing Results
Pre-Construction Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Sample No.	Grain Size Distribution				Atterberg Limits		Moisture/Density Relationship		Hydraulic Conductivity (cm/sec)
	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	Liquid Limit (%)	Plasicity Index (%)	Maximum Dry Density (pcf)	Optimum Moisture (%)	
Brown/Gray Clay Acceptability Zone Testing									
IC-BS-1	0.9	3.2	33.2	62.7	37	19	108.4	18.9	6.40E-08
IC-BS-2	0.0	3.8	33.7	62.5	35	17	108.7	18.1	1.95E-08
IC-BS-3	0.2	2.8	34.7	62.3	36	18	108.6	17.8	1.80E-08
Minimum	0.0	2.8	33.2	62.3	35.0	17.0	108.4	17.8	1.80E-08
Maximum	0.9	3.8	34.7	62.7	37.0	19.0	108.7	18.9	6.40E-08
Average	0.4	3.3	33.9	62.5	36.0	18.0	108.6	18.3	3.38E-08

TABLE 2

Liner Record Survey Data

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749300.00	1042900.28	616.43	620.17	3.74	SWB
1749300.00	1042899.27	616.48	619.81	3.32	SWB -SUBGRADE CREST
1749300.00	1042888.06	612.85	616.02	3.17	MID SLOPE
1749300.00	1042869.19	606.49	-	-	TOE OF SLOPE - SUBGRADE
1749300.05	1042868.63	-	609.69	3.19	TOE OF SLOPE - CLAY
1749275.64	1042870.23	606.38	-	-	TOE OF SLOPE - SUBGRADE
1749275.81	1042869.67	-	609.53	3.14	TOE OF SLOPE - CLAY
1749276.44	1042889.45	612.76	616.09	3.33	MID SLOPE
1749276.87	1042900.20	616.35	-	-	SWB - SUBGRADE CREST
1749276.86	1042900.25	-	619.65	3.30	SWB - CLAY CREST
1749276.91	1042901.22	616.36	620.00	3.64	SWB
1749269.17	1042870.33	606.36	-	-	TOE OF SLOPE - SUBGRADE
1749269.26	1042869.90	-	609.49	3.13	TOE OF SLOPE - CLAY
1749200.00	1042873.25	606.71	-	-	TOE OF SLOPE - SUBGRADE
1749200.14	1042872.73	-	609.89	3.18	TOE OF SLOPE - CLAY
1749200.00	1042891.51	612.84	616.10	3.27	MID SLOPE
1749200.00	1042903.31	616.75	-	-	SWB - SUBGRADE CREST
1749199.90	1042903.30	-	620.07	3.31	SWB - CLAY CREST
1749200.00	1042904.33	616.76	620.32	3.56	SWB
1749102.99	1042908.25	617.69	620.73	3.04	SWB
1749102.77	1042907.24	617.47	-	-	SWB - SUBGRADE CREST
1749102.71	1042907.26	-	620.53	3.06	SWB - CLAY CREST
1749099.92	1042894.19	612.76	616.13	3.36	MID SLOPE
1749100.00	1042877.48	607.18	-	-	TOE OF SLOPE - GRID SUBGRADE
1749100.00	1042876.95	-	610.49	3.32	TOE OF SLOPE - GRID CLAY

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749095.66	1042877.64	607.27	-	-	TOE OF SLOPE CORNER - SUBGRADE
1749097.30	1042876.67	-	610.38	3.11	TOE OF SLOPE CORNER - CLAY
1749085.45	1042888.92	612.75	616.04	3.28	MID SLOPE
1749076.56	1042898.34	617.46	-	-	SWB - SUBGRADE CREST
1749076.68	1042898.41	-	620.75	3.29	SWB - CLAY CREST
1749075.86	1042899.08	617.42	621.28	3.86	SWB
1749062.89	1042871.85	617.80	621.55	3.75	SWB
1749063.92	1042872.01	617.72	-	-	SWB - SUBGRADE CREST
1749063.77	1042872.13	-	621.07	3.35	SWB - CLAY CREST
1749078.96	1042874.41	612.82	616.13	3.31	MID SLOPE
1749300.00	1042800.00	605.80	608.89	3.10	FLOOR
1749269.20	1042800.00	605.66	608.89	3.23	FLOOR
1749200.00	1042800.00	605.93	609.06	3.13	FLOOR
1749100.00	1042800.00	606.39	609.49	3.10	FLOOR
1749095.57	1042800.00	606.48	-	-	TOE OF SLOPE - SUBGRADE
1749096.03	1042799.92	-	609.61	3.13	TOE OF SLOPE - CLAY
1749082.59	1042800.00	610.80	614.07	3.27	MID SLOPE
1749060.66	1042800.00	618.09	-	-	SWB - SUBGRADE CREST
1749060.73	1042800.03	-	621.53	3.44	SWB - CLAY CREST
1749059.78	1042800.00	618.03	621.85	3.83	SWB
1749055.14	1042700.00	618.50	622.32	3.83	SWB
1749056.15	1042700.00	618.55	-	-	SWB - SUBGRADE CREST
1749056.08	1042699.90	-	621.91	3.36	SWB - CLAY CREST
1749079.41	1042700.00	610.80	614.14	3.34	MID SLOPE
1749095.46	1042700.00	605.48	-	-	TOE OF SLOPE - SUBGRADE

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749096.01	1042699.89	-	608.62	3.14	TOE OF SLOPE - CLAY
1749100.00	1042700.00	605.41	608.51	3.10	FLOOR
1749200.00	1042700.00	604.94	608.24	3.31	FLOOR
1749269.23	1042700.00	604.68	607.75	3.08	FLOOR
1749300.00	1042700.00	604.73	607.91	3.18	FLOOR
1749300.00	1042600.00	603.74	606.93	3.19	FLOOR
1749269.27	1042600.00	603.65	606.87	3.23	FLOOR - BREAK
1749200.00	1042600.00	603.97	607.10	3.14	FLOOR
1749100.00	1042600.00	604.38	607.48	3.10	FLOOR
1749095.36	1042600.00	604.46	-	-	TOE OF SLOPE - SUBGRADE
1749095.79	1042600.05	-	607.59	3.13	TOE OF SLOPE - CLAY
1749076.23	1042600.00	610.78	614.02	3.24	MID SLOPE
1749051.64	1042600.00	619.01	-	-	SWB - SUBGRADE CREST
1749051.72	1042600.04	-	622.32	3.31	SWB - CLAY CREST
1749050.70	1042600.00	618.97	622.71	3.74	SWB
1749046.16	1042500.00	619.43	623.23	3.80	SWB
1749047.14	1042500.00	619.46	-	-	SWB - SUBGRADE CREST
1749047.09	1042500.07	-	622.98	3.53	SWB - CLAY CREST
1749073.05	1042500.00	610.81	614.03	3.22	MID SLOPE
1749095.25	1042500.00	603.36	-	-	TOE OF SLOPE - SUBGRADE
1749095.65	1042499.92	-	606.68	3.32	TOE OF SLOPE - CLAY
1749100.00	1042500.00	603.42	606.58	3.16	FLOOR
1749200.00	1042500.00	602.90	606.12	3.21	FLOOR
1749269.30	1042500.00	602.62	605.65	3.04	FLOOR
1749292.23	1042500.00	602.66	605.77	3.11	GRADE BREAK

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749300.00	1042500.00	602.70	605.80	3.10	FLOOR
1749300.00	1042529.70	602.90	606.10	3.20	FLOOR - BREAK
1749300.00	1042400.00	601.47	604.78	3.31	FLOOR - BREAK
1749269.05	1042412.11	601.67	604.82	3.15	GRADE BREAK
1749200.00	1042414.21	602.04	605.17	3.12	FLOOR - BREAK
1749100.00	1042417.24	602.46	605.66	3.20	FLOOR - BREAK
1749095.16	1042417.37	602.59	605.82	3.23	TOE OF SLOPE
1749063.88	1042400.00	612.73	616.21	3.48	MID SLOPE
1749042.63	1042400.00	619.91	-	-	SWB - SUBGRADE CREST
1749042.68	1042400.00	-	623.39	3.48	SWB - CLAY CREST
1749041.61	1042400.00	619.91	623.60	3.69	SWB
1749094.21	1042400.00	602.75	-	-	TOE OF SLOPE - SUBGRADE
1749094.72	1042400.00	-	606.03	3.28	TOE OF SLOPE - CLAY
1749100.00	1042400.00	602.53	605.83	3.30	FLOOR - BREAK
1749200.00	1042400.00	602.15	605.30	3.14	FLOOR - BREAK
1749268.42	1042400.00	601.79	604.99	3.20	FLOOR - BREAK
1749300.00	1042396.57	601.48	604.77	3.29	FLOOR - BREAK
1749300.00	1042300.00	602.19	605.42	3.22	FLOOR
1749261.38	1042300.00	602.54	605.69	3.15	FLOOR - BREAK
1749200.00	1042300.00	602.87	606.04	3.17	FLOOR
1749100.00	1042300.00	603.36	606.46	3.10	FLOOR
1749088.77	1042300.00	603.43	-	-	TOE OF SLOPE - SUBGRADE
1749089.34	1042300.00	-	606.61	3.18	TOE OF SLOPE - CLAY
1749060.61	1042300.00	612.77	616.05	3.28	MID SLOPE
1749038.10	1042300.00	620.14	-	-	SWB - SUBGRADE CREST

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749038.06	1042300.04	-	623.55	3.41	SWB - CLAY CREST
1749037.10	1042300.00	620.31	623.87	3.56	SWB
1749032.60	1042200.00	620.64	624.27	3.63	SWB
1749033.56	1042200.00	620.72	-	-	SWB - SUBGRADE CREST
1749033.54	1042199.95	-	623.98	3.26	SWB - CLAY CREST
1749057.28	1042200.00	612.81	616.16	3.35	MID SLOPE
1749083.32	1042200.00	604.16	-	-	TOE OF SLOPE - SUBGRADE
1749083.73	1042199.92	-	607.34	3.18	TOE OF SLOPE - CLAY
1749100.00	1042200.00	603.96	607.23	3.27	FLOOR
1749200.00	1042200.00	603.54	606.71	3.17	FLOOR
1749254.34	1042200.00	603.13	606.35	3.22	FLOOR - BREAK
1749247.30	1042100.00	603.96	607.14	3.18	FLOOR - BREAK
1749200.00	1042100.00	604.23	607.42	3.20	FLOOR
1749100.00	1042100.00	604.76	607.82	3.06	FLOOR
1749077.87	1042100.00	604.88	-	-	TOE OF SLOPE - SUBGRADE
1749078.52	1042100.23	-	608.13	3.25	TOE OF SLOPE - CLAY
1749053.95	1042100.00	612.72	616.04	3.32	MID SLOPE
1749029.02	1042100.00	621.09	-	-	SWB - SUBGRADE CREST
1749029.10	1042100.05	-	624.35	3.26	SWB - CLAY CREST
1749028.09	1042100.00	621.12	624.65	3.53	SWB
1749023.58	1042000.00	621.51	625.03	3.52	SWB
1749024.48	1042000.00	621.49	-	-	SWB - SUBGRADE CREST
1749024.47	1041999.99	-	624.75	3.26	SWB - CLAY CREST
1749050.66	1042000.00	612.78	616.14	3.36	MID SLOPE
1749072.43	1042000.00	605.62	-	-	TOE OF SLOPE - SUBGRADE

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749072.89	1042000.02	-	608.83	3.21	TOE OF SLOPE - CLAY
1749100.00	1042000.00	605.37	608.65	3.28	FLOOR
1749200.00	1042000.00	604.92	608.01	3.09	FLOOR
1749240.26	1042000.00	604.68	607.83	3.15	FLOOR - BREAK
1749233.22	1041900.00	605.38	608.54	3.16	FLOOR
1749200.00	1041900.00	605.61	608.77	3.16	FLOOR
1749100.00	1041900.00	606.14	609.22	3.09	FLOOR
1749066.98	1041900.00	606.31	-	-	TOE OF SLOPE - SUBGRADE
1749067.37	1041899.94	-	609.64	3.32	TOE OF SLOPE - CLAY
1749047.37	1041900.00	612.83	616.08	3.25	MID SLOPE
1749019.94	1041900.00	621.93	-	-	SWB - SUBGRADE CREST
1749019.88	1041899.99	-	625.19	3.27	SWB - CLAY CREST
1749019.07	1041900.00	621.90	625.41	3.51	SWB
1749017.41	1041866.55	622.06	625.71	3.64	SWB
1749018.42	1041866.52	622.07	-	-	SWB - SUBGRADE CREST
1749018.37	1041866.47	-	625.28	3.21	SWB - CLAY CREST
1749046.14	1041865.65	612.76	616.11	3.35	MID SLOPE
1749065.08	1041865.48	606.58	-	-	TOE OF SLOPE - CELL TRANSITION - SUBGRADE CREST
1749065.55	1041865.05	-	609.69	3.11	TOE OF SLOPE - CELL TRANSITION - CLAY CREST
1749100.00	1041864.41	606.34	-	-	CREST OF SLOPE - SUBGRADE
1749100.13	1041864.04	-	609.53	3.19	CREST OF SLOPE - CLAY
1749200.00	1041861.27	605.81	-	-	CREST OF SLOPE- SUBGRADE
1749199.96	1041861.11	-	609.11	3.30	CREST OF SLOPE - CLAY
1749230.39	1041860.32	605.29	-	-	CELL TRANSITION - CREST AND BREAK - SUBGRADE
1749230.33	1041859.94	-	608.64	3.35	CELL TRANSITION - CREST AND BREAK - CLAY

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1749200.00	1041854.67	603.65	-	-	CELL TRANSITION - SUBGRADE TOE
1749200.03	1041854.17	-	606.87	3.22	CELL TRANSITION - CLAY TOE
1749100.00	1041858.58	604.42	-	-	CELL TRANSITION - SUBGRADE TOE
1749100.00	1041856.90	-	607.55	3.13	CELL TRANSITION - CLAY TOE
1749070.43	1041859.72	604.62	-	-	TOE OF SLOPE - CELL TRANSITION - SUBGRADE TOE
1749071.66	1041857.96	-	607.73	3.11	TOE OF SLOPE - CELL TRANSITION - CLAY TOE
1749069.87	1041844.92	604.52	-	-	TOE OF SLOPE - SUBGRADE
1749070.40	1041844.86	-	607.71	3.19	TOE OF SLOPE - CLAY
1749045.32	1041849.14	612.77	616.05	3.28	MID SLOPE
1749017.84	1041853.87	622.13	-	-	SWB - SUBGRADE CREST
1749017.70	1041853.94	-	625.37	3.24	SWB - CLAY CREST
1749016.84	1041854.04	622.12	-	-	SWB - SUBGRADE CREST
1749017.17	1041854.27	-	625.65	3.53	SWB - CLAY CREST
1749002.98	1041816.97	622.25	625.85	3.59	SWB
1749003.84	1041816.44	622.22	-	-	SWB - SUBGRADE CREST
1749003.76	1041816.44	-	625.51	3.29	SWB - CLAY CREST
1749028.10	1041801.73	612.77	616.12	3.35	MID SLOPE
1749057.25	1041800.21	604.10	-	-	TOE OF SLOPE - SUBGRADE
1749057.57	1041799.96	-	607.19	3.09	TOE OF SLOPE - CLAY
1749050.53	1041788.11	604.08	-	-	TOE OF SLOPE - SUBGRADE
1749051.09	1041787.89	-	607.22	3.15	TOE OF SLOPE - CLAY
1749100.00	1041800.00	603.85	606.94	3.09	FLOOR
1749200.00	1041800.00	603.11	606.18	3.07	FLOOR
1749000.00	1041700.00	603.52	606.57	3.05	FLOOR
1748981.21	1041733.52	604.02	-	-	TOE OF SLOPE - SUBGRADE

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1748981.38	1041733.11	-	607.24	3.22	TOE OF SLOPE - CLAY
1748973.07	1041758.65	612.77	616.15	3.37	MID SLOPE
1748964.14	1041786.22	622.42	-	-	SWB - SUBGRADE CREST
1748963.95	1041786.08	-	625.67	3.26	SWB - CLAY CREST
1748963.83	1041787.18	622.47	626.04	3.56	SWB
1748883.74	1041763.44	622.82	626.35	3.53	SWB
1748884.03	1041762.51	622.79	-	-	SWB - SUBGRADE CREST
1748883.84	1041762.54	-	626.04	3.25	SWB - CLAY CREST
1748891.13	1041739.57	614.81	618.08	3.27	MID SLOPE
1748900.42	1041709.56	604.36	-	-	TOE OF SLOPE - SUBGRADE
1748900.55	1041709.10	-	607.44	3.08	TOE OF SLOPE - CLAY
1748900.00	1041700.00	604.24	607.35	3.12	FLOOR
1748900.00	1041667.57	603.91	606.99	3.08	FLOOR - CENTERLINE - GRID
1748873.47	1041701.28	604.39	-	-	TOE OF SLOPE - SUBGRADE
1748873.65	1041700.82	-	607.49	3.09	TOE OF SLOPE - CLAY
1748871.02	1041700.26	604.43	-	-	TOE OF SLOPE - SUBGRADE
1748870.95	1041699.90	-	607.75	3.32	TOE OF SLOPE - CLAY
1748862.51	1041730.57	614.83	618.11	3.28	MID SLOPE
1748853.90	1041753.59	622.95	-	-	SWB - SUBGRADE CREST
1748853.89	1041753.71	-	626.26	3.31	SWB - CLAY CREST
1748853.55	1041754.54	623.02	626.55	3.53	SWB
1748825.19	1041743.45	623.97	627.58	3.62	SWB
1748825.76	1041742.61	623.98	-	-	SWB - SUBGRADE CREST
1748825.69	1041743.36	-	627.58	3.60	SWB - CLAY CREST
1748841.19	1041719.70	614.76	618.08	3.32	MID SLOPE

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1748858.52	1041693.98	604.51	-	-	TOE OF SLOPE - SUBGRADE
1748858.74	1041691.03	-	607.70	3.20	TOE OF SLOPE - CLAY
1748826.27	1041670.28	604.42	-	-	TOE OF SLOPE - SUBGRADE
1748826.62	1041669.89	-	607.76	3.33	TOE OF SLOPE - CLAY
1748823.41	1041668.31	604.50	-	-	TOE OF SLOPE - SUBGRADE
1748823.69	1041667.79	-	607.80	3.29	TOE OF SLOPE - CLAY
1748804.86	1041693.01	614.72	618.15	3.42	MID SLOPE
1748788.58	1041715.76	624.09	-	-	SWB - SUBGRADE CREST
1748788.61	1041715.67	-	627.40	3.31	SWB - CLAY CREST
1748787.99	1041716.59	624.09	627.76	3.66	SWB
1748706.78	1041657.96	624.44	627.95	3.51	SWB
1748707.38	1041657.15	624.38	-	-	SWB - SUBGRADE CREST
1748707.26	1041657.14	-	627.67	3.29	SWB - CLAY CREST
1748724.47	1041633.95	614.72	618.05	3.33	MID SLOPE
1748740.66	1041611.98	605.69	-	-	TOE OF SLOPE - SUBGRADE
1748740.85	1041611.65	-	608.89	3.20	TOE OF SLOPE - CLAY
1748800.00	1041600.00	605.32	608.52	3.20	FLOOR
1748723.66	1041600.41	605.94	-	-	TOE OF SLOPE - SUBGRADE
1748723.86	1041600.30	-	609.01	3.06	TOE OF SLOPE - CLAY
1748657.94	1041555.67	606.88	-	-	TOE OF SLOPE - SUBGRADE
1748658.30	1041555.24	-	610.04	3.16	TOE OF SLOPE - CLAY
1748640.32	1041579.58	616.71	620.08	3.36	MID SLOPE
1748626.29	1041598.61	624.54	-	-	SWB - SUBGRADE CREST
1748626.32	1041598.61	-	627.95	3.41	SWB - CLAY CREST
1748625.69	1041599.43	624.71	628.31	3.60	SWB

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1748544.61	1041540.90	624.85	628.54	3.69	SWB
1748545.21	1041540.08	624.88	-	-	SWB - SUBGRADE CREST
1748545.29	1041540.07	-	628.09	3.22	SWB - CLAY CREST
1748559.73	1041520.37	616.64	620.01	3.37	MID SLOPE
1748575.22	1041499.36	608.14	-	-	TOE OF SLOPE - SUBGRADE
1748575.56	1041499.15	-	611.19	3.05	TOE OF SLOPE - CLAY
1748576.76	1041500.41	608.10	-	-	TOE OF SLOPE - SUBGRADE
1748577.07	1041500.01	-	611.18	3.08	TOE OF SLOPE - CLAY
1748600.00	1041500.00	607.87	610.94	3.06	FLOOR
1748700.00	1041500.00	607.12	610.28	3.15	FLOOR
1748800.00	1041500.00	606.34	609.42	3.08	FLOOR
1748800.00	1041467.46	606.60	-	-	CELL TRANSITION - SUBGRADE TOE
1748799.90	1041468.03	-	609.72	3.13	CELL TRANSITION - CLAY TOE
1748700.00	1041470.59	607.37	-	-	CELL TRANSITION - SUBGRADE TOE
1748700.11	1041471.12	-	611.06	3.69	CELL TRANSITION - CLAY TOE
1748600.00	1041473.78	608.15	-	-	CELL TRANSITION - SUBGRADE TOE
1748599.91	1041474.32	-	611.47	3.32	CELL TRANSITION - CLAY TOE
1748541.65	1041476.51	608.57	-	-	TOE OF SLOPE - CELL TRANSITION - SUBGRADE CREST
1748548.32	1041480.43	-	611.87	3.30	TOE OF SLOPE - CELL TRANSITION - CLAY CREST
1748531.46	1041472.96	609.61	-	-	TOE OF SLOPE - CELL TRANSITION - SUBGRADE TOE
1748532.95	1041473.27	-	612.99	3.38	TOE OF SLOPE - CELL TRANSITION - CLAY TOE
1748464.12	1041481.55	625.06	-	-	SWB - SUBGRADE CREST
1748464.03	1041481.74	-	628.46	3.40	SWB - CLAY CREST
1748463.52	1041482.36	625.13	628.80	3.67	SWB
1748600.00	1041470.81	609.05	-	-	CELL TRANSITION - SUBGRADE TOE
1748600.09	1041471.44	-	612.19	3.13	CELL TRANSITION - CLAY TOE
1748700.00	1041467.67	608.26	-	-	CELL TRANSITION - SUBGRADE TOE
1748699.97	1041468.05	-	611.59	3.33	CELL TRANSITION - CLAY TOE
1748800.00	1041464.53	607.62	-	-	CELL TRANSITION - SUBGRADE TOE

Table 2
Liner Record Survey Data
Compacted Clay Liner Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD SUBGRADE ELEVATION	RECORD CLAY ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1748799.92	1041464.80	-	610.67	3.06	CELL TRANSITION - CLAY TOE
1748799.79	1041457.96	607.54	610.63	3.09	CLAY OVERBUILD LIMITS
1748699.84	1041461.09	608.16	611.53	3.36	CLAY OVERBUILD LIMITS
1748599.89	1041464.23	608.95	612.22	3.27	CLAY OVERBUILD LIMITS
1748523.36	1041467.02	609.68	-	-	CLAY OVERBUILD LIMITS - SUBGRADE TOE OF SLOPE
1748523.53	1041466.56	-	612.87	3.19	CLAY OVERBUILD LIMITS - CLAY TOE OF SLOPE
1748484.39	1041467.85	616.78	620.04	3.26	CLAY OVERBUILD LIMITS - MID SLOPE
1748446.76	1041469.02	625.20	-	-	CLAY OVERBUILD LIMITS - SUBGRADE CREST
1748446.65	1041470.45	-	628.75	3.54	CLAY OVERBUILD LIMITS - CLAY CREST
1748445.12	1041469.08	625.16	628.89	3.73	CLAY OVERBUILD LIMITS - SWB
1748378.70	1041421.13	625.69	-	-	SUBGRADE OVERBUILD - SWB
1748380.35	1041421.08	625.43	-	-	SUBGRADE CREST
1748417.35	1041419.92	617.82	-	-	SUBGRADE OVERBUILD - MID SLOPE
1748456.82	1041418.66	609.76	-	-	SUBGRADE OVERBUILD - TOE OF SLOPE
1748498.38	1041417.38	609.46	-	-	SUBGRADE OVERBUILD LIMIT
1748598.33	1041414.25	608.58	-	-	SUBGRADE OVERBUILD LIMIT
1748698.28	1041411.12	607.72	-	-	SUBGRADE OVERBUILD LIMIT
1748798.23	1041407.99	606.89	-	-	SUBGRADE OVERBUILD LIMIT
1748845.00	1041406.52	606.33	-	-	SUBGRADE OVERBUILD LIMIT

TABLE 3

Summary of Nuclear Gauge In-situ Testing Results – Compacted Clay Liner Testing Results

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
1	10/18/2023	1,749,115	1,042,852	1	Brown/Gray	110.6	17.2	P	P	
2	10/18/2023	1,749,209	1,042,787	1	Brown/Gray	108.3	18.9	P	P	
3	10/18/2023	1,749,127	1,042,732	1	Brown/Gray	102.9	21.4	P	P	
4	10/18/2023	1,749,098	1,042,542	1	Brown/Gray	116.9	14.2	P	P	
5	10/18/2023	1,749,269	1,042,862	1	Brown/Gray	105.5	19.9	P	P	
6	10/18/2023	1,749,271	1,042,723	1	Brown/Gray	111.8	17.0	P	P	
7	10/18/2023	1,749,188	1,042,815	1	Brown/Gray	112.6	16.8	P	P	ST-1-1A & B
8	10/23/2023	1,749,120	1,042,855	2	Brown/Gray	112.3	17.2	P	P	
9	10/23/2023	1,749,140	1,042,725	2	Brown/Gray	108.4	18.4	P	P	
10	10/23/2023	1,749,110	1,042,680	2	Brown/Gray	114.2	16.5	P	P	
11	10/23/2023	1,749,135	1,042,530	2	Brown/Gray	109.9	15.8	P	P	
12	10/24/2023	1,749,125	1,042,450	1	Brown/Gray	104.8	20.5	P	P	
13	10/24/2023	1,749,120	1,042,215	1	Brown/Gray	108.1	19.3	P	P	
14	10/24/2023	1,749,075	1,042,130	1	Brown/Gray	107.9	18.9	P	P	
15	10/24/2023	1,749,070	1,042,130	2	Brown/Gray	114.5	16.1	P	P	
16	10/24/2023	1,749,130	1,042,225	2	Brown/Gray	107.4	17.8	P	P	
17	10/24/2023	1,749,115	1,042,425	2	Brown/Gray	114.6	16.9	P	P	
18	10/24/2023	1,749,225	1,042,712	2	Brown/Gray	112.8	17.3	P	P	
19	10/24/2023	1,749,285	1,042,735	2	Brown/Gray	108.3	18.5	P	P	
20	10/24/2023	1,749,287	1,042,828	2	Brown/Gray	111.5	16.2	P	P	
21	10/24/2023	1,749,080	1,042,130	3	Brown/Gray	114.1	15.2	P	P	
22	10/24/2023	1,749,125	1,042,450	3	Brown/Gray	115.4	16.0	P	P	
23	10/24/2023	1,749,120	1,042,330	3	Brown/Gray	113.6	16.9	P	P	
24	10/24/2023	1,749,150	1,042,478	3	Brown/Gray	105.7	18.5	P	P	
25	10/24/2023	1,749,295	1,042,720	3	Brown/Gray	108.5	18.7	P	P	
26	10/24/2023	1,749,300	1,042,832	3	Brown/Gray	107.2	17.8	P	P	
27	10/24/2023	1,749,063	1,042,125	4	Brown/Gray	112.6	14.9	P	P	
28	10/24/2023	1,749,115	1,042,375	4	Brown/Gray	111.2	18.1	P	P	
29	10/25/2023	1,749,130	1,042,830	4	Brown/Gray	103.3	21.2	P	P	
30	10/25/2023	1,749,280	1,042,820	4	Brown/Gray	105.9	18.7	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
31	10/25/2023	1,749,295	1,042,745	4	Brown/Gray	113.4	15.0	P	P	
32	10/25/2023	1,749,120	1,042,705	4	Brown/Gray	108.6	17.3	P	P	
33	10/25/2023	1,749,050	1,042,155	5	Brown/Gray	116.8	15.3	P	P	
34	10/25/2023	1,749,135	1,042,550	5	Brown/Gray	116.7	14.6	P	P	
35	10/25/2023	1,749,125	1,042,835	5	Brown/Gray	117.7	14.2	P	P	
36	10/25/2023	1,749,160	1,042,750	5	Brown/Gray	104.0	20.8	P	P	
37	10/25/2023	1,749,295	1,042,805	5	Brown/Gray	110.3	16.8	P	P	
38	10/25/2023	1,749,275	1,042,730	5	Brown/Gray	111.9	16.3	P	P	
39	10/25/2023	1,749,070	1,042,150	6	Brown/Gray	115.1	15.3	P	P	
40	10/25/2023	1,749,105	1,042,550	6	Brown/Gray	115.7	16.0	P	P	ST-2-6A & B
41	10/25/2023	1,749,125	1,042,780	6	Brown/Gray	115.2	14.5	P	P	
42	10/25/2023	1,749,165	1,042,720	6	Brown/Gray	104.6	19.7	P	P	
43	10/25/2023	1,749,300	1,042,780	6	Brown/Gray	106.4	18.1	P	P	
44	10/25/2023	1,749,275	1,042,725	6	Brown/Gray	114.2	15.6	P	P	
45	11/2/2023	1,749,170	1,042,650	1	Brown/Gray	112.1	18.1	P	P	
46	11/2/2023	1,749,225	1,042,555	1	Brown/Gray	117.9	14.5	P	P	
47	11/2/2023	1,749,200	1,042,430	1	Brown/Gray	112.7	17.5	P	P	
48	11/2/2023	1,749,285	1,042,450	1	Brown/Gray	103.0	22.0	P	P	
49	11/2/2023	1,749,300	1,042,620	1	Brown/Gray	106.1	21.2	P	P	
50	11/2/2023	1,749,200	1,042,655	2	Brown/Gray	112.5	17.4	P	P	
51	11/2/2023	1,749,235	1,042,475	2	Brown/Gray	116.3	14.9	P	P	
52	11/2/2023	1,749,175	1,042,415	2	Brown/Gray	111.4	17.5	P	P	
53	11/2/2023	1,749,285	1,042,430	2	Brown/Gray	107.6	20.0	P	P	
54	11/2/2023	1,749,275	1,042,625	2	Brown/Gray	106.9	19.4	P	P	
55	11/2/2023	1,749,195	1,042,655	3	Brown/Gray	113.1	16.4	P	P	
56	11/2/2023	1,749,245	1,042,605	3	Brown/Gray	112.1	17.2	P	P	
57	11/2/2023	1,749,220	1,042,435	3	Brown/Gray	116.1	16.2	P	P	
58	11/2/2023	1,749,290	1,042,455	3	Brown/Gray	114.1	16.5	P	P	
59	11/2/2023	1,749,305	1,042,675	3	Brown/Gray	109.7	16.2	P	P	
60	11/2/2023	1,749,165	1,042,665	4	Brown/Gray	110.0	18.1	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
61	11/2/2023	1,749,200	1,042,440	4	Brown/Gray	105.2	18.5	P	P	
62	11/2/2023	1,749,265	1,042,520	4	Brown/Gray	113.4	16.5	P	P	
63	11/2/2023	1,749,295	1,042,470	4	Brown/Gray	107.6	19.5	P	P	
64	11/2/2023	1,749,275	1,042,625	4	Brown/Gray	110.4	15.8	P	P	
65	11/3/2023	1,749,163	1,042,625	5	Brown/Gray	113.4	18.8	P	P	
66	11/3/2023	1,749,235	1,042,675	5	Brown/Gray	109.8	18.1	P	P	
67	11/3/2023	1,749,155	1,042,415	5	Brown/Gray	114.5	16.3	P	P	
68	11/3/2023	1,749,295	1,042,480	5	Brown/Gray	112.3	17.1	P	P	
69	11/3/2023	1,749,275	1,042,615	5	Brown/Gray	113.4	15.7	P	P	
70	11/3/2023	1,749,170	1,042,650	6	Brown/Gray	112.3	14.9	P	P	
71	11/3/2023	1,749,295	1,042,625	6	Brown/Gray	104.3	20.6	P	P	
72	11/3/2023	1,749,275	1,042,525	6	Brown/Gray	107.4	19.4	P	P	
73	11/3/2023	1,749,290	1,042,427	6	Brown/Gray	109.8	17.5	P	P	
74	11/3/2023	1,749,205	1,042,470	6	Brown/Gray	116.4	14.9	P	P	
75	11/3/2023	1,749,280	1,042,880	1	Brown/Gray	111.1	17.3	P	P	
76	11/3/2023	1,749,177	1,042,875	1	Brown/Gray	109.8	17.6	P	P	
77	11/3/2023	1,749,070	1,042,815	1	Brown/Gray	106.5	19.5	P	P	
78	11/3/2023	1,749,270	1,042,875	2	Brown/Gray	104.5	18.9	P	P	
79	11/3/2023	1,749,220	1,042,870	2	Brown/Gray	104.1	21.7	P	P	
80	11/3/2023	1,749,070	1,042,815	2	Brown/Gray	105.9	18.9	P	P	
81	11/3/2023	1,749,280	1,042,860	3	Brown/Gray	106.2	19.4	P	P	
82	11/3/2023	1,749,180	1,042,880	3	Brown/Gray	112.7	16.0	P	P	
83	11/3/2023	1,749,090	1,042,780	3	Brown/Gray	107.6	17.4	P	P	
84	11/3/2023	1,749,275	1,042,870	4	Brown/Gray	113.0	15.5	P	P	
85	11/3/2023	1,749,160	1,042,880	4	Brown/Gray	106.9	20.8	P	P	
86	11/3/2023	1,749,075	1,042,835	4	Brown/Gray	105.3	20.9	P	P	
87	11/4/2023	1,749,115	1,042,100	1	Brown/Gray	104.6	20.9	P	P	
88	11/4/2023	1,749,110	1,042,000	1	Brown/Gray	106.4	21.6	P	P	
89	11/4/2023	1,749,100	1,041,885	1	Brown/Gray	109.4	20.4	P	P	
90	11/4/2023	1,749,105	1,042,125	2	Brown/Gray	104.9	21.2	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
91	11/4/2023	1,749,085	1,041,975	2	Brown/Gray	105.3	21.2	P	P	
92	11/4/2023	1,749,100	1,041,920	2	Brown/Gray	104.4	21.6	P	P	
93	11/4/2023	1,749,275	1,042,865	5	Brown/Gray	109.0	16.8	P	P	
94	11/4/2023	1,749,180	1,042,880	5	Brown/Gray	115.6	15.4	P	P	
95	11/4/2023	1,749,085	1,042,845	5	Brown/Gray	112.5	14.8	P	P	
96	11/4/2023	1,749,285	1,042,885	6	Brown/Gray	113.8	14.9	P	P	
97	11/4/2023	1,749,215	1,042,865	6	Brown/Gray	110.0	15.7	P	P	
98	11/4/2023	1,749,080	1,042,845	6	Brown/Gray	106.9	18.6	P	P	
99	11/4/2023	1,749,070	1,042,750	1	Brown/Gray	107.3	18.0	P	P	
100	11/4/2023	1,749,075	1,042,490	1	Brown/Gray	103.7	19.2	P	P	
101	11/4/2023	1,749,085	1,042,300	1	Brown/Gray	109.7	17.6	P	P	
102	11/4/2023	1,749,050	1,042,185	1	Brown/Gray	105.1	18.9	P	P	
103	11/4/2023	1,749,080	1,042,745	2	Brown/Gray	110.9	16.9	P	P	
104	11/4/2023	1,749,070	1,042,580	2	Brown/Gray	110.5	17.2	P	P	
105	11/4/2023	1,749,080	1,042,325	2	Brown/Gray	112.9	15.6	P	P	
106	11/4/2023	1,749,050	1,042,175	2	Brown/Gray	113.3	15.6	P	P	
107	11/4/2023	1,749,080	1,042,720	3	Brown/Gray	108.6	17.9	P	P	
108	11/4/2023	1,749,085	1,042,555	3	Brown/Gray	111.6	15.9	P	P	
109	11/4/2023	1,749,075	1,042,330	3	Brown/Gray	111.8	16.8	P	P	
110	11/4/2023	1,749,030	1,042,190	3	Brown/Gray	108.9	18.0	P	P	
111	11/6/2023	1,749,085	1,042,775	4	Brown/Gray	110.9	16.0	P	P	
112	11/6/2023	1,749,075	1,042,580	4	Brown/Gray	110.6	16.0	P	P	
113	11/6/2023	1,749,065	1,042,345	4	Brown/Gray	108.1	17.2	P	P	
114	11/6/2023	1,749,075	1,042,185	4	Brown/Gray	112.2	17.6	P	P	
115	11/6/2023	1,749,065	1,042,720	5	Brown/Gray	112.2	18.3	P	P	
116	11/6/2023	1,749,085	1,042,480	5	Brown/Gray	109.7	17.1	P	P	
117	11/6/2023	1,749,070	1,042,315	5	Brown/Gray	111.5	17.2	P	P	
118	11/6/2023	1,749,045	1,042,180	5	Brown/Gray	112.5	15.5	P	P	ST-3-5A & B
119	11/6/2023	1,749,075	1,042,700	6	Brown/Gray	113.2	14.7	P	P	
120	11/6/2023	1,749,080	1,042,520	6	Brown/Gray	113.0	16.4	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
121	11/6/2023	1,749,090	1,042,350	6	Brown/Gray	116.4	14.6	P	P	
122	11/6/2023	1,749,035	1,042,185	6	Brown/Gray	111.9	15.7	P	P	
123	11/7/2023	1,749,235	1,042,375	1	Brown/Gray	113.1	17.3	P	P	
124	11/7/2023	1,749,155	1,042,360	1	Brown/Gray	114.2	14.5	P	P	
125	11/7/2023	1,749,220	1,042,250	1	Brown/Gray	117.8	14.8	P	P	
126	11/7/2023	1,749,150	1,042,170	1	Brown/Gray	115.3	14.9	P	P	
127	11/7/2023	1,749,235	1,042,135	1	Brown/Gray	109.2	19.1	P	P	
128	11/7/2023	1,749,170	1,042,085	1	Brown/Gray	115.1	15.1	P	P	
129	11/7/2023	1,749,140	1,041,925	1	Brown/Gray	116.0	16.3	P	P	
130	11/7/2023	1,749,215	1,041,900	1	Brown/Gray	115.3	14.8	P	P	
131	11/7/2023	1,749,180	1,042,375	2	Brown/Gray	111.2	16.6	P	P	
132	11/7/2023	1,749,245	1,042,350	2	Brown/Gray	112.0	15.0	P	P	
133	11/7/2023	1,749,200	1,042,255	2	Brown/Gray	115.0	15.8	P	P	
134	11/7/2023	1,749,230	1,042,170	2	Brown/Gray	114.0	14.9	P	P	
135	11/7/2023	1,749,165	1,042,130	2	Brown/Gray	112.7	17.7	P	P	
136	11/7/2023	1,749,225	1,042,020	2	Brown/Gray	117.8	14.5	P	P	
137	11/7/2023	1,749,175	1,041,925	2	Brown/Gray	115.2	16.8	P	P	
138	11/7/2023	1,749,230	1,041,915	2	Brown/Gray	115.0	15.5	P	P	
139	11/7/2023	1,749,305	1,042,370	1	Brown/Gray	111.9	15.8	P	P	
140	11/7/2023	1,749,280	1,042,165	1	Brown/Gray	111.6	16.1	P	P	
141	11/7/2023	1,749,265	1,041,930	1	Brown/Gray	116.6	14.0	P	P	
142	11/7/2023	1,749,270	1,042,325	2	Brown/Gray	114.4	16.4	P	P	
143	11/7/2023	1,749,250	1,042,105	2	Brown/Gray	112.7	15.3	P	P	
144	11/7/2023	1,749,265	1,042,905	2	Brown/Gray	115.5	14.7	P	P	
145	11/7/2023	1,749,110	1,042,105	1	Brown/Gray	112.7	14.8	P	P	
146	11/7/2023	1,749,090	1,042,000	1	Brown/Gray	107.3	17.2	P	P	
147	11/7/2023	1,749,100	1,041,890	1	Brown/Gray	106.9	18.0	P	P	
148	11/7/2023	1,749,290	1,042,365	3	Brown/Gray	114.5	14.9	P	P	
149	11/7/2023	1,749,180	1,042,315	3	Brown/Gray	117.3	14.6	P	P	
150	11/7/2023	1,749,225	1,042,275	3	Brown/Gray	115.7	15.0	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
151	11/7/2023	1,749,275	1,042,165	3	Brown/Gray	111.4	17.1	P	P	
152	11/7/2023	1,749,165	1,042,160	3	Brown/Gray	109.2	18.1	P	P	
153	11/7/2023	1,749,265	1,042,050	3	Brown/Gray	115.2	15.2	P	P	
154	11/7/2023	1,749,190	1,042,075	3	Brown/Gray	108.2	17.2	P	P	
155	11/7/2023	1,749,115	1,042,020	3	Brown/Gray	116.4	16.2	P	P	
156	11/7/2023	1,749,100	1,041,890	3	Brown/Gray	114.1	18.2	P	P	
157	11/7/2023	1,749,175	1,041,925	3	Brown/Gray	113.6	17.4	P	P	
158	11/7/2023	1,749,250	1,041,900	3	Brown/Gray	108.1	16.7	P	P	
159	11/7/2023	1,749,275	1,042,375	4	Brown/Gray	117.2	15.1	P	P	
160	11/7/2023	1,749,180	1,042,330	4	Brown/Gray	109.3	17.1	P	P	
161	11/7/2023	1,749,225	1,042,235	4	Brown/Gray	110.3	17.5	P	P	
162	11/7/2023	1,749,275	1,042,175	4	Brown/Gray	117.7	14.4	P	P	
163	11/7/2023	1,749,165	1,042,180	4	Brown/Gray	116.8	16.5	P	P	
164	11/8/2023	1,749,270	1,042,115	4	Brown/Gray	114.8	15.0	P	P	
165	11/8/2023	1,749,225	1,042,060	4	Brown/Gray	115.0	15.3	P	P	
166	11/8/2023	1,749,270	1,041,925	4	Brown/Gray	117.9	14.7	P	P	
167	11/8/2023	1,749,215	1,041,950	4	Brown/Gray	114.1	15.2	P	P	ST-4-4A & B
168	11/8/2023	1,749,150	1,041,890	4	Brown/Gray	114.6	15.9	P	P	
169	11/8/2023	1,749,130	1,042,285	4	Brown/Gray	111.9	16.2	P	P	
170	11/8/2023	1,749,270	1,042,350	5	Brown/Gray	109.9	15.9	P	P	
171	11/8/2023	1,749,175	1,042,380	5	Brown/Gray	114.1	16.3	P	P	
172	11/8/2023	1,749,230	1,042,225	5	Brown/Gray	113.1	15.6	P	P	
173	11/8/2023	1,749,295	1,042,185	5	Brown/Gray	115.8	15.0	P	P	
174	11/8/2023	1,749,165	1,042,190	5	Brown/Gray	112.9	16.0	P	P	
175	11/8/2023	1,749,275	1,042,105	5	Brown/Gray	111.1	16.8	P	P	
176	11/8/2023	1,749,125	1,042,105	5	Brown/Gray	112.6	16.5	P	P	
177	11/8/2023	1,749,250	1,042,010	5	Brown/Gray	116.3	14.3	P	P	
178	11/8/2023	1,749,100	1,042,000	5	Brown/Gray	112.9	15.8	P	P	
179	11/8/2023	1,749,125	1,041,900	5	Brown/Gray	111.3	16.0	P	P	
180	11/8/2023	1,749,270	1,041,865	5	Brown/Gray	113.0	17.3	P	P	

Table 3
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Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
181	11/8/2023	1,749,265	1,042,370	6	Brown/Gray	108.1	18.6	P	P	
182	11/8/2023	1,749,165	1,042,315	6	Brown/Gray	112.1	18.4	P	P	
183	11/8/2023	1,749,230	1,042,280	6	Brown/Gray	107.3	18.0	P	P	
184	11/8/2023	1,749,290	1,042,190	6	Brown/Gray	111.2	15.5	P	P	
185	11/8/2023	1,749,155	1,042,170	6	Brown/Gray	111.1	15.8	P	P	
186	11/8/2023	1,749,265	1,042,060	6	Brown/Gray	109.3	17.5	P	P	
187	11/8/2023	1,749,260	1,041,970	6	Brown/Gray	115.7	14.6	P	P	
188	11/8/2023	1,749,235	1,041,885	6	Brown/Gray	116.4	17.7	P	P	
189	11/8/2023	1,749,195	1,041,965	6	Brown/Gray	111.5	16.6	P	P	
190	11/8/2023	1,749,130	1,041,900	6	Brown/Gray	115.2	15.0	P	P	
191	11/8/2023	1,749,150	1,042,050	6	Brown/Gray	114.0	16.7	P	P	
192	11/8/2023	1,749,070	1,042,090	2	Brown/Gray	108.5	16.4	P	P	
193	11/8/2023	1,749,065	1,042,015	2	Brown/Gray	108.5	17.0	P	P	
194	11/8/2023	1,749,050	1,041,975	2	Brown/Gray	109.5	16.3	P	P	
195	11/8/2023	1,749,065	1,041,875	2	Brown/Gray	110.6	16.0	P	P	
196	11/8/2023	1,749,205	1,041,785	1	Brown/Gray	110.5	17.0	P	P	
197	11/8/2023	1,749,100	1,041,810	1	Brown/Gray	116.5	15.0	P	P	
198	11/8/2023	1,749,050	1,041,735	1	Brown/Gray	116.1	14.6	P	P	
199	11/8/2023	1,749,210	1,041,835	2	Brown/Gray	107.5	18.1	P	P	
200	11/8/2023	1,749,145	1,041,795	2	Brown/Gray	110.4	17.7	P	P	
201	11/8/2023	1,749,045	1,041,750	2	Brown/Gray	106.0	19.1	P	P	
202	11/9/2023	1,749,050	1,042,095	3	Brown/Gray	108.8	16.7	P	P	
203	11/9/2023	1,749,025	1,042,050	3	Brown/Gray	110.3	16.8	P	P	
204	11/9/2023	1,749,030	1,041,995	3	Brown/Gray	113.2	15.3	P	P	
205	11/9/2023	1,749,025	1,041,895	3	Brown/Gray	110.9	17.4	P	P	
206	11/9/2023	1,749,210	1,041,800	3	Brown/Gray	113.4	17.3	P	P	
207	11/9/2023	1,749,115	1,041,790	3	Brown/Gray	112.0	17.5	P	P	
208	11/9/2023	1,749,045	1,041,745	3	Brown/Gray	116.6	15.5	P	P	
209	11/9/2023	1,749,075	1,042,055	4	Brown/Gray	113.3	14.5	P	P	
210	11/9/2023	1,749,035	1,042,005	4	Brown/Gray	107.8	18.3	P	P	

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2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
211	11/9/2023	1,749,075	1,041,950	4	Brown/Gray	109.1	17.4	P	P	
212	11/9/2023	1,749,085	1,041,875	4	Brown/Gray	115.9	15.0	P	P	
213	11/9/2023	1,748,975	1,041,700	1	Brown/Gray	110.1	16.3	P	P	
214	11/9/2023	1,748,955	1,041,715	2	Brown/Gray	113.4	14.4	P	P	
215	11/9/2023	1,749,025	1,042,090	5	Brown/Gray	113.6	16.8	P	P	
216	11/9/2023	1,749,080	1,042,030	5	Brown/Gray	114.0	16.7	P	P	
217	11/9/2023	1,749,060	1,041,950	5	Brown/Gray	110.1	17.7	P	P	
218	11/9/2023	1,749,050	1,041,865	5	Brown/Gray	109.4	17.4	P	P	
219	11/9/2023	1,749,045	1,042,095	6	Brown/Gray	110.8	18.2	P	P	
220	11/9/2023	1,749,050	1,042,010	6	Brown/Gray	110.1	17.2	P	P	
221	11/9/2023	1,749,080	1,041,955	6	Brown/Gray	110.9	18.2	P	P	
222	11/9/2023	1,749,045	1,041,900	6	Brown/Gray	111.2	17.0	P	P	
223	11/10/2023	1,748,975	1,041,725	3	Brown/Gray	117.6	14.5	P	P	
224	11/10/2023	1,748,920	1,041,685	3	Brown/Gray	116.1	15.3	P	P	
225	11/11/2023	1,749,185	1,041,775	4	Brown/Gray	106.8	17.1	P	P	
226	11/11/2023	1,749,115	1,041,825	4	Brown/Gray	112.3	15.5	P	P	
227	11/11/2023	1,749,070	1,041,755	4	Brown/Gray	114.2	14.8	P	P	
228	11/11/2023	1,748,935	1,041,700	4	Brown/Gray	109.1	16.5	P	P	
229	11/11/2023	1,748,875	1,041,675	1	Brown/Gray	108.4	16.8	P	P	
230	11/11/2023	1,748,835	1,041,595	1	Brown/Gray	112.0	15.0	P	P	
231	11/11/2023	1,748,880	1,041,500	1	Brown/Gray	115.1	14.4	P	P	
232	11/11/2023	1,748,770	1,041,510	1	Brown/Gray	116.3	15.1	P	P	
233	11/11/2023	1,748,715	1,041,535	1	Brown/Gray	113.2	15.6	P	P	
234	11/11/2023	1,748,615	1,041,475	1	Brown/Gray	110.2	16.2	P	P	
235	11/11/2023	1,748,750	1,041,590	2	Brown/Gray	108.2	17.7	P	P	
236	11/11/2023	1,748,860	1,041,675	2	Brown/Gray	113.9	15.5	P	P	
237	11/11/2023	1,748,875	1,041,480	2	Brown/Gray	112.6	17.6	P	P	
238	11/11/2023	1,748,820	1,041,575	2	Brown/Gray	115.4	14.6	P	P	
239	11/11/2023	1,748,790	1,041,500	2	Brown/Gray	106.9	17.1	P	P	
240	11/11/2023	1,748,740	1,041,590	2	Brown/Gray	108.1	17.8	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
241	11/11/2023	1,748,705	1,041,525	2	Brown/Gray	114.6	14.9	P	P	
242	11/11/2023	1,748,600	1,041,500	2	Brown/Gray	113.9	14.7	P	P	
243	11/11/2023	1,748,880	1,041,660	3	Brown/Gray	111.5	16.9	P	P	
244	11/11/2023	1,748,845	1,041,590	3	Brown/Gray	108.9	18.3	P	P	
245	11/11/2023	1,748,870	1,041,500	3	Brown/Gray	112.4	16.7	P	P	
246	11/11/2023	1,748,790	1,041,525	3	Brown/Gray	111.1	15.8	P	P	ST-5-3A & B
247	11/11/2023	1,748,755	1,041,600	3	Brown/Gray	111.4	17.3	P	P	
248	11/11/2023	1,748,725	1,041,505	3	Brown/Gray	108.9	16.5	P	P	
249	11/11/2023	1,748,645	1,041,525	3	Brown/Gray	111.3	17.6	P	P	
250	11/11/2023	1,749,200	1,041,780	5	Brown/Gray	117.2	14.8	P	P	
251	11/11/2023	1,749,125	1,041,830	5	Brown/Gray	111.7	16.2	P	P	
252	11/11/2023	1,749,070	1,041,765	5	Brown/Gray	111.0	16.5	P	P	
253	11/11/2023	1,748,980	1,041,715	5	Brown/Gray	111.6	16.4	P	P	
254	11/11/2023	1,748,870	1,041,635	4	Brown/Gray	112.7	17.0	P	P	
255	11/11/2023	1,748,855	1,041,480	4	Brown/Gray	112.3	17.3	P	P	
256	11/11/2023	1,748,815	1,041,545	4	Brown/Gray	111.7	16.2	P	P	
257	11/11/2023	1,748,740	1,041,600	4	Brown/Gray	109.5	18.2	P	P	
258	11/11/2023	1,748,715	1,041,475	4	Brown/Gray	111.8	16.8	P	P	
259	11/11/2023	1,748,660	1,041,515	4	Brown/Gray	113.2	15.6	P	P	
260	11/11/2023	1,748,605	1,041,500	4	Brown/Gray	111.3	17.6	P	P	
261	11/11/2023	1,748,845	1,041,665	5	Brown/Gray	115.0	15.1	P	P	
262	11/11/2023	1,748,830	1,041,555	5	Brown/Gray	113.5	16.0	P	P	
263	11/11/2023	1,748,875	1,041,510	5	Brown/Gray	115.0	14.4	P	P	
264	11/11/2023	1,748,780	1,041,475	5	Brown/Gray	112.4	15.8	P	P	
265	11/11/2023	1,748,735	1,041,570	5	Brown/Gray	113.1	15.2	P	P	
266	11/11/2023	1,748,655	1,041,530	5	Brown/Gray	114.3	15.7	P	P	
267	11/11/2023	1,748,615	1,041,500	5	Brown/Gray	111.9	15.5	P	P	
268	11/11/2023	1,749,185	1,041,830	6	Brown/Gray	111.0	15.8	P	P	
269	11/11/2023	1,749,200	1,041,775	6	Brown/Gray	115.1	14.3	P	P	
270	11/11/2023	1,749,190	1,041,795	6	Brown/Gray	109.8	17.8	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
271	11/11/2023	1,749,000	1,041,725	6	Brown/Gray	108.4	17.7	P	P	
272	11/13/2023	1,748,810	1,041,630	6	Brown/Gray	108.7	16.5	P	P	
273	11/13/2023	1,748,840	1,041,540	6	Brown/Gray	106.9	18.3	P	P	
274	11/13/2023	1,748,770	1,041,490	6	Brown/Gray	108.5	19.1	P	P	
275	11/13/2023	1,748,730	1,041,550	6	Brown/Gray	111.6	15.8	P	P	
276	11/13/2023	1,748,700	1,041,490	6	Brown/Gray	114.4	15.8	P	P	
277	11/13/2023	1,748,870	1,041,520	6	Brown/Gray	105.5	18.9	P	P	
278	11/13/2023	1,748,630	1,041,470	6	Brown/Gray	106.1	18.4	P	P	
279	11/13/2023	1,749,040	1,041,810	1	Brown/Gray	110.4	16.2	P	P	
280	11/13/2023	1,748,970	1,041,770	1	Brown/Gray	103.0	20.6	P	P	
281	11/13/2023	1,748,970	1,041,880	2	Brown/Gray	114.1	14.4	P	P	
282	11/13/2023	1,749,040	1,041,790	2	Brown/Gray	111.8	15.8	P	P	ST-6-2A & B
283	11/13/2023	1,748,840	1,041,720	1	Brown/Gray	111.3	17.1	P	P	
284	11/13/2023	1,748,720	1,041,680	1	Brown/Gray	111.5	16.2	P	P	
285	11/13/2023	1,748,640	1,041,580	1	Brown/Gray	103.6	20.4	P	P	
286	11/13/2023	1,748,530	1,041,510	1	Brown/Gray	106.0	18.7	P	P	
287	11/13/2023	1,748,830	1,041,730	2	Brown/Gray	110.3	16.4	P	P	
288	11/13/2023	1,748,760	1,041,690	2	Brown/Gray	111.3	15.4	P	P	
289	11/13/2023	1,748,660	1,041,590	2	Brown/Gray	111.2	15.9	P	P	
290	11/13/2023	1,748,530	1,041,500	2	Brown/Gray	112.6	18.7	P	P	
291	11/14/2023	1,749,020	1,041,810	3	Brown/Gray	108.7	17.2	P	P	
292	11/14/2023	1,748,940	1,041,740	3	Brown/Gray	105.1	21.0	P	P	
293	11/14/2023	1,748,830	1,041,730	3	Brown/Gray	104.9	18.7	P	P	
294	11/14/2023	1,748,740	1,041,640	3	Brown/Gray	113.0	15.4	P	P	
295	11/14/2023	1,748,630	1,041,580	3	Brown/Gray	112.3	15.9	P	P	
296	11/14/2023	1,748,580	1,041,550	3	Brown/Gray	109.6	16.5	P	P	
297	11/14/2023	1,749,010	1,041,820	4	Brown/Gray	113.1	15.0	P	P	
298	11/14/2023	1,748,960	1,041,740	4	Brown/Gray	109.7	16.9	P	P	
299	11/14/2023	1,748,810	1,041,720	4	Brown/Gray	110.1	16.2	P	P	
300	11/14/2023	1,748,750	1,041,650	4	Brown/Gray	109.6	16.1	P	P	

Table 3
Summary of Nuclear Gauge In-Situ Density Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Test No.	Date	In-situ Test Location			Material Type	Test Results		Pass (P) Fail (F)		Remarks
		North (Feet)	East (Feet)	Lift		Dry Density (pcf)	Water Content (%)	Dry Density	Water Content	
301	11/14/2023	1,748,670	1,041,600	4	Brown/Gray	112.9	15.8	P	P	
302	11/14/2023	1,748,550	1,041,530	4	Brown/Gray	106.8	18.4	P	P	
303	11/14/2023	1,749,010	1,041,810	5	Brown/Gray	105.0	19.7	P	P	
304	11/14/2023	1,748,960	1,041,760	5	Brown/Gray	108.6	17.4	P	P	
305	11/14/2023	1,748,860	1,041,750	5	Brown/Gray	107.9	16.9	P	P	
306	11/14/2023	1,748,790	1,041,670	5	Brown/Gray	104.2	20.1	P	P	
307	11/14/2023	1,748,660	1,041,630	5	Brown/Gray	109.9	17.6	P	P	
308	11/14/2023	1,748,570	1,041,510	5	Brown/Gray	105.4	19.2	P	P	
309	11/15/2023	1,749,010	1,041,820	6	Brown/Gray	111.5	16.3	P	P	
310	11/15/2023	1,748,980	1,041,760	6	Brown/Gray	112.8	15.5	P	P	
311	11/15/2023	1,748,830	1,041,720	6	Brown/Gray	112.2	16.1	P	P	
312	11/15/2023	1,748,770	1,041,660	6	Brown/Gray	105.9	20.6	P	P	
313	11/15/2023	1,748,660	1,041,580	6	Brown/Gray	111.4	18.0	P	P	
314	11/15/2023	1,748,540	1,041,500	6	Brown/Gray	106.8	19.9	P	P	

TABLE 4

Summary of Soil Laboratory Testing Results – Compacted Clay Liner

Table 4
Summary of Soil Laboratory Testing Results
Compacted Clay Liner Testing Results
2023 Cell Construction
Laraway RDF

Sample No.	Moisture/Density Relationship		Hydraulic Conductivity (cm/sec)
	Maximum Dry Density (pcf)	Optimum Moisture (%)	
Construction Samples			
Clay-1	107.3	18.2	-
Clay-2	112.1	16.7	-
Clay-3	106.5	17.5	-
Clay-4	110.5	16.0	-
Clay-5	110.3	16.8	-
ST-1-1A	-	-	6.97E-09
ST-2-3A	-	-	6.62E-09
ST-3-6A	-	-	6.09E-09
ST-4-4A	-	-	5.99E-09
ST-5-2B	-	-	6.43E-09
ST-6-5A	-	-	6.64E-09
Minimum	106.5	16.0	5.99E-09
Maximum	112.1	18.2	6.97E-09
Average	109.3	17.0	6.46E-09

TABLE 5

Drainage Layer Record Survey Data

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,749,300.00	1,042,888.06	616.02	617.24	1.22	MID SLOPE
1,749,300.00	1,042,868.70	609.69	611.05	1.36	TOE OF SLOPE
1,749,275.64	1,042,869.74	609.53	610.78	1.26	TOE OF SLOPE
1,749,276.44	1,042,889.45	616.09	617.10	1.01	MID SLOPE
1,749,269.17	1,042,869.85	609.49	610.59	1.10	TOE OF SLOPE
1,749,200.00	1,042,872.76	609.89	611.05	1.16	TOE OF SLOPE
1,749,200.00	1,042,891.51	616.10	617.32	1.22	MID SLOPE
1,749,099.92	1,042,894.19	616.13	617.16	1.03	MID SLOPE
1,749,100.00	1,042,876.99	610.49	611.72	1.22	TOE OF SLOPE - GRID
1,749,096.15	1,042,877.15	610.38	612.12	1.74	TOE OF SLOPE CORNER
1,749,085.45	1,042,888.92	616.04	617.15	1.11	MID SLOPE
1,749,078.96	1,042,874.41	616.13	617.22	1.09	MID SLOPE
1,749,300.00	1,042,800.00	608.89	609.94	1.04	FLOOR
1,749,269.20	1,042,800.00	608.89	609.90	1.01	FLOOR
1,749,200.00	1,042,800.00	609.06	610.23	1.18	FLOOR
1,749,100.00	1,042,800.00	609.49	610.75	1.26	FLOOR
1,749,096.06	1,042,800.00	609.61	610.93	1.32	TOE OF SLOPE
1,749,082.59	1,042,800.00	614.07	615.18	1.12	MID SLOPE
1,749,079.41	1,042,700.00	614.14	615.18	1.04	MID SLOPE
1,749,095.95	1,042,700.00	608.62	609.71	1.09	TOE OF SLOPE
1,749,100.00	1,042,700.00	608.51	609.71	1.20	FLOOR
1,749,200.00	1,042,700.00	608.24	609.33	1.08	FLOOR
1,749,269.23	1,042,700.00	607.75	608.84	1.09	FLOOR
1,749,300.00	1,042,700.00	607.91	609.07	1.16	FLOOR
1,749,300.00	1,042,600.00	606.93	607.93	1.00	FLOOR
1,749,269.27	1,042,600.00	606.87	607.89	1.01	FLOOR - BREAK
1,749,200.00	1,042,600.00	607.10	608.13	1.02	FLOOR
1,749,100.00	1,042,600.00	607.48	608.57	1.09	FLOOR
1,749,095.85	1,042,600.00	607.59	608.87	1.28	TOE OF SLOPE

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,749,076.23	1,042,600.00	614.02	615.13	1.11	MID SLOPE
1,749,073.05	1,042,500.00	614.03	615.07	1.04	MID SLOPE
1,749,095.74	1,042,500.00	606.68	607.92	1.25	TOE OF SLOPE
1,749,100.00	1,042,500.00	606.58	607.70	1.12	FLOOR
1,749,200.00	1,042,500.00	606.12	607.17	1.05	FLOOR
1,749,269.30	1,042,500.00	605.65	606.94	1.29	FLOOR
1,749,292.23	1,042,500.00	605.77	606.85	1.07	GRADE BREAK
1,749,300.00	1,042,500.00	605.80	606.89	1.09	FLOOR
1,749,300.00	1,042,529.70	606.10	607.19	1.09	FLOOR - BREAK
1,749,269.05	1,042,412.11	604.82	605.96	1.15	GRADE BREAK
1,749,200.00	1,042,414.21	605.17	608.09	2.92	FLOOR - BREAK
1,749,100.00	1,042,417.24	605.66	608.23	2.57	FLOOR - BREAK
1,749,095.65	1,042,417.37	605.82	608.41	2.58	TOE OF SLOPE
1,749,063.88	1,042,400.00	616.21	617.34	1.14	MID SLOPE
1,749,094.70	1,042,400.00	606.03	607.04	1.01	TOE OF SLOPE
1,749,100.00	1,042,400.00	605.83	607.02	1.19	FLOOR - BREAK
1,749,200.00	1,042,400.00	605.30	606.36	1.07	FLOOR - BREAK
1,749,268.42	1,042,400.00	604.99	606.02	1.03	FLOOR - BREAK
1,749,300.00	1,042,300.00	605.42	606.56	1.14	FLOOR
1,749,261.38	1,042,300.00	605.69	606.83	1.14	FLOOR - BREAK
1,749,200.00	1,042,300.00	606.04	607.06	1.02	FLOOR
1,749,100.00	1,042,300.00	606.46	607.72	1.26	FLOOR
1,749,089.26	1,042,300.00	606.61	607.69	1.08	TOE OF SLOPE
1,749,060.61	1,042,300.00	616.05	617.17	1.12	MID SLOPE
1,749,057.28	1,042,200.00	616.16	617.22	1.06	MID SLOPE
1,749,083.81	1,042,200.00	607.34	608.55	1.21	TOE OF SLOPE
1,749,100.00	1,042,200.00	607.23	608.39	1.16	FLOOR
1,749,200.00	1,042,200.00	606.71	607.74	1.03	FLOOR
1,749,254.34	1,042,200.00	606.35	607.43	1.08	FLOOR - BREAK

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,749,247.30	1,042,100.00	607.14	608.19	1.04	FLOOR - BREAK
1,749,200.00	1,042,100.00	607.42	608.46	1.04	FLOOR
1,749,100.00	1,042,100.00	607.82	609.10	1.28	FLOOR
1,749,078.36	1,042,100.00	608.13	609.30	1.17	TOE OF SLOPE
1,749,053.95	1,042,100.00	616.04	617.05	1.01	MID SLOPE
1,749,050.66	1,042,000.00	616.14	617.14	1.00	MID SLOPE
1,749,072.92	1,042,000.00	608.83	610.01	1.18	TOE OF SLOPE
1,749,100.00	1,042,000.00	608.65	609.67	1.02	FLOOR
1,749,200.00	1,042,000.00	608.01	609.08	1.07	FLOOR
1,749,240.26	1,042,000.00	607.83	608.90	1.08	FLOOR - BREAK
1,749,233.22	1,041,900.00	608.54	609.65	1.12	FLOOR
1,749,200.00	1,041,900.00	608.77	609.79	1.02	FLOOR
1,749,100.00	1,041,900.00	609.22	610.35	1.12	FLOOR
1,749,067.47	1,041,900.00	609.64	610.68	1.04	TOE OF SLOPE
1,749,047.37	1,041,900.00	616.08	617.10	1.02	MID SLOPE
1,749,046.14	1,041,865.65	616.11	617.19	1.08	MID SLOPE
1,749,065.57	1,041,865.04	609.69	610.95	1.26	TOE OF SLOPE - CELL TRANSITION - CREST
1,749,100.00	1,041,863.97	609.53	610.59	1.06	CREST OF SLOPE
1,749,200.00	1,041,860.83	609.11	610.23	1.12	CREST OF SLOPE
1,749,230.39	1,041,859.88	608.64	609.70	1.05	CELL TRANSITION - CREST AND BREAK
1,749,200.00	1,041,854.20	606.87	608.02	1.14	CELL TRANSITION - TOE
1,749,100.00	1,041,858.11	607.55	608.69	1.14	CELL TRANSITION - TOE
1,749,070.92	1,041,859.25	607.73	609.77	2.04	TOE OF SLOPE - CELL TRANSITION - TOE
1,749,070.35	1,041,844.84	607.71	609.32	1.61	TOE OF SLOPE
1,749,045.32	1,041,849.14	616.05	617.13	1.08	MID SLOPE
1,749,028.10	1,041,801.73	616.12	617.20	1.08	MID SLOPE
1,749,057.70	1,041,800.00	607.19	608.46	1.26	TOE OF SLOPE
1,749,050.95	1,041,787.86	607.22	608.44	1.22	TOE OF SLOPE
1,749,100.00	1,041,800.00	606.94	608.07	1.13	FLOOR

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,749,200.00	1,041,800.00	606.18	607.34	1.16	FLOOR
1,749,000.00	1,041,700.00	606.57	607.65	1.07	FLOOR
1,748,981.36	1,041,733.05	607.24	608.39	1.14	TOE OF SLOPE
1,748,973.07	1,041,758.65	616.15	617.20	1.06	MID SLOPE
1,748,891.13	1,041,739.57	618.08	619.14	1.06	MID SLOPE
1,748,900.56	1,041,709.09	607.44	608.71	1.27	TOE OF SLOPE
1,748,900.00	1,041,700.00	607.35	608.48	1.13	FLOOR
1,748,873.58	1,041,700.99	607.49	609.46	1.98	TOE OF SLOPE
1,748,871.13	1,041,700.00	607.75	609.12	1.37	TOE OF SLOPE
1,748,862.51	1,041,730.57	618.11	619.21	1.10	MID SLOPE
1,748,841.19	1,041,719.70	618.08	619.11	1.03	MID SLOPE
1,748,858.79	1,041,693.58	607.70	609.10	1.40	TOE OF SLOPE
1,748,826.55	1,041,669.88	607.76	609.73	1.97	TOE OF SLOPE
1,748,823.70	1,041,667.91	607.80	609.52	1.73	TOE OF SLOPE
1,748,804.86	1,041,693.01	618.15	619.26	1.12	MID SLOPE
1,748,724.47	1,041,633.95	618.05	619.10	1.05	MID SLOPE
1,748,740.95	1,041,611.59	608.89	610.10	1.21	TOE OF SLOPE
1,748,800.00	1,041,600.00	608.52	609.57	1.05	FLOOR
1,748,723.93	1,041,600.00	609.01	610.37	1.37	TOE OF SLOPE
1,748,658.23	1,041,555.28	610.04	611.58	1.55	TOE OF SLOPE
1,748,640.32	1,041,579.58	620.08	621.25	1.17	MID SLOPE
1,748,559.73	1,041,520.37	620.01	621.18	1.17	MID SLOPE
1,748,575.51	1,041,498.96	611.19	612.92	1.74	TOE OF SLOPE
1,748,577.03	1,041,500.00	611.18	612.90	1.72	TOE OF SLOPE
1,748,600.00	1,041,500.00	610.94	612.07	1.13	FLOOR
1,748,700.00	1,041,500.00	610.28	611.36	1.09	FLOOR
1,748,800.00	1,041,500.00	609.42	610.64	1.22	FLOOR
1,748,529.67	1,041,481.94	-	616.79	1.2 (1)	BERM TOE
1,748,548.05	1,041,486.71	-	614.87	1.2 (1)	BERM TOE

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	GRID COORDINATES EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,748,585.92	1,041,486.42	-	612.19	1.0 (1)	BERM TOE
1,748,639.62	1,041,485.86	-	611.92	1.0 (1)	BERM TOE
1,748,707.92	1,041,487.02	-	611.40	1.0 (1)	BERM TOE
1,748,762.37	1,041,482.08	-	611.22	1.0 (1)	BERM TOE
1,748,817.94	1,041,479.83	-	610.52	1.0 (1)	BERM TOE
1,748,867.17	1,041,479.38	-	610.13	1.0 (1)	BERM TOE
1,748,898.01	1,041,478.83	-	609.99	1.2 (1)	BERM TOE
1,748,892.61	1,041,531.70	-	609.51	1.2 (1)	BERM TOE
1,748,888.11	1,041,585.60	-	609.09	1.2 (1)	BERM TOE
1,748,887.88	1,041,637.09	-	608.58	1.1 (1)	BERM TOE
1,748,888.66	1,041,660.14	-	608.33	1.0 (1)	BERM TOE
1,748,547.99	1,041,537.35	-	628.22	1.2 (1)	BERM CREST
1,748,631.89	1,041,598.45	-	628.26	1.2 (1)	BERM CREST
1,748,710.46	1,041,654.08	-	627.68	1.2 (1)	BERM CREST
1,748,855.72	1,041,751.14	-	626.15	1.2 (1)	BERM CREST
1,748,884.76	1,041,759.32	-	626.33	1.2 (1)	BERM CREST
1,748,967.22	1,041,782.06	-	624.96	1.2 (1)	BERM CREST
1,749,004.97	1,041,812.92	-	625.50	1.2 (1)	BERM CREST
1,749,020.56	1,041,852.42	-	625.07	1.2 (1)	BERM CREST
1,749,021.32	1,041,866.31	-	625.36	1.2 (1)	BERM CREST
1,749,023.77	1,041,899.79	-	625.00	1.2 (1)	BERM CREST
1,749,028.10	1,041,998.40	-	624.33	1.2 (1)	BERM CREST
1,749,032.04	1,042,100.84	-	624.49	1.2 (1)	BERM CREST
1,749,035.63	1,042,200.79	-	624.30	1.2 (1)	BERM CREST
1,749,040.45	1,042,300.02	-	623.56	1.2 (1)	BERM CREST
1,749,044.35	1,042,399.62	-	623.46	1.2 (1)	BERM CREST

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,748,832.77	1,041,666.56	-	608.65	1.0 (1)	BERM TOE
1,748,849.56	1,041,679.83	-	608.71	1.0 (1)	BERM TOE
1,748,867.76	1,041,677.34	-	608.49	1.0 (1)	BERM TOE
1,748,921.65	1,041,679.44	-	608.32	1.0 (1)	BERM TOE
1,748,995.84	1,041,694.01	-	607.78	1.0 (1)	BERM TOE
1,749,061.67	1,041,713.97	-	607.38	1.0 (1)	BERM TOE
1,749,119.94	1,041,730.75	-	607.16	1.0 (1)	BERM TOE
1,749,178.80	1,041,749.94	-	606.99	1.0 (1)	BERM TOE
1,749,229.72	1,041,763.87	-	606.64	1.0 (1)	BERM TOE
1,749,266.30	1,041,776.64	-	606.80	1.0 (1)	BERM TOE
1,749,270.70	1,041,827.55	-	607.39	1.0 (1)	BERM TOE
1,749,273.09	1,041,850.03	-	607.59	1.0 (1)	BERM TOE
1,749,273.22	1,041,857.70	-	608.95	1.0 (1)	BERM TOE
1,749,276.93	1,041,897.42	-	609.27	1.0 (1)	BERM TOE
1,749,282.82	1,041,949.82	-	608.70	1.0 (1)	BERM TOE
1,749,286.28	1,041,997.99	-	608.59	1.0 (1)	BERM TOE
1,749,290.77	1,042,044.51	-	607.74	1.0 (1)	BERM TOE
1,749,294.76	1,042,088.84	-	607.46	1.0 (1)	BERM TOE
1,749,296.97	1,042,136.77	-	607.37	1.0 (1)	BERM TOE
1,749,298.23	1,042,183.05	-	607.10	1.0 (1)	BERM TOE
1,749,302.09	1,042,235.07	-	606.83	1.0 (1)	BERM TOE
1,749,306.53	1,042,286.30	-	606.43	1.0 (1)	BERM TOE
1,749,307.51	1,042,335.69	-	606.02	1.0 (1)	BERM TOE
1,749,312.39	1,042,408.69	-	605.63	1.0 (1)	BERM TOE
1,749,266.19	1,042,412.28	-	606.09	1.0 (1)	BERM TOE
1,749,263.65	1,042,402.04	-	605.97	1.0 (1)	BERM TOE

Table 5
Drainage Layer Record Survey Data
Drainage Layer Thickness Table
2023 Cell Construction
Laraway RDF

GRID COORDINATES NORTHING	EASTING	RECORD CLAY ELEVATION	RECORD DRAINAGE LAYER ELEVATION	RECORD THICKNESS (FT)	DESCRIPTION
1,749,200.22	1,042,409.26	-	606.37	1.0 (1)	BERM TOE
1,749,200.76	1,042,418.35	-	606.24	1.0 (1)	BERM TOE
1,749,122.63	1,042,421.51	-	606.68	1.0 (1)	BERM TOE
1,749,122.64	1,042,412.68	-	606.62	1.0 (1)	BERM TOE
1,749,096.28	1,042,410.73	-	607.04	1.0 (1)	BERM TOE
1,749,095.01	1,042,424.94	-	607.67	1.0 (1)	BERM TOE
1,749,334.38	1,042,878.04	-	615.43	1.0 (1)	BERM TOE
1,749,331.66	1,042,873.39	-	613.55	1.0 (1)	BERM TOE
1,749,329.61	1,042,868.74	-	611.82	1.0 (1)	BERM TOE
1,749,326.18	1,042,857.23	-	610.84	1.0 (1)	BERM TOE
1,749,312.00	1,042,408.48	-	605.83	1.0 (1)	BERM TOE
1,749,316.89	1,042,462.25	-	606.35	1.0 (1)	BERM TOE
1,749,318.20	1,042,509.55	-	607.08	1.0 (1)	BERM TOE
1,749,320.06	1,042,563.66	-	607.55	1.0 (1)	BERM TOE
1,749,320.83	1,042,616.78	-	608.17	1.0 (1)	BERM TOE
1,749,320.37	1,042,669.66	-	608.72	1.0 (1)	BERM TOE
1,749,323.75	1,042,719.46	-	609.22	1.0 (1)	BERM TOE
1,749,324.79	1,042,767.74	-	609.71	1.0 (1)	BERM TOE
1,749,324.82	1,042,811.81	-	610.18	1.0 (1)	BERM TOE

Note:
1. Thickness measurements were made perpendicular to the liner in the field. The recorded values indicate that the minimum thickness was achieved. Locations and elevations were recorded by surveyor.

TABLE 6

Summary of Drainage Layer Laboratory Testing Results

Table 6
Summary of Drainage Layer Laboratory Testing Results
Leachate Collection System
2023 Cell Construction
Laraway RDF

Sample No.	Grain Size Distribution			Hydraulic Conductivity (cm/sec)
	Gravel (%)	Sand (%)	Silt and Clay (%)	
Granular Drainage Layer				
Pre-Construction Samples				
PC-DL-1	95.7	3.4	0.9	5.06E+01
Construction Samples				
DL-1	98.4	0.8	0.8	2.07E+01
DL-2	96.5	3.0	0.5	-
DL-3	92.7	6.5	0.8	2.62E+01
DL-4	98.7	1.0	0.3	-
DL-5	99.1	0.6	0.3	-
Minimum	92.7	0.6	0.3	2.07E+01
Maximum	99.1	6.5	0.8	2.62E+01
Average*	97.1	2.4	0.5	2.35E+01
Course Aggregate Surrounding Leachate Colelction Pipe				
Pre-Construction Samples				
PC-AG	97.0	1.8	1.2	2.67E+01
Construction Samples				
AG-1	98.5	0.8	0.7	2.28E+01
Minimum	98.5	0.8	0.7	2.28E+01
Maximum	98.5	0.8	0.7	2.28E+01
Average*	98.5	0.8	0.7	2.28E+01

***Note: Average values do not include pre-construction sample values.**

Figures

SEE LARGE FORMAT MAP OR PLAN SHEET

DOCUMENT DESCRIPTION:

Tie #:	
Document ID #:	**3781059**
Site #:	**1970450002**
Site Name:	**Laraway RDF**
Cat #:	**24A**
Document Date:	**07/29/2024**
Permit #:	**ILD074411745**
Log #:	**B-141R-M-167**
Keyword:	
Comment:	**RCRA Permit Volume 2 of 2**

	Type or Description of Plan/Drawing	SEE COLOR	Date of Plan	Figure/ Diagram
1.	Top of Subgrade Record Drawing	YES	11/21/2023	Figure 1
2.	Top of Clay Layer Record Drawing	YES	11/27/2023	Figure 2
3.	Geomembrane Panel Layout	YES	11/21/2023	Figure 3
4.	Top of Drainage Layer Record Drawing	YES	12/21/2023	Figure 4
5.	Surface Water Management Record Drawing	YES	01/10/2024	Figure 5
6.	Liner and Leachate Collection System Construction Details	YES	01/10/2024	Figure 6
7.				
8.				
9.				

IL 532-2702
LPC 602 5/2008

APPENDIX A

Daily Reports

Weaver Consultants Group **Day/Date:** Tuesday 10/17/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0700
Departure: WCG leaves 1600

Visitors/Affiliations: Robert Schumann (WCG Certifying Engineer)

Summary of Work Performed:
Curran is not able to place the low permeable clay liner on the cell floor, and slope of the Phase 9C, and 10B project area due to wet conditions.

Curran continued placing and compacting structural fill on the South slope, south of Phases 9C and 10B. Curran was placing from the east and worked to the west on the south slope from approximately E1,041,850 to E1,042,300. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

The same soil stockpile being used for the structural fill placement will be used for the low permeable soil liner placement. WCG performed some moisture/density tests on the structural fill placement using the nuclear density gauge for reference and to check the existing moisture content from the stockpile material. The tests generally had a moisture content of approximately 14% and a dry density of approximately 117 pcf, which would fall within the previously established acceptable zone limits for the low permeable soil liner material. WCG also collected a soil sample (Clay-1) which Robert Schumann brought back to the office for shipping to the lab for testing.

At the end of the day, Curran back dragged the certified subgrade area in Phase 9C with a Caterpillar D6 dozer to help dry the subgrade.

Photos were taken for documentation.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 10/17/2023

Daily Field Report

Equipment used
One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 10/18/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	40s F, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1700

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting structural fill on the South slope, south of Phases 9C and 10B. Curran was placing from the east and worked to the west on the south slope from approximately E 1,041,850 to E 1,042,300. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

The subgrade certification points on the floor and slope in Phase 9C from E 1,042,500 to the east have been previously surveyed by the WCG surveyor and the elevations are at or below the design subgrade elevation.

Curran conducted a proof roll on the certified subgrade floor with an empty off-road haul truck. No pumping of material was observed during the proof roll.

Curran started placing and compacting Lift 1 of the low permeable clay liner on the certified section of subgrade floor in Phase 9C going from South to North. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using one (1) sheepsfoot compactor to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 10/18/2023

Daily Field Report

Curran placed and compacted Lift One (1) from the toe of the South slope to the North tie-in to the existing low permeable soil liner, between the toe of the East slope to approximately E 1,042,700. Additionally, Curran placed and compacted Lift One (1) from the toe of the South slope to approximately N 1,749,150, between approximately E 1,042,500 and E 1,042,700. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected a Shelby Tube (ST-1-1A and B) from the low permeable soil liner placement and sent it to the lab for testing.

Photos were taken for documentation.

Equipment used
One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 10/19/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	40s F, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 0830

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran did not place the low permeable clay liner in the project area due to wet conditions on the cell floor.

Curran continued placing and compacting structural fill on the South slope, south of Phases 9C and 10B. Curran was placing from the east and worked to the west on the south slope from approximately E 1,041,850 to E 1,042,300. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

Photos were taken for documentation.

Equipment used
One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 10/20/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	40s F,Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Partly Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 0830

Visitors/Affiliations: N/A

Summary of Work Performed:

No work was performed today due to weather conditions.

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Saturday 10/21/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	40s F, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	50s F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: N/A
Departure: N/A

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran did not place the low permeable clay liner in the project area due to wet conditions on the cell floor.

Curran continued placing and compacting structural fill on the south slope of Phase 10B west of E 1,041,850. Structural fill material is being excavated from the south section of 9C approximately E 1,042,100 to E 1,042,500 using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

Curran cut and fine graded the remaining 9C subgrade floor to prepare for subgrade certification point survey.

Equipment used
One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 10/23/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	40s Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Partly Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1600

Visitors/Affiliations: Tim Kopeky (WCG Surveyor)

Summary of Work Performed:
Curran continued placing and compacting structural fill on the south slope of Phase 10B west of E 1,041,850. Structural fill material is being excavated from the south section of 10B using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

Surveyor surveyed the remaining record subgrade certification points in Phase 9C on the slope and the floor of Phase 9C from E 1,042,500 to the west Phase 9C limits, except the certification points along N 1,749,200 from E 1,042,000 to E 1,042,300, where subgrade is currently over excavated for stormwater control. The record elevations are at or below the design subgrade elevation.

Curran placed and compacted Lift Two (2) from the toe of the East slope to approximately E 1,042,500, and from the toe of the South slope to approximately N 1,749,150.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Photos were taken for documentation.

Equipment used

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 10/23/2023

Daily Field Report

One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 10/24/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	55 F, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	81 F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1700

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts One (1) through Four (4) of the low permeable clay liner on the certified section of subgrade slope and floor in Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using one (1) sheepsfoot compactor to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran placed and compacted Lift One (1) and Two (2) from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to E 1,042,180. Additionally, Lifts One (1) and Two (2) were placed on the floor from the toe of the South slope to approximately N 1,749,150, from approximately E 1,042,150 to E 1,042,500.

Curran also placed and compacted Lift Two (2) from approximately N 1,749,150 to the North tie-in to the existing low permeable soil liner, between the toe of the East slope to approximately E 1,042,700. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Curran placed and compacted Lift Three (3) and Lift (4) from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to E 1,042,180. Additionally, Lifts Three (3) and Four (4) were placed on the floor from the toe of the South slope to approximately N 1,749,150, from approximately E 1,042,150 to E 1,042,700.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 10/24/2023

Daily Field Report

Additionally Lift Three (3) was placed on the cell floor from approximately E 1,042,700 to the east toe limits, from approximately N 1,749,150 to the north tie-in.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

At the end of day Curran sealed rolled jobsite with a Caterpillar Sheepsfoot CP56, and a Hamm H11 ix Smooth drum roller for the rain that was coming.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) Hamm H11 ix Smooth drum roller

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 10-25-2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	50s F; Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 08:30

Visitors/Affiliations: N/A

Summary of Work Performed:
No work was performed today due to weather conditions.

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 10-26-2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	50s F, Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 08:30

Visitors/Affiliations: N/A

Summary of Work Performed:
No work was performed today due to weather conditions.

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 10-27-2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	50s F, Cloudy, Breezy
Client:	Waste Management, Inc. (WM)	PM:	
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 08:30

Visitors/Affiliations: N/A

Summary of Work Performed:
No work was performed today due to weather conditions.

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Monday 10/30/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F, Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	40s F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 0830

Visitors/Affiliations: N/A

Summary of Work Performed:
No work was performed today due to weather conditions.

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 10/312023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F, Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	30s F, Cloudy, Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 0830

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran did not place the low permeable clay liner in the project area due to wet conditions on the cell floor.

Curran continued placing and compacting structural fill on the South slope of Phase 10B west of E .,041,850. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

Equipment used
One (1) D-6, Caterpillar Bulldozer
One (1) D8 Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 11/1/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	26 F, Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	42 F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1830

Visitors/Affiliations: Michael Toufar (WM Surveyor), Griffin Clarke (WCG Staff Engineer)

Summary of Work Performed:
Curran continued placing and compacting Lifts Four (4) through Six (6) of the low permeable clay liner on the certified section of subgrade slope and floor in Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using one (1) sheepsfoot compactor to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Prior to placement, Curran ran the Caterpillar 815B over the previously placed and compacted Lift Three (3) going from South to North and East to West to prepare for Lift Four (4).

Curran placed and compacted Lift Four (4) on the cell floor from approximately E 1,042,700 to the east toe limits, from the south toe limits to the north tie-in. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Curran placed and compacted Lifts Five (5) and Lift (6) from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to E 1,042,180. On the cell floor, Lifts Five (5) and Six (6) were placed from the toe of the South slope to approximately N 1,749,150, from approximately E 1,042,150 to E 1,042,700. Additionally, Lifts Five (5) and Lift (6) were placed on the cell floor from approximately E 1,042,700 to the east toe limits, from the toe of the South slope to the north tie-in.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 11/1/2023

Daily Field Report

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected a Shelby Tube (ST-2-6 A and B) and sample bucket two (Clay-2) from the low permeable soil liner placement. WCG Griffin Clarke brought the samples back to office for delivery to laboratory.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 11/2/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	31F, Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	54F, Sunny, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1830

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts One (1) through Five (5) of the low permeable clay liner on the certified section of subgrade floor in Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using one (1) sheepsfoot compactor to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran conducted a proof roll on the certified subgrade floor from approximately N 1,749,150 to the North tie-in, from approximately E 1,042,400 to E 1,042,700 with an off-road haul truck. No pumping of material was observed during the proof roll.

Curran placed and compacted Lifts One (1) through Four (4) from approximately N 1,749,150 to the North tie-in to the existing low permeable soil liner, from approximately E 1,042,400 to approximately E 1,042,700. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Additionally, Curran began the placement of Lift Five (5) on the cell floor from approximately N 1,749,150 to the North tie-in, from approximately E 1,042,400 to E 1,042,700.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 11/2/2023

Daily Field Report

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 11/3/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	31F, Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	56F, Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1830

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts Five (5) through Six (6) of the low permeable clay liner on the certified section of subgrade floor in Phase 9C and Lifts One (1) through Four (4) on the slope in Phase 9C going from South to North and East to West. Curran also began the placement of Lift One (1) of the low permeable clay liner on a portion of the remaining certified section of subgrade floor in Phase 9C. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using one (1) sheepsfoot compactor to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran placed and compacted Lifts Five (5), and Six (6) from approximately N 1,749,150 to the North tie-in to the existing low permeable soil liner, from approximately E 1,042,400 to approximately E 1,042,700. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Curran placed and compacted Lifts One (1) through Four (4) on the east slope of Phase 9C from the East limits of the cell to the toe of the east slope, from North tie-in to South limit. Additionally Lifts One (1) through Four (4) were placed and compacted on the South slope from the south limits of the cell to the toe of the south slope, from approximately E 1,042,860 to approximately E 1,042,775.

Additionally, Curran began the placement of Lift One (1) on the cell floor of Phase 9C from the toe of the South slope to approximately N 1,749,150, from approximately E 1,042,150 to the west limits of Phase 9C.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 11/3/2023

Daily Field Report

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected sample bucket three (Clay-3) from the low permeable soil liner placement. WCG brought the samples to the UPS office for delivery to the laboratory.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Saturday 11/4/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	41F, Clear, Lt. Breeze
Client:	Waste Management, Inc. (WM)	PM:	58F, Partly Cloudy, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 1700

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts One (1) through Two (2) of the low permeable clay liner on the certified section of subgrade floor in Phase 9C, and Lifts Five (5) through Six (6) on the east and south slope of Phase 9C, and Lifts One (1) through Three (3) on the south slope of Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B, also One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using two (2) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner. Curran is using a John Deere 850K bulldozer to tend the haul, muck out water drainage ditch, and prepare 9C northwest section for clay liner.

Curran placed and compacted Lifts One (1), and Two (2) on the cell floor of Phase 9C from approximately N 1,749,150 to the toe of the South Slope, from approximately E 1,042,150 to the west limits of Phase 9C.

Curran placed and compacted Lift Five (5) through Six (6) on the east slope of Phase 9C from the East limits of the cell to the toe of the east slope, from North tie-in to South limit. Lift Five (5) and Lift (6) were placed and compacted on the south slope of Phase 9C from the south limits of the cell to the toe of the south slope, from approximately E 1,042,860 to approximately E 1,042,775.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Saturday 11/4/2023

Daily Field Report

Additionally, Lifts One (1) through Three (3) were placed and compacted on the South slope of Phase 9C from the South limit of Phase 9C to the toe of the South slope, from approximately E 1,042,775, to E 1,042,180.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) John Deere 850k

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 11/6/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	53F, Partly Cloudy, Lt. Breeze
Client:	Waste Management, Inc. (WM)	PM:	68F, Partly Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0630
Departure: WCG leaves 16:30

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts Four (4) through Six (6) of the low permeable clay liner on the certified section of south slope in Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B, also One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (1) backhoe and five (5) off-road haul trucks. Curran is using two (2) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner. Curran is using a John Deere 850K bulldozer to tend the haul, muck out water drainage ditch, and prepare 9C West section for clay liner.

Curran placed and compacted Lift Four (4) through Six (6) on the south slope of Phase 9C from the South limits of the cell to the toe of the south slope, from approximately E 1,042,775 to approximately E 1,042,180.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Photos were taken for documentation.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 11/6/2023

Daily Field Report

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) John Deere 850k

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 11/7/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	43F, Sunny, Calm
Client:	Waste Management, Inc. (WM)	PM:	56F, Partly Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600
Departure: WCG leaves 16:00

Visitors/Affiliations: N/A

Summary of Work Performed:

Curran started the day by hauling out unsuitable material from 9C that was stockpiled on the northwest corner of the floor. Curran used One (1) Caterpillar 352F backhoe and eight (8) off-road haul trucks.

Curran placed structural fill on the cell floor of Phase 9C from approximately N 1,749,300 to N1,749,285, from approximately E 1,042,400 to approximately E 1,041,900. Curran is placing structural fill in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts.

Curran continued placing and compacting Lifts One (1) through Five (5) of the low permeable clay liner on the certified section of the south slope and floor in Phase 9C going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer and (1) John Deere 850K bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B, also One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (2) backhoe and five (8) off-road haul trucks. Curran is using two (2) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Surveyor shot the remaining record subgrade certification points in Phase 9C on the floor of Phase 9C from E 1,042,400 to E 1,041,900. The record elevations are at or below the design subgrade elevation.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 11/7/2023

Daily Field Report

Curran placed and compacted Lift Three (3) on the floor from approximately N 1,749,150 to the toe of the South slope from approximately E 1,042,150 to the west limits of Phase 9C.

Curran placed and compacted Lifts One (1) through Three (3) on the floor from approximately N 1,749,150 to the north tie-in of the existing floor low permeable soil liner, from approximately E 1,042,400 to the west limits of Phase 9C. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Curran placed and compacted Lift Four (4) on the floor from the North tie-in of the existing floor low permeable soil liner to approximately N 1,749,150, from approximately E 1,042,400 to approximately E 1,042,150.

Curran placed and compacted Lift One (1) on the south slope from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to the West limits of Phase 9C.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) John Deere 850k Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (4) Volvo Off-road Haul Trucks
Two (4) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 11/8/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	49F, Cloudy, Lt. Breeze
Client:	Waste Management, Inc. (WM)	PM:	67F, Cloudy, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600
Departure: WCG leaves 17:00

Visitors/Affiliations: N/A

Summary of Work Performed:

Curran continued placing and compacting Lifts Four (4) through Six (6) of the low permeable clay liner of the floor and Lift Two (2) on the south slope on the certified section of Phase 9C, and Lifts One (1) and Two (2) on the certified section in Phase10B going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer and (1) John Deere 850K bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B, also One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (2) backhoe and five (8) off-road haul trucks. Curran is using two (2) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran placed and compacted Lifts Five (5) through Six (6) of Phase 9C on the cell floor from approximately N 1,749,150 to North tie-in of the existing floor low permeable soil liner, from approximately E 1,042,400 to E 1,042,150. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Curran placed and compacted Lifts Four (4), though Six (6) on the Phase 9C cell floor from the North tie-in of the existing floor low permeable soil liner to the toe of the South slope, from approximately E 1,042,150 to the West limits of Phase 9C. Clay liner placement on the floor of Phase 9C is complete.

Curran placed and compacted Lift Two (2) on the south slope in Phase 9C from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to the West limits of Phase 9C.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 11/8/2023

Daily Field Report

Surveyor shot the record subgrade certification points in Phase 10B on the cell floor from N 1,748,850 to the North tie-in. The record elevations are at or below the design subgrade elevation.

Curran placed and compacted Lifts One (1) and Two (2) of the Phase 10B on the cell floor from N 1,749,000 to the North tie-in of the existing floor low permeable soil liner, and from the east floor limits to the West tie-in of the existing floor low permeable soil liner. Curran performed a proof-roll of the Phase 10B floor subgrade on the cell floor prior to placing Lift One (1). No pumping, deformation, or unsuitable materials were observed in the subgrade.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected a Shelby Tube (ST-4-4 A and B) and sample bucket four (Clay-4) from the low permeable soil liner placement. WCG brought the samples to the UPS office for delivery to the laboratory.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) John Deere 850k Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (4) Volvo Off-road Haul Trucks
Two (4) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 11/9/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	41F, Partly Cloudy, Lt. Breeze
Client:	Waste Management, Inc. (WM)	PM:	55F, Sunny, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600
Departure: WCG leaves 17:00

Visitors/Affiliations: N/A

Summary of Work Performed:

Curran continued placing and compacting Lifts One (1) through Six (6) of the low permeable clay liner on the certified section of the south slope in Phase 9C and floor in Phase10B going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer and (1) John Deere 850K bulldozer equipped with GPS to help lift thickness placement and One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (2) backhoe and five (5) off-road haul trucks. Curran is using One (1) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran scarified the South slope Lift two (2) of Phase 9C by running Caterpillar Sheepsfoot up and down slope from South limit to south slope toe, from E 1,042,175 to 9C west limit to prepare for placement for Lift Three (3).

Curran also was trimming final top of clay liner grades in Phase 10B for top of clay liner certification points from approximately N.1,748,900 to N 1,748,675, from West 10B limit to East slope toe. Curran used a Caterpillar D6 Bulldozer with GPS for trimming, and Caterpillar 352F Backhoe with Five (5) off-road haul trucks. Excess clay liner material was hauled and placed as structural fill on the southeast slope of Phase 10B east of E 1,041,850. A John Deere 850k Bulldozer with GPS and a Caterpillar 815B sheepsfoot was grading and compacting the slope. After trimming was complete, the Backhoe moved to the existing stockpile near the South Sedimentation Basin with the haul trucks.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 11/9/2023

Daily Field Report

Curran placed and compacted Lifts Three (3) though Six (6) of the south slope in Phase 9C from the south limits of the cell to the toe of the south slope, from approximately E 1,042,100 to the West limits of Phase 9C. Phase 9C soil liner placement is complete.

Curran placed and compacted Lift Three (3) of the Phase 10B on the cell floor from N 1,749,000 to the North tie-in of the existing floor low permeable soil liner, and from the east floor limits to the West tie-in of the existing floor low permeable soil liner.

Curran placed and compacted Lifts One (1) and Two (2) on the Phase 10B cell floor from the toe of the Southeast slope to the west tie-in of Phase 10B, from approximately N 1,748,900 to approximately N 1,749,000. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction. Curran performed a proof-roll of the Phase 10B floor subgrade on the cell floor prior to placing Lift One (1). No pumping, deformation, or unsuitable materials were observed in the subgrade.

After placement in Phase 10B was complete for the day, Curran had the Caterpillar D6 Bulldozer with GPS move to Phase 9C to start fine grading the cell for final top of low permeable soil liner survey certification.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

WM had a backhoe cleaning up the existing geomembrane liner on the North tie-in of the proposed cells.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) John Deere 850k Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 11/10/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	33F, Partly Clear, Lt. Breeze
Client:	Waste Management, Inc. (WM)	PM:	48F, Sunny, Lt. Breeze
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600
Departure: WCG leaves 16:00

Visitors/Affiliations: N/A

Summary of Work Performed:

Curran continued placing and compacting structural fill on the South slope of Phase 10B west of approximately E 1,041,850. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin using the backhoe and five (5) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. Curran is using One (1) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Curran was also trimming and fine grading Phase 10B for subgrade certification points on the cell floor south of N 1,748,900 from the southeast toe limits to the west limits. Curran used a Caterpillar D8 Bulldozer with GPS for fine grading elevation.

Curran placed and compacted Lift Three (3) on the Phase 10B cell floor from the toe of the Southeast slope to the west tie-in of Phase 10B, from approximately N 1,748,900 to approximately N 1,749,000. The low permeable soil liner is being stepped into the existing low permeable soil liner material during placement and compaction.

Surveyor shot the record subgrade certification points in Phase 10B on the cell floor from N 1,748,725 to N 1,748,523. The record elevations are at or below the design subgrade elevation.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 11/10/2023

Daily Field Report

WM had a backhoe cleaning up the existing geomembrane liner on the North and west tie-in of the proposed cells.

Photos were taken for documentation.

Equipment used:
One (1) D-6, Caterpillar Bulldozer
One (1) John Deere 850k Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Three (3) Volvo Off-road Haul Trucks
Two (2) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56

Name: Dan Davis

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Saturday 11/11/2023

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	28F,Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	52F, Sunny, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:00
Departure: WCG leaves 18:00

Visitors/Affiliations: N/A

Summary of Work Performed:

In the morning, Curran continued placing and compacting structural fill on the Southeast slope west of E 1,041,850, working from the north to the south. Structural fill material is being excavated from the existing stockpile near the South Sedimentation Basin, Curran is using the backhoe, (1) Caterpillar D6 bulldozer to push the trimming, also One (1) offroad haul trucks. Curran has one (1) bulldozer grading and controlling lift thickness and one (1) Caterpillar 815B compacting the structural fill lifts. Curran is placing structural fill lifts in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. Curran is using One (1) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Surveyor shot the remaining record subgrade certification points in Phase 10B on the cell floor. The record elevations are at or below the design subgrade elevation.

Curran continued placing and compacting Lifts One (1) through Five (5) of the low permeable clay liner on the certified section of subgrade slope and floor in Phase 10B going from South to North and East to West. Curran has one (1) Caterpillar D6 bulldozer and (1) John Deere 850K bulldozer equipped with GPS to help lift thickness placement and one (1) Caterpillar 815B, also One (1) Caterpillar Sheepsfoot CP56 compacting the low permeable clay liner. Curran is placing low permeable clay liner in approximately 8-inch loose lifts and compacting to approximately 6-inch compacted lifts. The low permeable clay liner is being excavated from the existing stockpile near the South Sedimentation Basin using one (2) backhoe and five (8) off-road haul trucks. Curran is using two (2) sheepsfoot compactors to compact the low permeable clay liner material in the cell area. The compactor is making five (5) passes, down and back, to compact the low permeable clay liner.

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Saturday 11/11/2023

Curran placed and compacted Lifts Four (4) though Six (6) on Phase 10B cell floor from the toe of the Southeast slope of Phase 10B to the west limits of Phase 10B, from approximately N 1,748,900 on the Phase 10B cell floor to the North tie-in of the existing floor low permeable soil liner.

Curran placed and compacted Lifts One (1) though Five (5) on the Phase 10B cell floor from the toe of the Southeast slope to the west limits of Phase 10B, to the north tie-in of the existing floor low permeable soil liner. Curran performed a proof-roll of the Phase 10B floor subgrade on the cell floor prior to placing Lift One (1). No pumping, deformation, or unsuitable materials were observed in the subgrade.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected a Shelby Tube (ST-5- 3 A and B) from the low permeable soil liner placement on Floor of 10B.

Photos were taken for documentation.

Equipment used:
Two (2) D-6, Caterpillar Bulldozer
One (1) John Deere 850k Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Four (4) Volvo Off-road Haul Trucks
Four (4) Caterpillar 745 Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) Caterpillar 160G Backhoe

Name: Dan Davis
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Monday 11/13/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F,Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Sunny, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 16:30

Visitors/Affiliations: Robert Schumann (WCG Certifying Engineer), Justin Schuman (WCG Surveyor)

Summary of Work Performed:
Curran continued placing and compacting Lift Six (6) of the low permeable clay liner on the cell floor of Phase 10B and Lift One (1) through Lift Two (2) of the low permeable clay liner on the southeast slope of Phase 10B, continuing working to the west across the floor and slope. Curran has one (2) Caterpillar D-6 bulldozers equipped with GPS to help lift thickness placement. Curran is placing low permeable soil layer in approximately 8-inch to 10-inch loose lifts and compacting to approximately 6-inch compacted lifts. Low permeable soil layer material is being excavated from a stockpile area using one (1) backhoe and four (4) off-road haul trucks. Curran is using one (1) compactor to compact the low permeable soil layer material in the Phase 10B cell area. The compactor is making five (5) passes, down and back, to compact the low permeable soil layer.

WCG surveyed the remaining record subgrade certification points in Phase 10B and the top of clay liner in Phase 9C working to the west. The record elevations for the subgrade certification points are at or below the design subgrade elevation. The record elevations for the top of clay liner certification points are at or above the design elevation.

Curran continued placing and compacting Lift Six (6) of the low permeable clay liner from the toe of the Southeast slope to the west limits of Phase 10B, to the north tie-in of the existing floor low permeable soil liner. Phase 10B soil liner on the cell floor placement is complete.

Curran placed and compacted Lifts One (1) and Two (2) in the Phase 10B cell on the Southeast slope from the west limit of Phase 10B to the east limit of Phase 10B. Curran performed a proof-roll of the Phase 10B floor subgrade on the Southeast slope prior to placing Lift One (1). No pumping, deformation, or unsuitable materials were observed in the subgrade.

Name: Andrew Montavon
Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group

Daily Field Report

Day/Date: Monday 11/13/2023

Curran used One (1) Smooth Drum Roller to prepare the top of clay surface in Phase 9C for the liner crew (GCS). Curran also used One (1) John Deere 160G Backhoe to clean off the tie-in on the north side of the cell working from the east to the west.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded. WCG collected a Shelby Tube (ST-6- 2) as well as a bucket sample (Clay-5).

Photos were taken for documentation.

Equipment used:
Two (2) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Four (4) Volvo Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) Caterpillar 160G Backhoe
One (1) Smooth Drum Roller

Standard Counts
IS: 653
DS: 1951

Name: Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Monday 11/13/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F, Clear Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Sunny, Lt. Breeze

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 13:00
Departure: WCG leaves 1430

Visitors/Affiliations: Robert Schumann (WCG Certifying Engineer)

Summary of Work Performed:
CQA Field Technician took inventory of the geomembrane and geocomposite rolls. CQA Technician met with Robert Schumann to discuss project schedule, review project specifications and site layout.

GCS mobilized on site, making sandbags and preparing for geomembrane placement.

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Tuesday 11/14/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F,Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Sunny, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 16:30

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lifts Three (3) through Lift Five (5) of the low permeable clay liner on the southeast slope of Phase 10B, continuing working to the south across the slope. Curran has one (2) Caterpillar D-6 bulldozers equipped with GPS to help lift thickness placement. Curran is placing low permeable soil layer in approximately 8-inch to 10-inch loose lifts and compacting to approximately 6-inch compacted lifts. Low permeable soil layer material is being excavated from a stockpile area using one (1) backhoe and four (4) off-road haul trucks. Curran is using one (1) compactor to compact the low permeable soil layer material in the Phase 10B cell area. The compactor is making five (5) passes, down and back, to compact the low permeable soil layer.

Curran placed and compacted Lifts Three (3) though Lift Five (5) in the Phase 10B cell on the southeast slope from the west limit of Phase 10B to the east limit of Phase 10B.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Curran continued smooth drum roll Phase 9C ahead of the liner crew (GCS). Curran also used One (1) John Deere 160G Backhoe as well as (1) Caterpillar D-6 bulldozer to clean off the tie-in on the north side of the cell working from the east to the west. Curran used One (1) John Deere 160G Backhoe to dig the anchor trench along the top of slope of Phase 9C.

Photos were taken for documentation.

Name: Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group

Daily Field Report

Day/Date: Tuesday 11/14/2023

Equipment used:
Two (2) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Four (4) Volvo Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) Caterpillar 160G Backhoe
One (1) Smooth Drum Roller

Standard Counts
MS: 643
DS: 1950

Name: Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Tuesday 11/14/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	29-30, Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	57-61, Sunny, Breezy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 07:00
Departure: WCG leaves 1630

Visitors/Affiliations: Sean Butler (WCG Staff Engineer)

Summary of Work Performed:
Sean Butler onsite to assist with geosynthetics CQA. GCS started deployment on the Northeast end of the East slope on Phase 9C and worked their way South with 60 mil HDPE geomembrane placement. A skidsteer was used to deploy geomembrane panels on the slope going from East to West. Once GCS reached the Southeast corner of the east slope they started placing geomembrane panels from north to south across the slope and floor working west. GCS placed approximately 82,300 sq. ft. of geomembrane panels today. GCS used four (4) fusion welders to seam together the geomembrane panels. Prior to the start of the day and after lunch each fusion welder completed a passing trial weld. Non-destructive testing was completed and passed on fusion welded seams. GCS was also using one extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Destructs 1-5 were pulled and tested in the field. All destructs passed field testing. The destructs will be sent to the lab for testing.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
4 Fusion welders
1 Extrusion gun One (1) Caterpillar 160G Backhoe

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Wednesday 11/15/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	30s F,Clear, Calm
Client:	Waste Management, Inc. (WM)	PM:	60s F, Sunny, Lt. Breeze

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 06:30
Departure: WCG leaves 11:00

Visitors/Affiliations: N/A

Summary of Work Performed:
Curran continued placing and compacting Lift Six (6) of the low permeable soil liner on the southeast slope of Phase 10B, continuing working to the south across the slope. Curran has one (2) Caterpillar D-6 bulldozers equipped with GPS to help lift thickness placement. Curran is placing low permeable soil layer in approximately 8-inch to 10-inch loose lifts and compacting to approximately 6-inch compacted lifts. Low permeable soil layer material is being excavated from a stockpile area using one (1) backhoe and four (4) off-road haul trucks. Curran is using one (1) compactor to compact the low permeable soil layer material in the Phase 10B cell area. The compactor is making five (5) passes, down and back, to compact the low permeable soil layer.

Curran placed and compacted Lift Six (6) in the Phase 10B cell on the southeast slope from the west limit of Phase 10B to the east limit of Phase 10B. Phase 10B soil liner placement is complete.

Curran used One (1) Smooth Drum Roller to prepare the finished area of the cell for the liner crew (GCS). Curran also used One (1) John Deere 160G Backhoe as well as (1) Caterpillar D-6 bulldozer to clean off the tie-in on the north side of the cell. Curran used One (1) John Deere 160G Backhoe to dig the anchor trench along the slope of the cell.

WCG performed moisture/density tests using the nuclear density gauge. The field moisture density test results were within the acceptable zone limits. Test results and locations were recorded.

Photos were taken for documentation.

Name: Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group

Daily Field Report

Day/Date: Wednesday 11/15/2023

Equipment used:
Two (2) D-6, Caterpillar Bulldozer
One (1) Caterpillar 352F Backhoe
One (1) John Deere 470 Backhoe
One (1) Caterpillar 815 Sheepsfoot Compactor
Four (4) Volvo Off-road Haul Trucks
One (1) Caterpillar Sheepsfoot CP56
One (1) Caterpillar 160G Backhoe
One (1) Smooth Drum Roller

Standard Counts
MS: 653
DS: 1982

Name: Andrew Montavon
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Wednesday 11/15/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	27, Partly Cloudy, Calm
Client:	Waste Management, Inc. (WM)	PM:	53, Partly Cloudy, Calm

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 07:00
Departure: WCG leaves 1700

Visitors/Affiliations: Sean Butler (WCG Staff Engineer)

Summary of Work Performed:
Sean Butler onsite to assist with geosynthetics CQA. GCS started deployment on the South slope on Phase 9C and worked their way West with 60 mil HDPE geomembrane placement. A skidsteer was used to deploy geomembrane panels on the floor going from South to North. GCS placed approximately 106,800 sq. ft. of geomembrane panels today. GCS used three (3) fusion welders to seam together the geomembrane panels. Prior to the start of the day and after lunch each fusion welder completed a passing trial weld. Non-destructive testing was completed and passed on fusion welded seams. GCS was also using one extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Destructs 6-18 were pulled and tested in the field. All destructs tested passed. The destructs will be sent to the lab for testing.

GCS also placed GCL panels at the low point of Phase 9C. GCL panels overlapped 12 inches between seams.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
4 Fusion welders
1 Extrusion gun One (1) Caterpillar 160G Backhoe

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Thursday 11/16/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	42-47, Partly Cloudy, Windy
Client:	Waste Management, Inc. (WM)	PM:	57-64, Partly Cloudy, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 07:00
Departure: WCG leaves 1700

Visitors/Affiliations: Jordan Anderson (WCG Technician)

Summary of Work Performed:
Jordan Anderson onsite to assist with geosynthetics CQA. GCS continued deployment on the South slope on Phase 9C and worked their way West with 60 mil HDPE geomembrane placement. A skidsteer was used to deploy geomembrane panels on the floor going from South to North.. GCS placed approximately 122,600 sq. ft. of geomembrane panels today. GCS used four (4) fusion welders to seam together the geomembrane panels. Prior to the start of the day and after lunch each fusion welder completed a passing trial weld. Non-destructive testing was completed and passed on fusion welded seams. GCS was also using one extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Destruct 22 was pulled and tested in the field. The destruct tested passed and will be sent to the laboratory for testing.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
4 Fusion welders
1 Extrusion gun One (1) Caterpillar 160G Backhoe

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Friday 11/17/2023

Project: Phases 9C and 10B
Location: Laraway RDF Joliet, Illinois
Client: Waste Management, Inc. (WM)
Project No. 0086-004-16-22
Weather: AM: 42-47, Partly Cloudy, Windy
PM: 47-52, Partly Cloudy, Windy
Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)
Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 07:00
Departure: WCG leaves 1700

Visitors/Affiliations: Jordan Anderson (WCG Technician), Robert Schumann (Certifying Engineer), Justin Shuman (WCG Surveyor)

Summary of Work Performed:
Jordan Anderson onsite to assist with geosynthetics CQA. GCS began deployment on the Southeast slope on Phase 10B and worked their way West with 60 mil HDPE geomembrane placement. A skidsteer was used to deploy geomembrane panels on the floor going from South to North. Once the corner was rounded, panels were deployed on the floor going East to West. GCS placed approximately 46,400 sq. ft. of geomembrane panels today. GCS used four (4) fusion welders to seam together the geomembrane panels. Prior to the start of the day and after lunch each fusion welder completed a passing trial weld. Non-destructive testing was completed and passed on fusion welded seams.GCS was also using two extrusion guns to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Destruct 19-21,23-35 were pulled and tested in the field. All destructs tested passed.

GCS also placed GCL panels at the low point of Phase 10B. GCL panels overlapped 12 inches between seams.

Curran was grading the perimeter road and ditch south of Phase 9C and Phase 10B.

WCG surveyed the remaining top of soil liner certification points in Phase 10B. The record elevations were at or above the design elevation. WCG surveyed the geomembrane panel as-built in Phase 9C.

Photos were taken for documentation.

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Friday 11/17/2023

Equipment used:
1 Skidsteer
2 Crews
4 Fusion welders
2 Extrusion guns

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Saturday 11/18/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	20's, Clear, Windy
Client:	Waste Management, Inc. (WM)	PM:	30's, Clear, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:00 am

Departure: 4:30 pm

Visitors/Affiliation: Griffin Clarke (WCG Staff Engineer)

Summary of Work Performed

GCS continued deploying geomembrane on the east slope of Phase 10B to the west limits. GCS placed approximately 89,100 sq. ft. of geomembrane panels today. Deployment of geomembrane in Phase 9C and 10B is complete. GCS used three (3) fusion welders to seam together the geomembrane panels. Prior to the start of the day and after lunch each fusion welder completed a passing trial weld. Non-destructive testing was completed and passed on fusion welded seams. GCS was also using an extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane.

Photos were taken for documentation.

Equipment Used:
Three (3) Fusion Welders
One (1) Skid steer
One (1) Extrusion Welder

Name: Jordan Anderson
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Sunday 11/19/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	20's, Clear, Windy
Client:	Waste Management, Inc. (WM)	PM:	30's, Clear, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:00 am

Departure: 2:30 pm

Visitors/Affiliation: N/A

Summary of Work Performed

GCS continued performing non-destructive testing and completing more repairs. Non-destructive testing was completed and passed on fusion welded seams. GCS was using two (2) extrusion guns to perform repairs. Prior to the start of doing repair work the extrusion guns performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Repairs were vacuumed box tested.

GCS began the deployment of the 16 oz. geotextile in Phase 9C where repairs are complete, starting from the east anchor trench moving west. GCS deployed 13 rolls of geotextile. Geotextile panels were sewn together on the slope, and on the floor they were heat leistered together.

Photos were taken for documentation.

Equipment Used:
Two (2) Extrusion Welders
One (1) Hand Sewing Machine

Name: Jordan Anderson

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Monday 11/20/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	20's, Clear, Windy
Client:	Waste Management, Inc. (WM)	PM:	30's, Cloudy, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:00 am

Departure: 1:30 pm

Visitors/Affiliation: Justin Schuman (WCG Surveyor)

Summary of Work Performed

GCS continued geomembrane repairs. GCS used an extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Repairs were vacuumed box tested. Destruct 36-53 were pulled and tested in the field. All destructs field tested passed. Destructs were sent to the lab for testing.

WCG surveyed the geomembrane panel as-built in Phase 10B.

GCS then continued deployment of the 16 oz. geotextile starting from, the east moving west. GCS deployed 14 rolls of geotextile. Geotextile panels were sewn together on the slope, and on the floor they were heat leistered together.

Photos were taken for documentation.

Equipment Used:
One (1) Extrusion Welder
One (1) Hand Sewing Machine

Name: Jordan Anderson

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Tuesday 11/21/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	
Client:	Waste Management, Inc. (WM)	PM:	39-41, Cloudy, Windy
Contractor(s):	Global Containment Solutions (GCS)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 1430

Departure: WCG leaves 1700

Visitors/Affiliations: N/A

Summary of Work Performed:
DS-36, DS-41, DS-43, and DS-50 failed the lab testing. WCG arrived on site to mark DS-36A, DS-36B, DS-41A, DS-41B, DS-43A, DS-43B, DS-50A and DS-50B. Destructive samples were pulled 10 feet before and 10 feet after the failed destructs. All destructs passed field testing. The destructs were sent to the lab for further testing. The seams between DS-36A/DS-36B, DS-41A/DS-41B, DS-43A/DS-43B, and DS-50A/DS50B were capped and non-destructively tested and passed.

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Wednesday 11/22/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	32-41, Partly Cloudy, Windy
Client:	Waste Management, Inc. (WM)	PM:	41-43, Partly Cloudy, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600

Departure: WCG leaves 1600

Visitors/Affiliations: N/A

Summary of Work Performed:
GCS continued with repairs of the geomembrane. GCS was using one extrusion gun to perform repairs. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Repairs were vacuumed box tested.

GCS continued with deployment of 16 oz. geotextile. A skidster was used to transfer the geotextile rolls from the staging area to the cell. The skidster was also used to deploy geotextile panels from the South slope of 9C working West placing them South to North. Geotextile panels were sewn together on the slope, and on the floor they were heat leistered together. GCS placed 30 rolls of geotextile.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
1 Extrusion gun
1 Sewing machine
1 Heat leister

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Friday 11/24/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	28-32, Sunny, Windy
Client:	Waste Management, Inc. (WM)	PM:	28-32, Partly Cloudy, Windy
Contractor(s):	Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600

Departure: WCG leaves 1600

Visitors/Affiliations: N/A

Summary of Work Performed:
GCS continued with the final repairs of the geomembrane. Prior to the start of doing repair work the extrusion gun performed a passing trial weld. Repairs were made using patches of geomembrane that were placed on top of existing geomembrane. Patches were leistered down, the edges ground down and extrusion welded to the existing geomembrane. Repairs were vacuumed box tested. GCS completed all the repairs. The installation of the geomembrane is complete.

GCS continued with deployment of 16 oz. geotextile. A skidster was used to transfer the geotextile rolls from the staging area to the cell. The skidster was also used to deploy geotextile panels from the South slope of 9C working West placing them South to North. Additionally, geotextile was deployed on the south slope of 10B working west around the Southwest corner placing them South to North and East to West. Geotextile panels were sewn together on the slope, and on the floor, they were heat leistered together. GCS placed 26 rolls of geotextile.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
1 Extrusion gun
1 Sewing machine
1 Heat leister

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Saturday 11/25/2023

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	27-37, Sunny, Windy
Client:	Waste Management, Inc. (WM)	PM:	28-32, Sunny, Windy

Contractor(s): Global Containment Solutions (GCS), Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0600

Departure: WCG leaves 1600

Visitors/Affiliations: N/A

Summary of Work Performed:
GCS continued with deployment of 16 oz. geotextile. A skidster was used to transfer the geotextile rolls from the staging area to the cell. The skidster was also used to deploy geotextile panels from the North slope of 10B working South placing them East to West. Geotextile panels were sewn together on the slope, and on the floor, they were heat leistered together. GCS placed 19 rolls of geotextile. All of Phase 9C and Phase 10B (excluding a small section at the southwest corner of Phase 10B) have been placed with 16 oz. geotextile. The remaining section in Phase 10B will be placed at a later date.

Photos were taken for documentation.

Equipment used:
1 Skidsteer
2 Crews
1 Sewing machine
1 Heat leister

Name: Griffin Clarke
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 11/28/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	10s, Sunny
Client:	Waste Management of IL, Inc.	PM:	20s, Partly Cloudy
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:45 am

Departure: 3:00 pm

Visitors/Affiliation: Robert Schumann (WCG Certifying Engineer)

Summary of Work Performed

Curran began placement of the drainage layer in Phase 9C. Curran began placing the drainage layer material to create a 3 ft minimum thick and 50 ft wide road for drainage layer placement beginning from the east limits of Phase 9C from approximately N 1,749,150 to approximately N 1749,200. The road extended southwest to the toe of the south slope at approximately E 1,042,850. The 3 ft minimum thick and 50 ft wide haul road placement continued on the cell floor along the toe of the south slope from approximately E 1,042,850 to approximately E 1,042,700. The haul road then extended north from the toe of the south slope to approximately N 1,749,230, from approximately E 1,042,700 to approximately E 1,042,750 to create a turn around. Curran used one bulldozer to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

WCG collected a sample of the drainage layer material (DL-1) and a pre-construction sample of the aggregate material (PC-AG) to surround the leachate collection pipe that was delivered from the quarry. The samples were sent to the lab for testing.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Wednesday 11/29/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	20s, Sunny
Client:	Waste Management of IL, Inc.	PM:	30s, Sunny
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:30 pm

Visitors/Affiliation: Waste Management (WM)

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued placing the 3 ft minimum thick and 50 ft wide haul road on the cell floor along the toe of the south slope from approximately E 1,042,700 to approximately E 1,042,525. The haul road then extended north from the toe of the south slope to approximately N 1,749,250, from approximately E 1,042,525 to approximately E 1,042,600 to create a turn around and allow for leachate collection pipe aggregate placement. Curran then placed the drainage layer to a 1 ft minimum thickness on the south slope om the toe of the slope to the south cell limits, from approximately E 1,042,525 to approximately E 1,042,600. Curran used one bulldozer to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

Waste Management placed the leachate collection pipes in both Phase 9C and Phase 10B. Perforated pipe was placed on the floor and a solid riser pipe was placed on the slope.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Thursday 11/30/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Partly Cloudy
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Partly Cloudy
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:30 pm

Visitors/Affiliation: Neal Supitilov (WCG Surveyor)

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued placing the 3 ft minimum thick haul road on the cell floor from approximately N 1,749,250 to approximately N 1,749,300, from approximately E 1,042,525 to approximately E 1,042,600 to create an access road to cover the leachate pipe. Curran then placed a minimum 1 ft thick leachate pipe aggregate material over the leachate pipe and a minimum 1ft thick extending 5' to the east and west of the leachate collection pipe with the excavator. Curran then continued placing the 3 ft minimum thick and 50 ft wide haul road on the cell floor along the toe of the south slope from approximately E 1,042,525 to approximately E 1,042,100. Curran used one bulldozer to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

WCG collected a sample of drainage layer material (DL-2) and sent it to the lab for testing.

WCG Surveyor was present to survey the leachate pipes in Phase 9C and Phase 10B in the morning.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Smooth drum roller
One Excavator

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Friday 12/01/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Cloudy, Rainy
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Cloudy, Rainy

Contractor(s): _____

Contractor Sub(s): _____

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: N/A

Departure: N/A

Visitors/Affiliation: N/A

Summary of Work Performed
No work performed due to weather conditions.

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 12/4/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Partly Cloudy
Client:	Waste Management of IL, Inc.	PM:	40s, Cloudy
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:15 pm

Visitors/Affiliation: N/A

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C and began placement in Phase 10B. Curran continued placing the 3 ft minimum thick and 50 ft wide haul road on the cell floor along the toe of the south slope from approximately E 1,042,100 to approximately E 1,041,800 around the bend of Phase 10B. The haul road then extended north to N 1,749,225 from approximately E 1,042,100 to approximately E 1,042,150 to create a turning point for dump trucks. Drainage layer was then placed at a minimum thickness of 1-ft on the south slope from the toe of the south slope to N 1,749,075, from approximately E 1,042,100 to approximately E 1,042,150. Curran used one bulldozer to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

WCG collected a sample of drainage layer material (DL-3) and a sample of the leachate pipe aggregate material (AG-1), and sent them to the lab for testing.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Tuesday 12/5/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Rainy
Client:	Waste Management of IL, Inc.	PM:	40s, Cloudy

Contractor(s): Curran Contracting, Inc. (Curran)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:15 pm

Visitors/Affiliation: Waste Management Inc (WM)

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 10B. Curran continued placing the 3 ft minimum thick and 50 ft wide haul road on the cell floor along the toe of the southeast slope of Phase 10B from approximately E 1,041,800 to approximately E 1,041,650. The haul road then extended to the west of the haul road to approximately E 1,041,680 from approximately N 1,748,800 to approximately N 1,748,850 to create a turning point for dump trucks. Curran placed aggregate material around the perforated leachate pipe of Phase 10B at a minimum thickness of 1-ft on top of the pipe and a minimum thickness of 1 ft on each side of the pipe extending 5 ft to the east and west. Curran used one bulldozer to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

Waste Management was present in the morning to extend the solid riser pipes in Phase 9C and Phase 10B to extend past the crest of the south slopes.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Wednesday 12/6/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Cloudy
Client:	Waste Management of IL, Inc.	PM:	30s, Partly Cloudy
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:30 pm

Visitors/Affiliation: N/A

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C and Phase 10B. Curran continued placing the 3 ft minimum thick and 50 ft wide haul road on the cell floor along the toe of the southeast slope of 10B from approximately N 1,749,700 to approximately N 1,748,550. The drainage layer was then spread at a minimum of 1-ft thickness on the southeast slope from the toe of the southeast slope to the Phase 10B limits from approximately E 1,041,600 to approximately E 1,014,750. Curran mounded additional drainage layer material at the southwest corner of Phase 10B for future lacement after cushion geotextile is placed. Curran placed a 3-ft thick mound of drainage layer material for the separation berm along the west limits of 10B.

The 3 ft minimum thick and 50 ft wide haul road placement continued on the cell floor from approximately N 1,749,230 to approximately N 1,749,300, from approximately E 1,042,700 to approximately E 1,042,750. The haul road was then extended north from approximately N 1,749,180 to approximately N 1,749,250 from approximately E 1,042,250 to approximately E 1,042,300. The haul road was then extended north from approximately N 1,749,225 to approximately N 1,749,250 from approximately E 1,042,100 to approximately E 1,042,150.

Curran used two bulldozers to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

WCG collected a sample of drainage layer material (DL-4) and sent it to the lab for testing.

Equipment Used:
Two CAT D6T LGP bulldozers with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group
Daily Field Report

Day/Date: Thursday 12/7/23

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 6:30 am

Departure: 3:30 pm

Visitors/Affiliation: N/A

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C and Phase 10B. Curran continued spreading the drainage layer at a minimum of 1-ft thickness in Phase 10B completing the remaining drainage layer placement in Phase 10B on the cell floor and on the southeast slope, excluding the area where the 16oz geotextile has not yet been placed at the southwest corner. Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C from the west phase limits to approximately E 1,042,050 from the haul road to approximately N 1,749,275. Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,030 to approximately E 1,042,150 from approximately N 1,749,250 to approximately N 1,749,300.

The 3 ft minimum thick and 50 ft wide haul road placement was continued on the cell floor from approximately N 1,749,250 to approximately N 1,749,275 from approximately E 1,042,250 to approximately E 1,042,300. The haul road was then placed on the cell floor from approximately N 1,749,180 to approximately N 1,749,300 from approximately E 1,042,400 to approximately E 1,042,450.

Curran used two bulldozers to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

Equipment Used:
Two CAT D6T LGP bulldozers with GPS
One Smooth drum roller

Name: Sarah Sukanen
Title: CQA Field Officer

Name: Robert Schumann
Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 12/8/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny
Contractor(s):	Curran Contracting, Inc. (Curran)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1600

Visitors/Affiliation: N/A

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,050 to approximately E 1,042,100 from approximately N 1,749,150 to approximately N 1,749,275. Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,150 to approximately E 1,042,250 from approximately N 1,749,150 to approximately N 1,749,300. Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E ,042,300 to approximately E 1,042,400 from approximately N 1,749,150 to approximately N 1,749,300. Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,450 to approximately 1,042,550 from approximately N 1,749,150 to approximately N 1,749,300.

Curran then continued to spread the minimum 1-ft thick drainage layer in Phase 9C along the south slope from the west phase limits to approximately E 1,042,100 from the toe of the south slope to approximately N 1,749,075. Curran then continued to spread the minimum 1-ft thick drainage layer along the south slope of Phase 9C from approximately E 1,042,150 to approximately E 1,042,550 from the toe of the south slope to approximately N 1,749,075.

Curran used two bulldozers to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

WCG collected a sample of drainage layer material (DL-5) and sent it to the lab for testing.

Equipment Used:
Two CAT D6T LGP bulldozers with GPS
One Smooth drum roller

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 12/11/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1600

Visitors/Affiliation: N/A

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued to spread the minimum 1-ft thick drainage layer in Phase 9C on the floor from approximately E 1,042,600 to approximately E 1,042,700 from approximately N 1,749,150 to approximately N 1,749,300. Curran then spread the minimum 1-ft thick drainage layer in Phase 9C on the floor from approximately E 1,042,750 to approximately E 1,042,900, from approximately N 1,749,225 to approximately N 1,749,300. Curran then spread the minimum 1-ft thick drainage layer in Phase 9C on the south slope from the toe of the slope to the south phase limits from approximately E 1,042,600 to approximately E 1,042,700.

GCS arrived on site at 0930 to continue deployment of 16 oz cushion fabric in Phase 10B. A skid steer was used to transfer the geotextile rolls from the staging area to the cell. The skid steer was also used to deploy geotextile panels from the southeast slope of 10B working South to the limits of the cell placing them East to West. Geotextile panels were sewn together. GCS placed two rolls of 16oz geotextile in the southwest corner of Phase 10B. The 16oz geotextile installation is complete.

Curran continued placement of the drainage layer in Phase 10B. Curran continued to spread the minimum 1-ft thick drainage layer (from the previously stockpiled material in the southwest corner), in Phase 10B from approximately E 1,041,650 to the West limits of the cell and from approximately N 1,748,600 to the South limits of the cell.

The drainage layer placement in Phase 10B is complete.

Curran used two bulldozers to spread the drainage layer, and one smooth drum roller to smooth the haul road and allow for truck traffic. CQA observed no damage or large wrinkles in the underlying geosynthetics. Curran maintained a 3ft minimum thickness of drainage layer material where truck traffic was present.

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 12/11/23

Daily Field Report

Equipment Used:
Two CAT D6T LGP bulldozers with GPS
One Smooth drum roller
One Skid steer
Two Sewing machines

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Tuesday 12/12/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1700

Visitors/Affiliation: Robert Schumann (WCG Certifying Engineer), Justin Schuman (WCG Surveyor)

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,900 to the east slope limits, from approximately N 1,749,250 to approximately N 1,749,300. Curran then spread the minimum 1-ft thick drainage layer on the south slope of Phase 9C from E 1,042,700 to the east phase limits from the toe of the south slope to the south phase limits. Curran then spread the minimum 1-ft thick drainage layer on the east slope of Phase 9C from the south phase limits to approximately N ,749, 150, from the toe of the east slope to the east phase limits. Curran then spread the minimum 1-ft thick drainage layer on the floor of Phase 9B from the toe of the south slope to approximately N 1,749,150, from the toe of the east slope o E 1,042,800.

WCG surveyed the top of drainage layer for Phase 10B and the West half of 9C. Survey elevations were compared to record top of clay or probed to verify minimum 1-ft thickness.

GCS began deployment of 4 oz cushion fabric in Phase 10B. A skid steer was used to transfer the geotextile rolls from the staging area to the cell. The skid steer was also used to deploy geotextile panels from the southwest to the northeast. Panels were deployed perpendicular to the slope. Geotextile panels were sewn together. GCS placed 73,080 sq. ft of cushion fabric.

Curran used two bulldozers to spread the drainage layer. CQA observed no damage or large wrinkles in the underlying geosynthetics.

Equipment Used:
Two CAT D6T LGP bulldozers with GPS
One Skid steer
One Sewing machines

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Wednesday 12/13/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny
Contractor(s):	Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1700

Visitors/Affiliation: Justin Schuman (WCG Surveyor)

Summary of Work Performed

Curran continued placement of the drainage layer in Phase 9C. Curran continued to spread the minimum 1-ft thick drainage layer in Phase 9C from approximately E 1,042,750 to the east phase limits from approximately N 1,749,175 to approximately N 1,749,250.

Curran used one bulldozer to spread the drainage layer. An excavator was used to remove excess drainage layer into a haul truck to be stockpiled on site. The backhoe and off-road haul truck remained outside the cell footprint. CQA observed no damage or large wrinkles in the underlying geosynthetics.

The drainage layer placement in Phase 9C is complete.

WCG surveyed the remaining east half of the top of drainage layer for Phase 9C. Survey elevations were compared to record top of clay or probed to verify minimum 1-ft thickness.

GCS continued deployment of 4 oz cushion fabric in Phase 10B. A skid steer was used to transfer the geotextile rolls from the staging area to the cell. The skid steer was also used to deploy geotextile panels from the southwest to the northeast. Panels were deployed perpendicular to the slope. Geotextile panels were sewn together. GCS finished deployment of 4 oz cushion fabric in Phase 10B and continued working across Phase 9C working east. GCS placed approximately 130,500 sq. ft of cushion fabric today.

Equipment Used:
One CAT D6T LGP bulldozer with GPS
One Skid steer
Two Sewing machines
One Excavator
One Haul truck

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Thursday 12/14/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1700

Visitors/Affiliation: N/A

Summary of Work Performed

GCS continued deployment of 4 oz cushion fabric in Phase 9C. A skid steer was used to transfer geotextile rolls from the staging area to the cell. A skid steer was also used to deploy geotextile panels perpendicular to the slope from the west working east. Geotextile panels were sewn together. GCS placed approximately 120,060 sq. ft of cushion fabric.

Equipment Used:
One Skid steer
Two Sewing machines

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Friday 12/15/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, 40s, Sunny
Client:	Waste Management of IL, Inc.	PM:	40s, 50s, Sunny

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1700

Visitors/Affiliation: N/A

Summary of Work Performed

GCS continued deployment of 4 oz cushion fabric in Phase 9C. A skid steer was used to transfer geotextile rolls from the staging area to the cell. A skid steer was also used to deploy geotextile panels perpendicular to the slope from the west working east. Geotextile panels were sewn together. GCS placed approximately 88,740 sq. ft of cushion fabric. The installation of the 4 oz geotextile is complete.

GCS began deployment of the rain flap on the West berm of 10B starting at the North end of the berm working south. Rain flap panels were fusion welded together and then the rain flap was extrusion welded to the previously installed 60 mil HDPE geomembrane. Trial welds were performed and passed prior to welding for both welding machines.

Equipment Used:
One Skid steer
Two Sewing machines

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Saturday 12/16/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Rain
Client:	Waste Management of IL, Inc.	PM:	

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1130

Visitors/Affiliation: N/A

Summary of Work Performed

GCS continued deployment of the rain flap on the West berm of 10B working South. Panels were sandbagged down to be held in place. Work ended early and no welding was done due to rain.

Equipment Used:

One Skid steer
Two Grinders
Two Leisters

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

Weaver Consultants Group **Day/Date:** Monday 12/18/23

Daily Field Report

Project:	Phases 9C and 10B	Project No.	0086-004-16-22
Location:	Laraway RDF	Weather: AM:	30s, Windy
Client:	Waste Management of IL, Inc.	PM:	30s, Windy, Snow

Contractor(s): Curran Contracting, Inc. (Curran), Global Containment Solutions (GCS)

Contractor Sub(s):

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: 0630

Departure: 1400

Visitors/Affiliation: N/A

Summary of Work Performed

GCS continued the installation of the rain flap on the West berm of 10B. Panels were extrusion welded together and then the rain flap was extrusion welded to the previously installed 60 mil geomembrane. All extrusion welding was nondestructively tested with a vacuum box. Before welding commenced trial welds were taken and passed according to the CQA plan. GCS completed the installation of the rain flap on the West berm of 10B.

Cell construction is complete.

Equipment Used:
One Grinders
One Leisters
One Extrusion Gun
One Vacuum Box

Name: Griffin Clarke

Title: CQA Field Officer

Name: Robert Schumann

Title: CQA Officer

APPENDIX B

PRE-CONSTRUCTION SOIL TESTING RESULTS

APPENDIX B.1 – Clay Liner Moisture Content/Density Relationship Testing Results
APPENDIX B.2 – Clay Liner Atterberg Limits Testing Results
APPENDIX B.3 – Clay Liner Grain Size Analysis Testing Results
APPENDIX B.4 – Clay Liner Remolded Hydraulic Conductivity Testing Results
APPENDIX B.5 – Clay Liner Acceptable Zone

APPENDIX B.1

Clay Liner Moisture Content/Density Relationship Testing Results

BROWN/GRAY CLAY

MOISTURE-DENSITY TEST REPORT

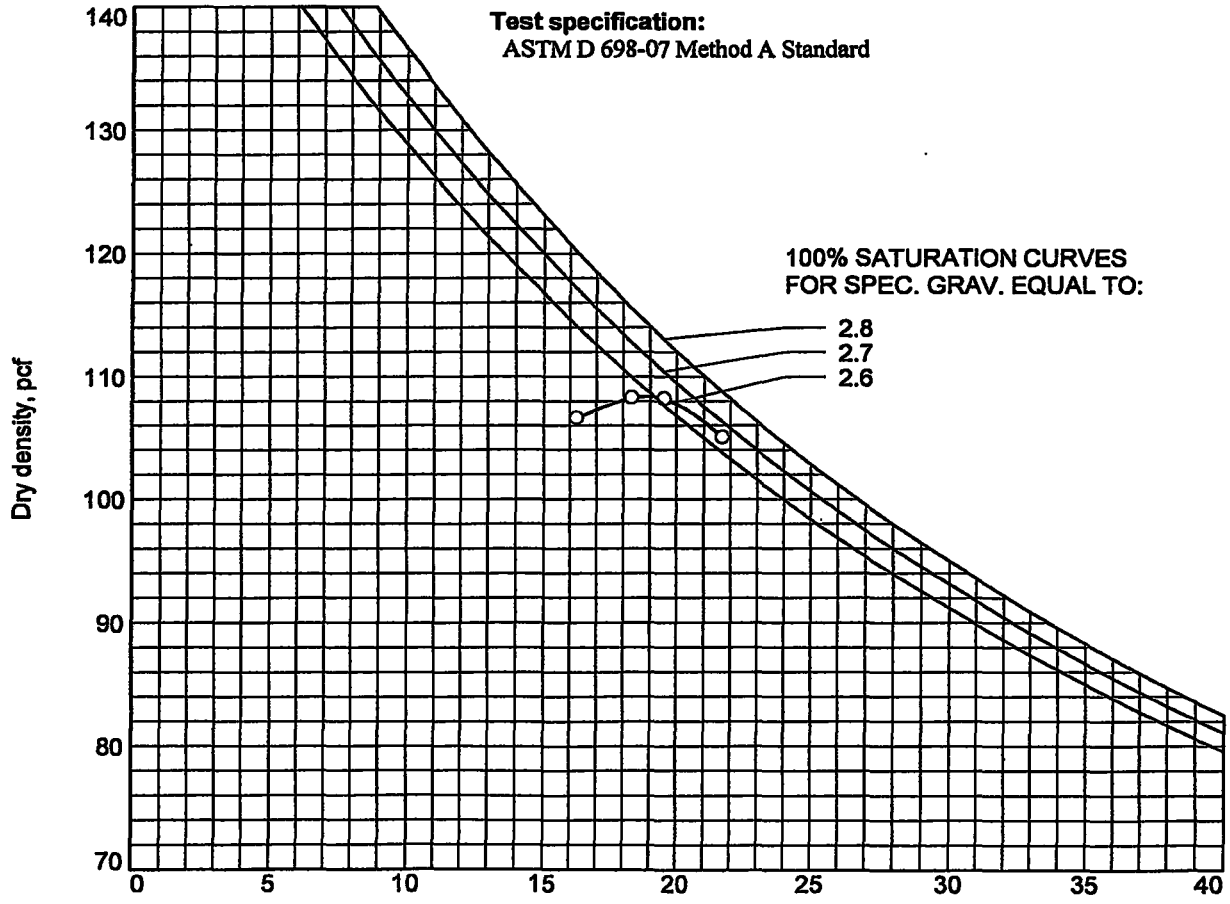
Project No.: 0086-04-16-04-03 **Date:** 9/13/10
Project: Laraway RDF, Elwood, IL
Client: Waste Management
Location: Phase 1A West
Sample Number: IC-BS-1
Remarks:

MATERIAL DESCRIPTION

Description: Gray LEAN CLAY

Classifications - **USCS:** CL **AASHTO:** A-6(19)
Nat. Moist. = **Sp.G. =**
Liquid Limit = 37 **Plasticity Index =** 19
% < No.200 = 95.9 %

TEST RESULTS
Maximum dry density = 108.4 pcf
Optimum moisture = 18.9 %



Figure

Weaver Boos Consultants

Tested By: jjw **Checked By:** tg

MOISTURE DENSITY TEST DATA

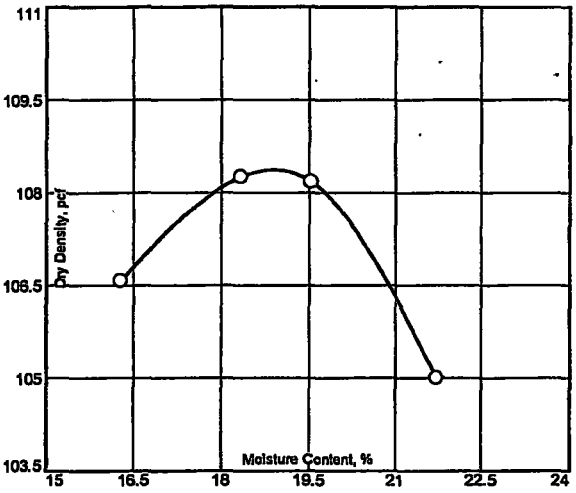
10/12/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-1
Description: Gray LEAN CLAY
Liquid Limit: 37 **Plasticity Index:** 19
Date: 9/13/10 **USCS Classification:** CL **AASHTO Classification:** A-6(19)
Tested by: jjw **Checked by:** tg
Percent passing #4 sieve: 99.1

Test Data and Results

Test Specification:

Type of Test: ASTM D 698-07 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	13.41	13.55	13.59	13.54
Wt. M	9.28	9.28	9.28	9.28
Wt. W+T	327.5	292.8	398.4	495.3
Wt. D+T	282.3	248.1	334.0	407.7
Tare	4.6	4.4	4.4	4.5
Moist.	16.3	18.3	19.5	21.7
Dry Den.	106.6	108.3	108.2	105.0

Test Results: Max. Dry Den. = 108.4 pcf Opt. Moist = 18.9%

MOISTURE-DENSITY TEST REPORT

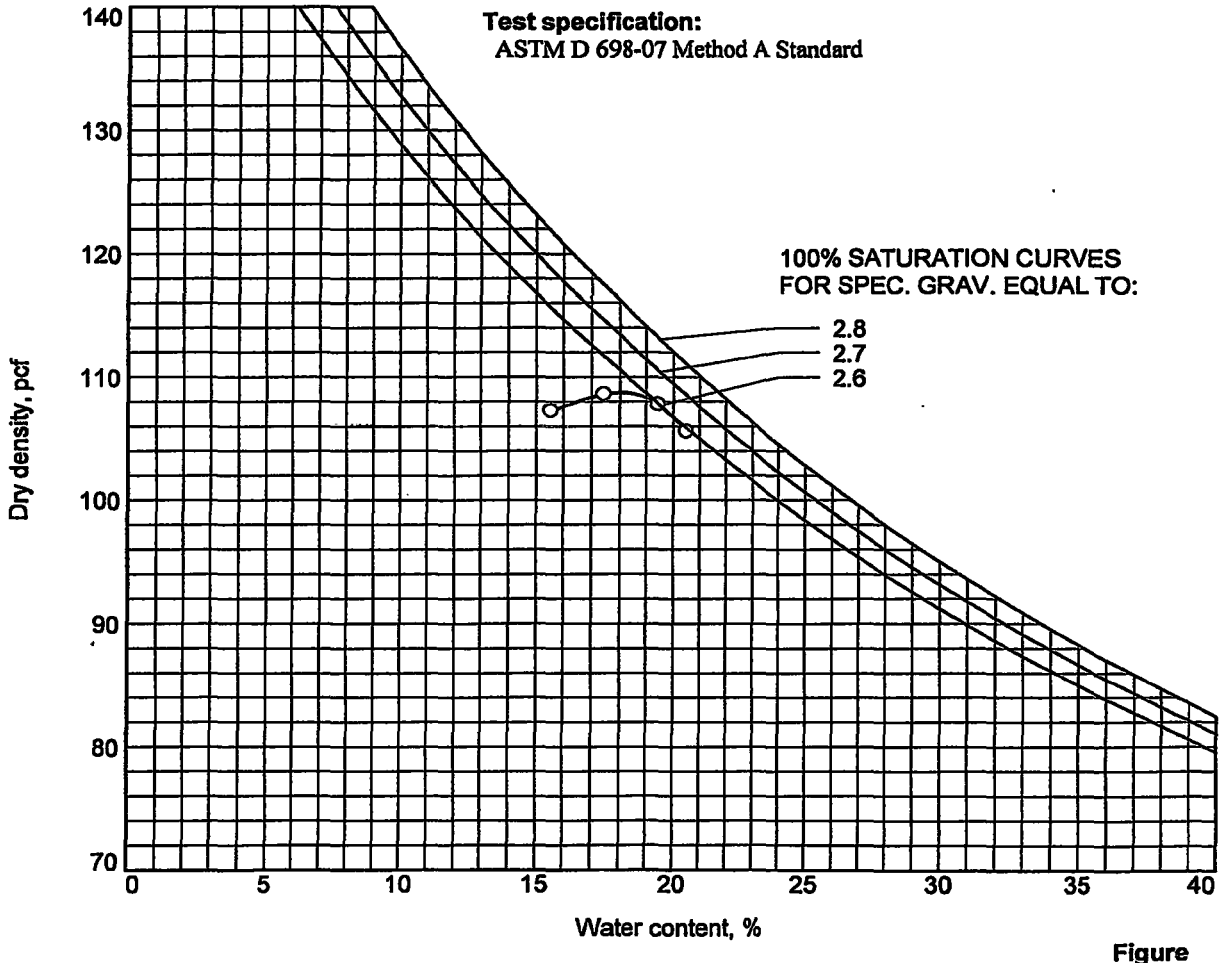
Project No.: 0086-04-16-04-03 **Date:** 9/13/10
Project: Laraway RDF, Elwood, IL
Client: Waste Management
Location: Phase 1A West
Sample Number: IC-BS-2
Remarks:

MATERIAL DESCRIPTION

Description: Gray LEAN CLAY

Classifications - **USCS:** CL **AASHTO:** A-6(16)
Nat. Moist. = **Sp.G. =**
Liquid Limit = 35 **Plasticity Index =** 17
% < No.200 = 96.2 %

TEST RESULTS
Maximum dry density = 108.7 pcf
Optimum moisture = 18.1 %



Figure

Weaver Boos Consultants

Tested By: jjw **Checked By:** tg

MOISTURE DENSITY TEST DATA

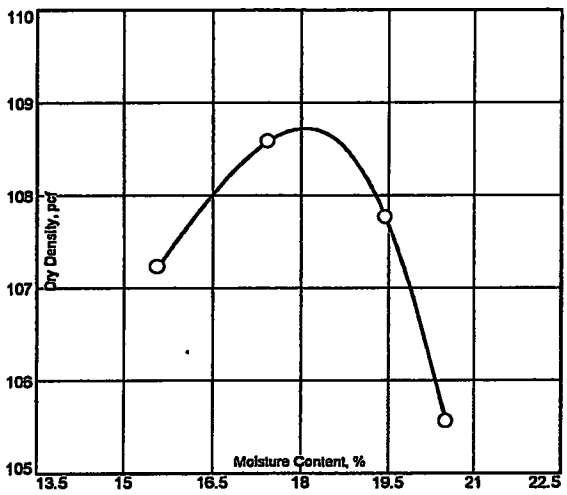
10/12/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-2
Description: Gray LEAN CLAY
Liquid Limit: 35 **Plasticity Index:** 17
Date: 9/13/10 **USCS Classification:** CL **AASHTO Classification:** A-6(16)
Tested by: jjw **Checked by:** tg
Percent passing #4 sieve: 100.0

Test Data and Results

Test Specification:

Type of Test: ASTM D 698-07 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	13.41	13.53	13.57	13.52
Wt. M	9.28	9.28	9.28	9.28
Wt. W+T	334.6	348.0	366.8	360.9
Wt. D+T	290.1	297.0	307.8	300.2
Tare	4.2	4.5	4.4	4.3
Moist.	15.6	17.4	19.4	20.5
Dry Den.	107.2	108.6	107.8	105.6

Test Results: Max. Dry Den.= 108.7 pcf Opt. Moist.= 18.1%

MOISTURE-DENSITY TEST REPORT

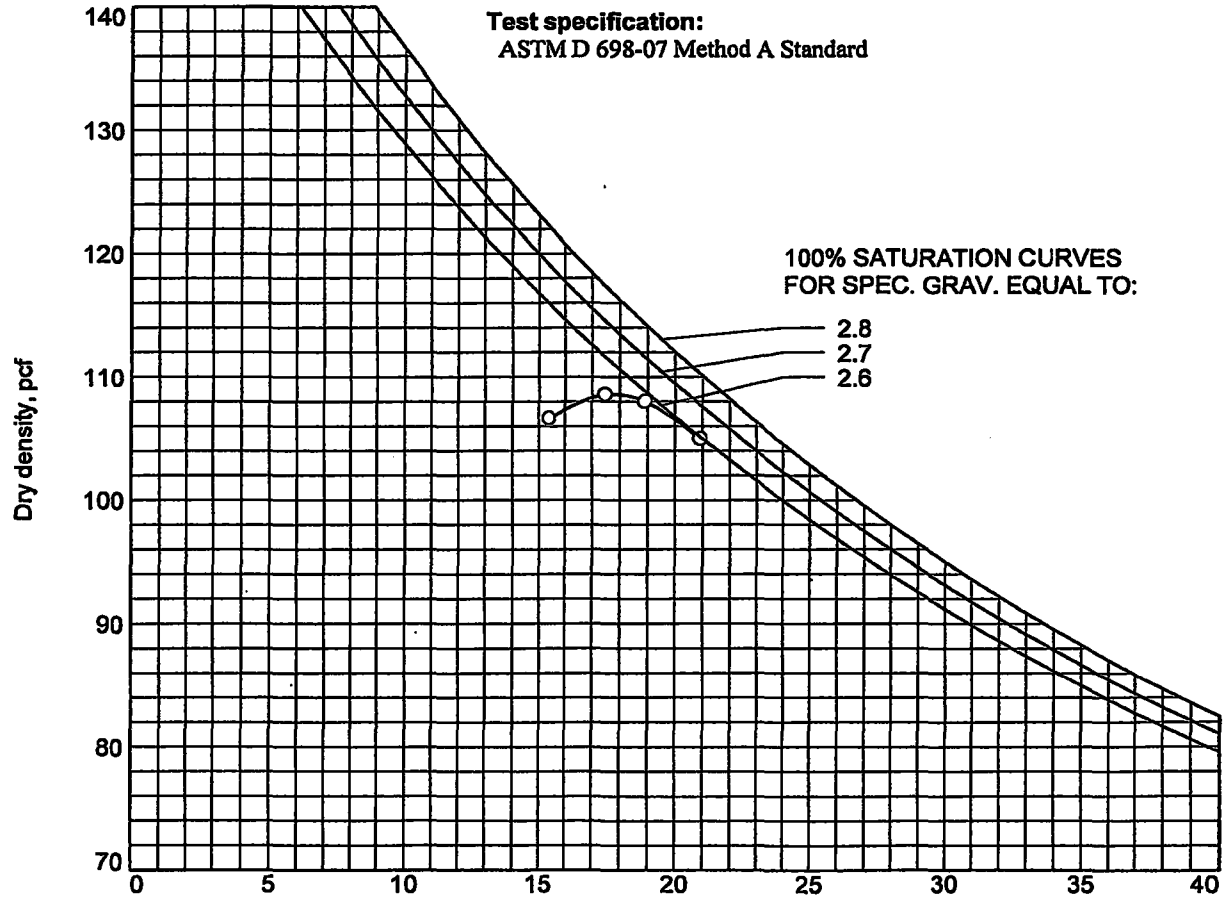
Project No.: 0086-04-16-04-03 **Date:** 9/13/10
Project: Laraway RDF, Elwood, IL
Client: Waste Management
Location: Phase 1A West
Sample Number: IC-BS-3
Remarks:

MATERIAL DESCRIPTION

Description: Gray LEAN CLAY

Classifications - **USCS:** CL **AASHTO:** A-6(18)
Nat. Moist. = **Sp.G. =**
Liquid Limit = 36 **Plasticity Index =** 18
% < No.200 = 97.0 %

TEST RESULTS
Maximum dry density = 108.6 pcf
Optimum moisture = 17.8 %



Figure

Weaver Boos Consultants

Tested By: jjw **Checked By:** tg

MOISTURE DENSITY TEST DATA

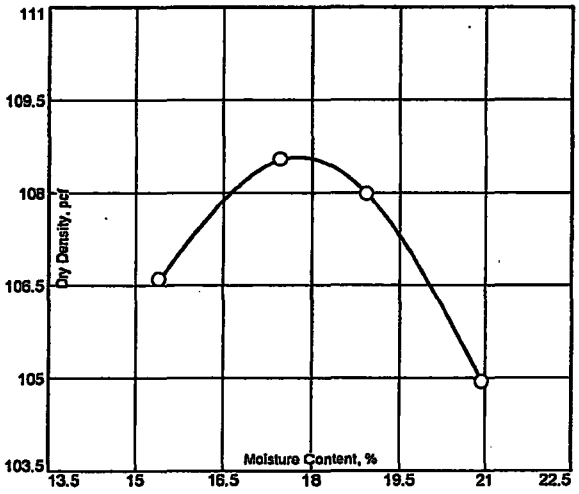
10/12/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-3
Description: Gray LEAN CLAY
Liquid Limit: 36 **Plasticity Index:** 18
Date: 9/13/10 **USCS Classification:** CL **AASHTO Classification:** A-6(18)
Tested by: jjw **Checked by:** tg
Percent passing #4 sieve: 99.8

Test Data and Results

Test Specification:

Type of Test: ASTM D 698-07 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



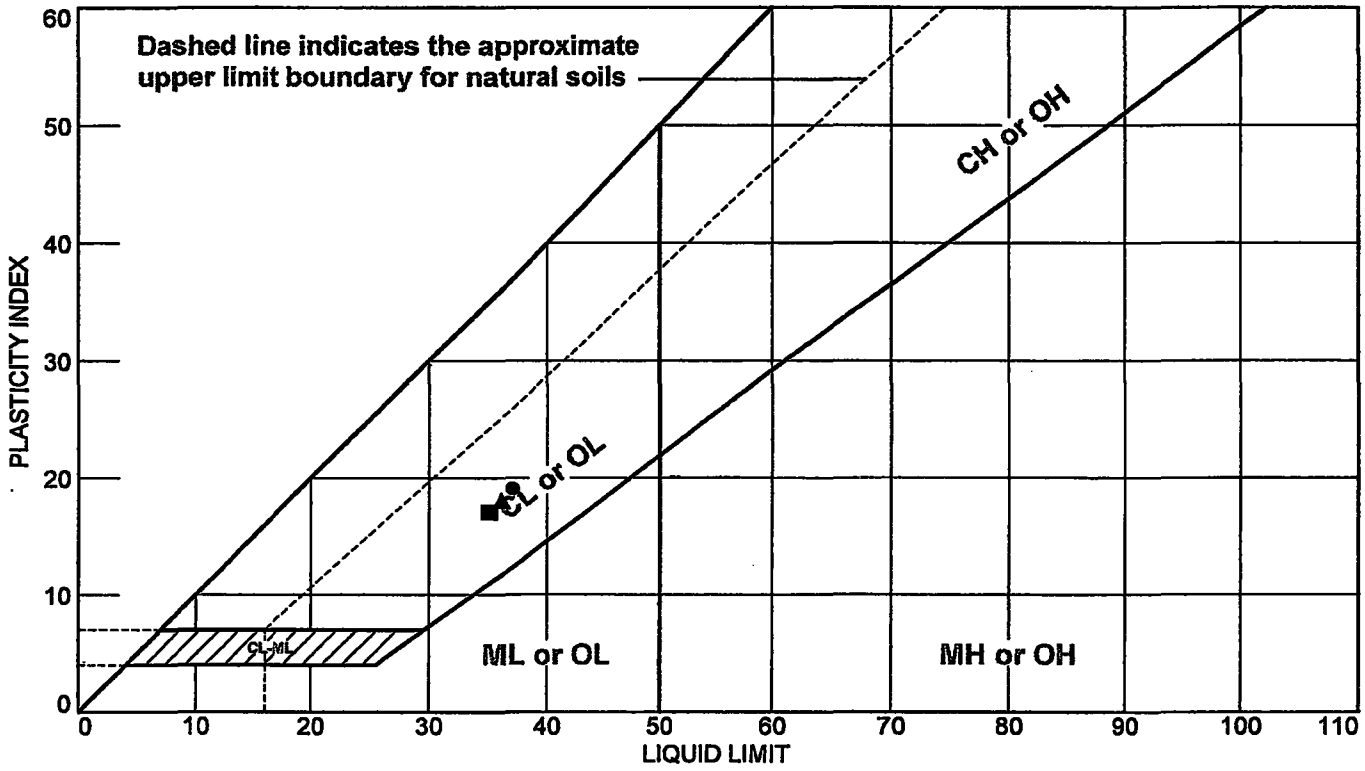
Point No.	1	2	3	4
Wt. M+S	13.38	13.53	13.56	13.51
Wt. M	9.28	9.28	9.28	9.28
Wt. W+T	344.3	384.0	421.5	372.3
Wt. D+T	298.9	327.6	355.1	308.6
Tare	4.3	5.0	4.3	4.5
Moist.	15.4	17.5	18.9	20.9
Dry Den.	106.6	108.5	108.0	104.9

Test Results: Max. Dry Den. = 108.6 pcf Opt. Moist = 17.8%

APPENDIX B.2

Clay Liner Atterberg Limits Testing Results

LIQUID AND PLASTIC LIMITS TEST REPORT



SOIL DATA

	SOURCE	SAMPLE NO.	DEPTH	NATURAL WATER CONTENT (%)	PLASTIC LIMIT (%)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LIQUIDITY INDEX	USCS
●	CBS	ICBS-1			18	37	19		CL
■	CBS	ICBS-2			18	35	17		CL
▲	CBS	ICBS-3			18	36	18		CL

Weaver Boos Consultants

SOUTH BEND, IN

Client: Waste Management
Project: Laraway RDF, Elwood, IL

Project No.: 0086-04-16-04-03 **Figure**

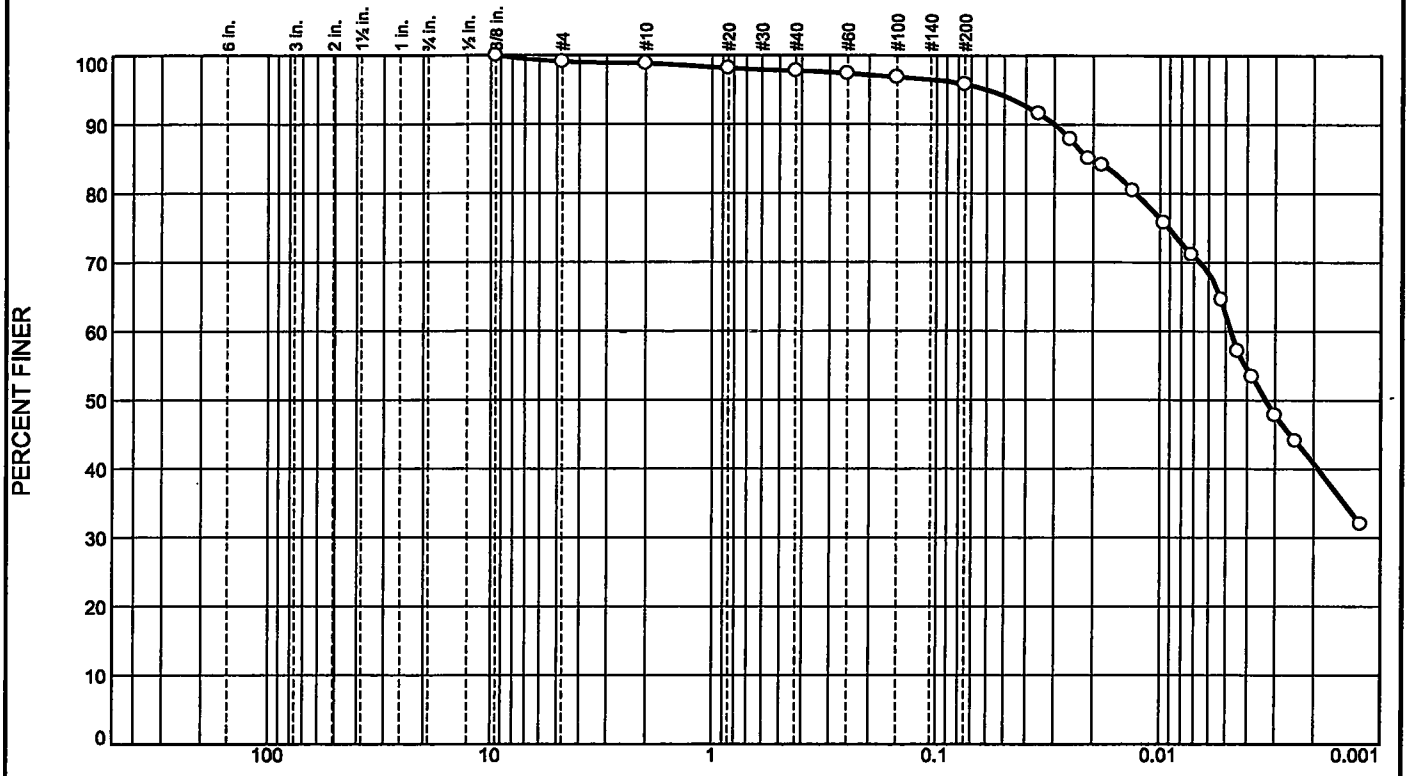
Tested By: rs **Checked By:** tg

APPENDIX B.3

Clay Liner Grain Size Analysis Testing Results

BROWN/GRAY CLAY

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.9	0.3	1.1	1.8	33.2	62.7

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	99.1		
#10	98.8		
#20	98.1		
#40	97.7		
#60	97.4		
#100	96.8		
#200	95.9		

* (no specification provided)

Material Description

Gray LEAN CLAY

Atterberg Limits

PL= 18 LL= 37 PI= 19

Coefficients

D_{90}= 0.0297 D_{85}= 0.0208 D_{60}= 0.0047
D_{50}= 0.0033 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(19)

Remarks

Location: Phase 1A West
Sample Number: IC-BS-1

Date: 9/15/10

Weaver Boos Consultants

SOUTH BEND, IN

Client: Waste Management
Project: Laraway RDF, Elwood, IL

Project No: 0086-04-16-04-03 **Figure**

Tested By: rs **Checked By:** tg

GRAIN SIZE DISTRIBUTION TEST DATA

9/22/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-1
Material Description: Gray LEAN CLAY
Date: 9/15/10 **PL:** 18 **LL:** 37 **PI:** 19
USCS Classification: CL **AASHTO Classification:** A-6(19)
Tested by: rs **Checked by:** tg

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
369.02	0.00	0.00	3/8"	0.00	100.0
			#4	3.36	99.1
			#10	4.40	98.8
53.19	0.00	0.00	#20	0.36	98.1
			#40	0.57	97.7
			#60	0.77	97.4
			#100	1.06	96.8
			#200	1.58	95.9

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 98.8
Weight of hydrometer sample =53.19
Hygroscopic moisture correction:
Moist weight and tare = 62.01
Dry weight and tare = 60.58
Tare weight = 3.60
Hygroscopic moisture = 2.5%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5.5
Meniscus correction only = 1.0
Specific gravity of solids = 2.75
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1.00	21.0	54.5	49.2	0.0131	55.5	7.2	0.0351	91.6
2.00	21.0	52.5	47.2	0.0131	53.5	7.5	0.0254	87.9
3.00	21.0	51.0	45.7	0.0131	52.0	7.8	0.0211	85.1
4.00	21.0	50.5	45.2	0.0131	51.5	7.8	0.0183	84.2
8.00	21.0	48.5	43.2	0.0131	49.5	8.2	0.0132	80.4
16.00	21.0	46.0	40.7	0.0131	47.0	8.6	0.0096	75.8
30.00	21.0	43.5	38.2	0.0131	44.5	9.0	0.0072	71.1
60.00	21.0	40.0	34.7	0.0131	41.0	9.6	0.0052	64.6

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
90.00	21.0	36.0	30.7	0.0131	37.0	10.2	0.0044	57.2
125.00	21.0	34.0	28.7	0.0131	35.0	10.6	0.0038	53.4
210.00	21.0	31.0	25.7	0.0131	32.0	11.0	0.0030	47.8
330.00	21.0	29.0	23.7	0.0131	30.0	11.4	0.0024	44.1
1410.00	21.0	22.5	17.2	0.0131	23.5	12.4	0.0012	32.0

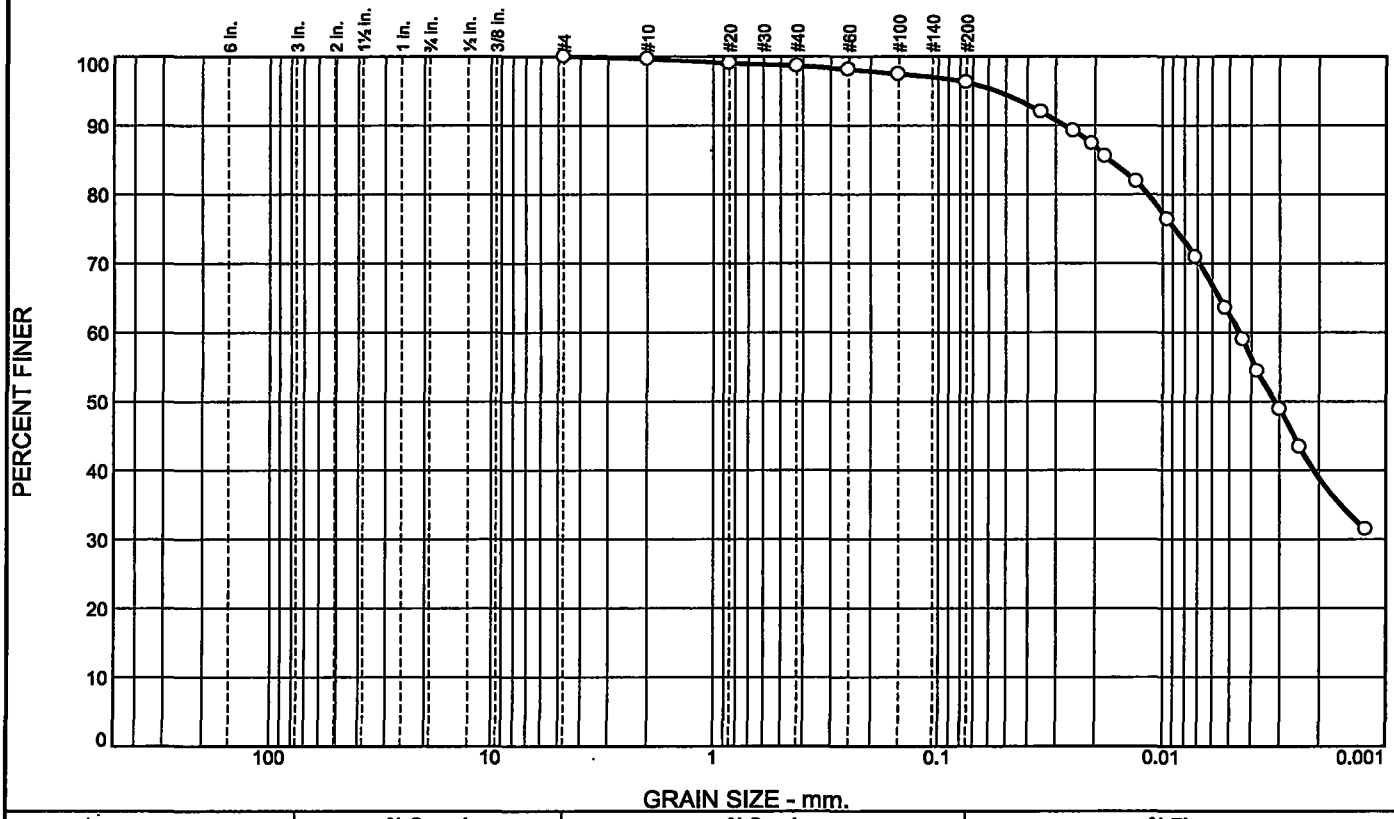
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.9	0.9	0.3	1.1	1.8	3.2	33.2	62.7	95.9

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0033	0.0047	0.0128	0.0208	0.0297	0.0590

Fineness Modulus
0.11

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.3	1.1	2.4	33.7	62.5

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
#4	100.0		
#10	99.7		
#20	99.0		
#40	98.6		
#60	98.1		
#100	97.5		
#200	96.2		

* (no specification provided)

Material Description

Gray LEAN CLAY

Atterberg Limits

PL= 18 LL= 35 PI= 17

Coefficients

D_{90}= 0.0274 D_{85}= 0.0173 D_{60}= 0.0045
D_{50}= 0.0031 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(16)

Remarks

Location: Phase 1A West
Sample Number: IC-BS-2

Date: 9/15/10

Weaver Boos Consultants

SOUTH BEND, IN

Client: Waste Management
Project: Laraway RDF, Elwood, IL

Project No: 0086-04-16-04-03 **Figure**

Tested By: rs **Checked By:** tg

GRAIN SIZE DISTRIBUTION TEST DATA

9/22/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-2
Material Description: Gray LEAN CLAY
Date: 9/15/10 **PL:** 18 **LL:** 35 **PI:** 17
USCS Classification: CL **AASHTO Classification:** A-6(16)
Tested by: rs **Checked by:** tg

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
391.42	0.00	0.00	#4	0.00	100.0
			#10	1.29	99.7
54.46	0.00	0.00	#20	0.34	99.0
			#40	0.57	98.6
			#60	0.85	98.1
			#100	1.21	97.5
			#200	1.87	96.2

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.7
Weight of hydrometer sample =54.46
Hygroscopic moisture correction:
Moist weight and tare = 64.31
Dry weight and tare = 62.92
Tare weight = 3.67
Hygroscopic moisture = 2.3%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5.5
Meniscus correction only = 1.0
Specific gravity of solids = 2.75
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1.00	21.0	55.5	50.2	0.0131	56.5	7.0	0.0347	92.0
2.00	21.0	54.0	48.7	0.0131	55.0	7.3	0.0250	89.2
3.00	21.0	53.0	47.7	0.0131	54.0	7.4	0.0206	87.4
4.00	21.0	52.0	46.7	0.0131	53.0	7.6	0.0180	85.5
8.00	21.0	50.0	44.7	0.0131	51.0	7.9	0.0130	81.9
16.00	21.0	47.0	41.7	0.0131	48.0	8.4	0.0095	76.4
30.00	21.0	44.0	38.7	0.0131	45.0	8.9	0.0071	70.9
60.00	21.0	40.0	34.7	0.0131	41.0	9.6	0.0052	63.6
90.00	21.0	37.5	32.2	0.0131	38.5	10.0	0.0044	59.0

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
125.00	21.0	35.0	29.7	0.0131	36.0	10.4	0.0038	54.4
210.00	21.0	32.0	26.7	0.0131	33.0	10.9	0.0030	48.9
330.00	21.0	29.0	23.7	0.0131	30.0	11.4	0.0024	43.4
1410.00	21.0	22.5	17.2	0.0131	23.5	12.4	0.0012	31.5

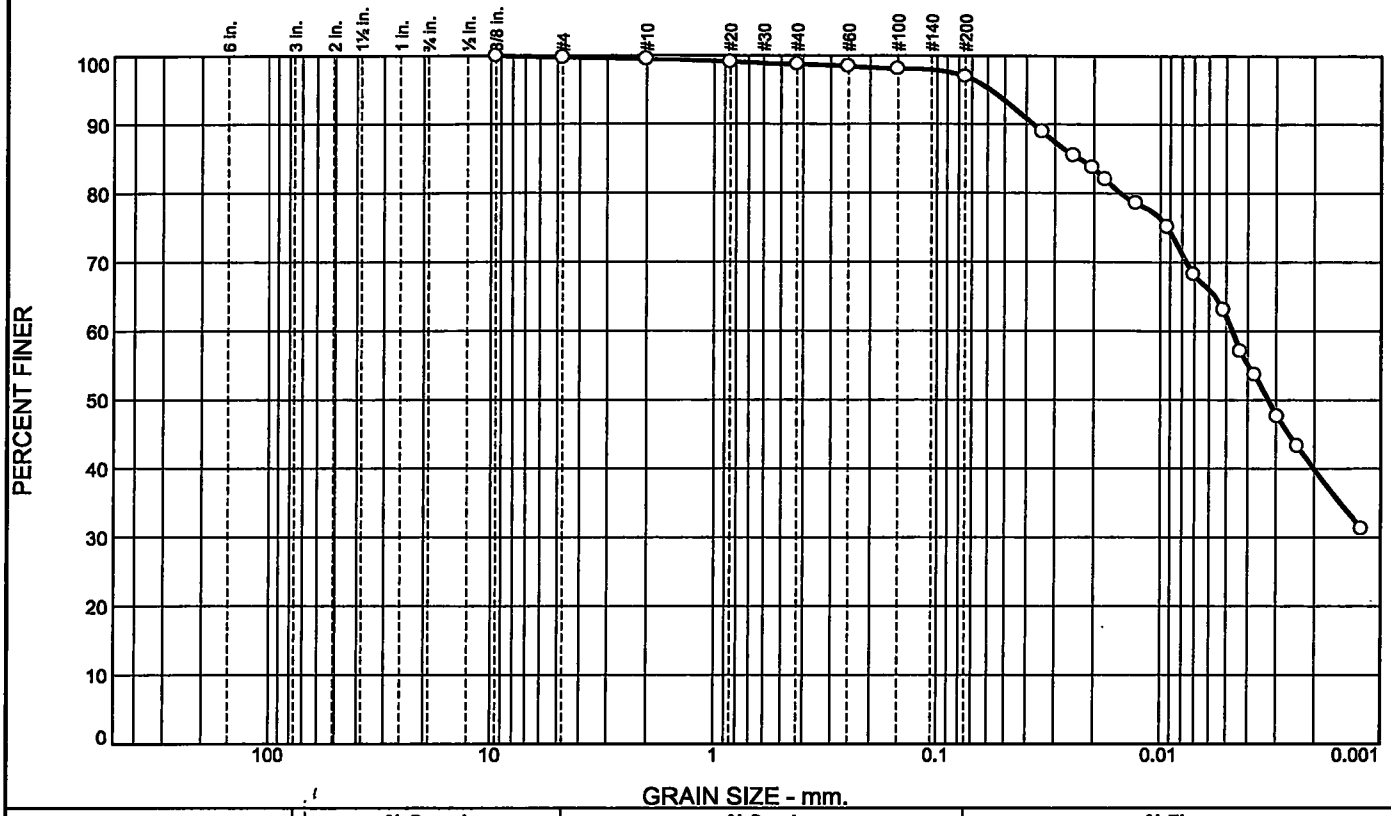
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.0	0.0	0.3	1.1	2.4	3.8	33.7	62.5	96.2

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0031	0.0045	0.0116	0.0173	0.0274	0.0554

Fineness Modulus
0.06

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.2	0.3	0.8	1.7	34.7	62.3

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
3/8"	100.0		
#4	99.8		
#10	99.5		
#20	99.1		
#40	98.7		
#60	98.5		
#100	98.1		
#200	97.0		

* (no specification provided)

Material Description

Gray LEAN CLAY

Atterberg Limits

PL= 18 LL= 36 PI= 18

Coefficients

D_{90}= 0.0373 D_{85}= 0.0233 D_{60}= 0.0047
D_{50}= 0.0032 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Classification

USCS= CL AASHTO= A-6(18)

Remarks

Location: Phase 1A West
Sample Number: IC-BS-3

Date: 9/15/10

Weaver Boos Consultants

SOUTH BEND, IN

Client: Waste Management
Project: Laraway RDF, Elwood, IL

Project No: 0086-04-16-04-03 **Figure**

Tested By: rs **Checked By:** tg

GRAIN SIZE DISTRIBUTION TEST DATA

9/22/2010

Client: Waste Management
Project: Laraway RDF, Elwood, IL
Project Number: 0086-04-16-04-03
Location: Phase 1A West
Sample Number: IC-BS-3
Material Description: Gray LEAN CLAY
Date: 9/15/10 **PL:** 18 **LL:** 36 **PI:** 18
USCS Classification: CL **AASHTO Classification:** A-6(18)
Tested by: rs **Checked by:** tg

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Cumulative Pan Tare Weight (grams)	Sieve Opening Size	Cumulative Weight Retained (grams)	Percent Finer
375.74	0.00	0.00	3/8"	0.00	100.0
			#4	0.88	99.8
			#10	1.75	99.5
58.27	0.00	0.00	#20	0.25	99.1
			#40	0.46	98.7
			#60	0.62	98.5
			#100	0.85	98.1
			#200	1.51	97.0

Hydrometer Test Data

Hydrometer test uses material passing #10
Percent passing #10 based upon complete sample = 99.5
Weight of hydrometer sample =58.27
Hygroscopic moisture correction:
Moist weight and tare = 52.70
Dry weight and tare = 51.29
Tare weight = 3.64
Hygroscopic moisture = 3.0%
Automatic temperature correction
Composite correction (fluid density and meniscus height) at 20 deg. C = -5.5
Meniscus correction only = 1.0
Specific gravity of solids = 2.75
Hydrometer type = 152H
Hydrometer effective depth equation: L = 16.294964 - 0.164 x Rm

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
1.00	21.0	57.0	51.7	0.0131	58.0	6.8	0.0341	88.9
2.00	21.0	55.0	49.7	0.0131	56.0	7.1	0.0247	85.5
3.00	21.0	54.0	48.7	0.0131	55.0	7.3	0.0204	83.8
4.00	21.0	53.0	47.7	0.0131	54.0	7.4	0.0178	82.0
8.00	21.0	51.0	45.7	0.0131	52.0	7.8	0.0129	78.6
16.00	21.0	49.0	43.7	0.0131	50.0	8.1	0.0093	75.2
30.00	21.0	45.0	39.7	0.0131	46.0	8.8	0.0071	68.3
60.00	21.0	42.0	36.7	0.0131	43.0	9.2	0.0051	63.1

Hydrometer Test Data (continued)

Elapsed Time (min.)	Temp. (deg. C.)	Actual Reading	Corrected Reading	K	Rm	Eff. Depth	Diameter (mm.)	Percent Finer
90.00	21.0	38.5	33.2	0.0131	39.5	9.8	0.0043	57.1
125.00	21.0	36.5	31.2	0.0131	37.5	10.1	0.0037	53.6
210.00	21.0	33.0	27.7	0.0131	34.0	10.7	0.0030	47.6
330.00	21.0	30.5	25.2	0.0131	31.5	11.1	0.0024	43.3
1410.00	21.0	23.5	18.2	0.0131	24.5	12.3	0.0012	31.3

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	0.0	0.2	0.2	0.3	0.8	1.7	2.8	34.7	62.3	97.0

D_{10}	D_{15}	D_{20}	D_{30}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
				0.0032	0.0047	0.0151	0.0233	0.0373	0.0582

Fineness Modulus
0.06

APPENDIX B.4

Clay Liner Remolded Hydraulic Conductivity Testing Results

BROWN/GRAY CLAY

PERMEABILITY TEST REPORT

TEST DATA:

Specimen Height (cm): 7.78
Specimen Diameter (cm): 7.14
Dry Unit Weight (pcf): 103.4
Moisture Before Test (%): 18.2
Moisture After Test (%): 18.6

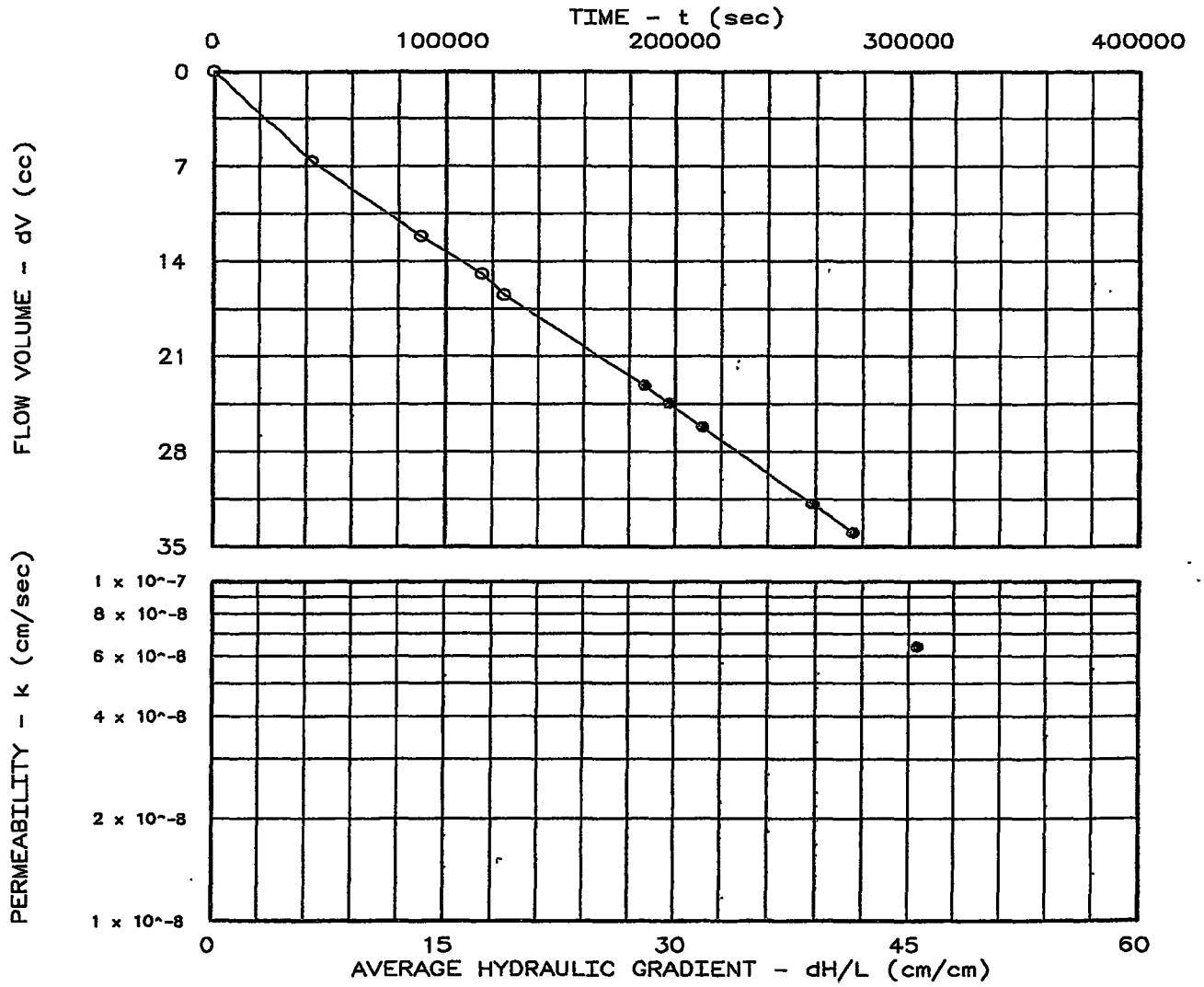
Run Number:	1 ●	2 ▲
Cell Pressure (psi):	40.0	
Test Pressure(psi):	30.0	
Back Pressure(psi):	25.0	
Diff. Head (psi):	5.0	
Flow Rate (cc/sec):	1.21 x 10^-4	
Perm. (cm/sec):	6.40 x 10^-8	

SAMPLE DATA:

Sample Identification: IC-BS-1

Visual Description: Gray LEAN CLAY, trace gravel
Remarks:

Maximum Dry Density (pcf): 108.4
Optimum Moisture Content (%): 18.9
ASTM(D698)
Percent Compaction: 95.4%
Permeameter type: Flexible Wall
Sample type: Remold



Project: Laraway Landfill Phase 1A West
Location: Elwood, Illinois
Date: 9/20/10

PERMEABILITY TEST REPORT

Weaver Boos Consultants

Project No.: 0086-04-16
File No.: 0086-04-16-04
Lab No.: 8
Tested by: jjw
Checked by: tg
Test: CH - Constant head

PERMEABILITY TEST DATA

PROJECT DATA

Project Name:	Laraway Landfill Phase 1A West
File No.:	0086-04-16-04
Project Location:	Elwood, Illinois
Project No.:	0086-04-16
Sample Identification:	IC-BS-1
Lab No.:	8
Description:	Gray LEAN CLAY, trace gravel
Sample Type:	Remold
Max. Dry Dens.:	108.4
Method (D1557/D698):	D698
Opt. Water Content:	18.9
Date:	9/20/10
Remarks:	
Permeameter Type:	Flexible Wall
Tested by:	jjw
Checked by:	tg
Test type:	CH - Constant head

PERMEABILITY TEST SPECIMEN DATA

	Before test:			After test:		
Diameter:	1	2		1	2	
Top:	2.797 in	2.817 in		2.795 in	2.832 in	
Middle:	2.811 in	2.811 in		2.795 in	2.822 in	
Bottom:	2.818 in	2.827 in		2.837 in	2.823 in	
Average:	2.81 in	7.14 cm		2.82 in	7.15 cm	
Length:	1	2	3	1	2	3
	3.069 in	3.055 in	3.062 in	2.824 in	2.856 in	2.906 in
Average:	3.06 in	7.78 cm		2.86 in	7.27 cm	

Moisture, Density and Sample Parameters:

Specific Gravity:	2.70		
Wet Wt. & Tare:	610.30		612.30
Dry Wt. & Tare:	516.30		516.30
Tare Wt.:	0.00		0.00
Moisture Content:	18.2 %		18.6 %
Dry Unit Weight:	103.4 pcf	95.4 % of max	110.4 pcf
Porosity:	0.3867		0.3449
Saturation:	77.9 %		95.3 %

CONSTANT HEAD PERMEABILITY TEST CONDITIONS DATA

Cell No.: 8 Panel No.: Positions:

Run Number:	1	2
Cell Pressure:	40.0 psi	0.0 psi
Saturation Pressure:	35.0 psi	0.0 psi
Inflow Corr. Factor:	1.00	1.00
Outflow Corr. Factor:	1.00	1.00
Test Temperature:	21.5 °C	0.0 °C

PERMEABILITY TEST READINGS DATA

CASE D X S R	DATE	TIME (24 hr)	ELAPSED TIME-sec	GAUGE PRESSURE-psi IN	GAUGE PRESSURE-psi OUT	BURET READING-cc IN	BURET READING-cc OUT	OUTFLOW/ INFLOW RATIO
S X	9/17/10	5:47:00	0	30.0	25.0	24.20	82.20	0.00
X	9/17/10	17:25:00	41,880	30.0	25.0	29.60	74.40	1.44
X	9/18/10	6:42:00	89,700	30.0	25.0	35.50	69.20	0.88
X	9/18/10	13:49:00	115,320	30.0	25.0	38.40	66.60	0.90
X	9/18/10	16:28:00	124,860	30.0	25.0	40.60	65.70	0.41
	9/19/10	9:37:00	186,600	30.0	25.0	47.10	58.80	1.06
	9/19/10	12:35:00	197,280	30.0	25.0	48.50	57.60	0.86
	9/19/10	16:38:00	211,860	30.0	25.0	50.30	55.90	0.94
	9/20/10	5:37:00	258,600	30.0	25.0	56.10	50.40	0.95
	9/20/10	10:22:00	275,700	30.0	25.0	58.20	48.30	1.00

Test Pressure = 30.0 psi Differential Head = 5.0 psi, 354.0 cm H2O
Gradient = 4.551E 01 Flow rate = 1.211E-04 cc/sec R squared = 0.99999
Permeability, K21.5° = 6.635E-08 cm/sec, K20° = 6.399E-08 cm/sec

CONSTANT HEAD PERMEABILITY TEST RESULTS ASTM D5084

PROJECT NAME: Laraway Landfill Phase 1A West — FILE NO.: 0086-04-16-04
PROJECT LOCATION: Elwood, Illinois — PROJECT NO.: 0086-04-16
SAMPLE IDENTIFICATION: IC-BS-1 — LAB NO.: 8

DESCRIPTION: Gray LEAN CLAY, trace gravel — SAMPLE TYPE: Remold
MAX. DRY DENS.: 108.4 OPT. WATER CONTENT: 18.9 DATE: 9/20/10

SPECIMEN DATA

INITIAL PARAMETERS:	FINAL PARAMETERS:
HEIGHT: 7.78 cm	HEIGHT: 7.27 cm
DIAMETER: 7.14 cm	DIAMETER: 7.15 cm
WET WEIGHT: 610.3 g	WET WEIGHT: 612.3 g
MOISTURE CONTENT: 18.2 %	MOISTURE CONTENT: 18.6 %
DRY DENSITY: 103.4 pcf	DRY DENSITY: 110.4 pcf
PERCENT COMPACTION: 95.4	

TEST PARAMETERS

CELL NO.: 8 PANEL NO.: POSITIONS:

	RUN NO. 1	RUN NO. 2
CELL PRESSURE:	40.0 psi	
TEST PRESSURE:	30.0 psi	
BACK PRESSURE:	25.0 psi /	
/ 0.0 psi		
DIFFERENTIAL HEAD:	5.0 psi	

PERMEABILITY DATA

	RUN NO. 1	RUN NO. 2
AVERAGE FLOW RATE:	1.21E-04 cc/sec	
COEFFICIENT OF CORRELATION:	0.99999	
AVERAGE GRADIENT:	45.5	
TEMPERATURE:	21.5 deg C	
PERMEABILITY, K, at 20 deg C:	6.40E-08 cm/sec	

PERMEABILITY TEST REPORT

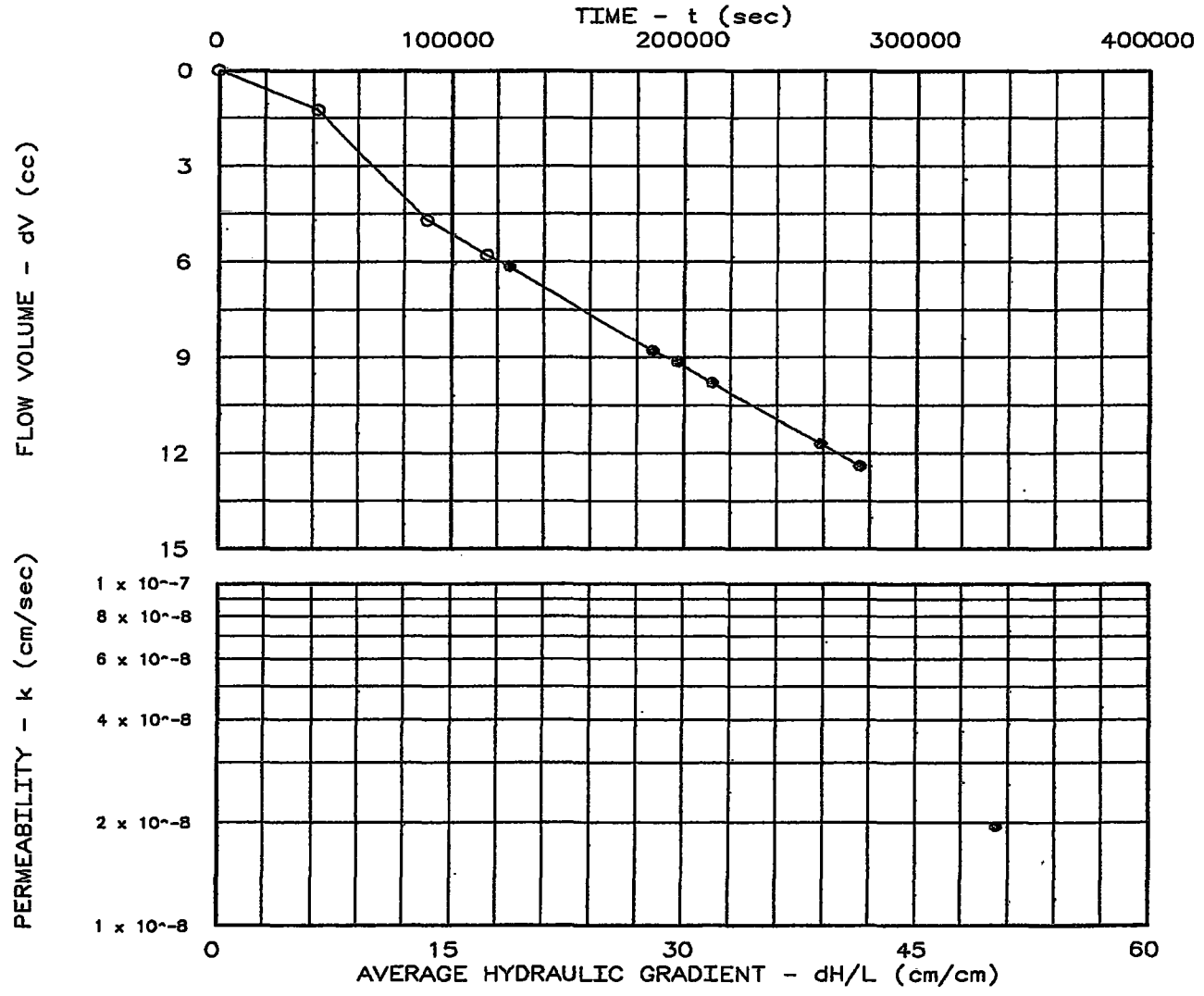
TEST DATA:
Specimen Height (cm): 7.89
Specimen Diameter (cm): 7.19
Dry Unit Weight (pcf): 107.4
Moisture Before Test (%): 19.1
Moisture After Test (%): 19.4

Run Number:	1 ●	2 ▲
Cell Pressure (psi):	40.0	
Test Pressure(psi):	30.0	
Back Pressure(psi):	24.4	
Diff. Head (psi):	5.6	
Flow Rate (cc/sec):	4.13 x 10^-5	
Perm. (cm/sec):	1.95 x 10^-8	

SAMPLE DATA:
Sample Identification: IC-BS-2

Visual Description: Gray LEAN CLAY, trace gravel
Remarks:

Maximum Dry Density (pcf): 108.7
Optimum Moisture Content (%): 18.1
ASTM(D698)
Percent Compaction: 98.8%
Permeameter type: Flexible Wall
Sample type: Remold



Project: Laraway Landfill Phase 1A West
Location: Elwood, Illinois
Date: 9/20/10

PERMEABILITY TEST REPORT

Weaver Boos Consultants

Project No.: 0086-04-16
File No.: 0086-04-16-04
Lab No.: 7
Tested by: jjw
Checked by: tg
Test: CH - Constant head

PERMEABILITY TEST DATA

PROJECT DATA

Project Name:	Laraway Landfill Phase 1A West
File No.:	0086-04-16-04
Project Location:	Elwood, Illinois
Project No.:	0086-04-16
Sample Identification:	IC-BS-2
Lab No.:	7
Description:	Gray LEAN CLAY, trace gravel
Sample Type:	Remold
Max. Dry Dens.:	108.7
Method (D1557/D698):	D698
Opt. Water Content:	18.1
Date:	9/20/10
Remarks:	
Permeameter Type:	Flexible Wall
Tested by:	jjw
Checked by:	tg
Test type:	CH - Constant head

PERMEABILITY TEST SPECIMEN DATA

	Before test:			After test:		
Diameter:	1	2		1	2	
Top:	2.838 in	2.840 in		2.841 in	2.820 in	
Middle:	2.822 in	2.838 in		2.819 in	2.819 in	
Bottom:	2.817 in	2.834 in		2.825 in	2.837 in	
Average:	2.83 in	7.19 cm		2.82 in	7.18 cm	
Length:	1	2	3	1	2	3
	3.108 in	3.113 in	3.103 in	3.057 in	3.072 in	3.100 in
Average:	3.11 in	7.89 cm		3.08 in	7.81 cm	

Moisture, Density and Sample Parameters:

Specific Gravity:	2.70		
Wet Wt. & Tare:	656.60		658.60
Dry Wt. & Tare:	551.40		551.40
Tare Wt.:	0.00		0.00
Moisture Content:	19.1 %		19.4 %
Dry Unit Weight:	107.4 pcf	98.8 % of max	108.9 pcf
Porosity:	0.3630		0.3536
Saturation:	90.4 %		95.9 %

CONSTANT HEAD PERMEABILITY TEST CONDITIONS DATA

Cell No.: 7 Panel No.: Positions:

Run Number:	1	2
Cell Pressure:	40.0 psi	0.0 psi
Saturation Pressure:	35.0 psi	0.0 psi
Inflow Corr. Factor:	1.00	1.00
Outflow Corr. Factor:	1.00	1.00
Test Temperature:	21.5 °C	0.0 °C

PERMEABILITY TEST READINGS DATA

CASE D X S R	DATE	TIME (24 hr)	ELAPSED TIME-sec	GAUGE PRESSURE-psi IN	GAUGE PRESSURE-psi OUT	BURET READING-cc IN	BURET READING-cc OUT	OUTFLOW/ INFLOW RATIO
S X	9/17/10	5:46:00	0	30.0	25.0	21.90	80.80	0.00
X	9/17/10	17:24:00	41,880	30.0	25.0	23.20	79.60	0.92
X	9/18/10	6:43:00	89,820	30.0	25.0	25.90	75.40	1.56
X	9/18/10	13:49:00	115,380	30.0	25.0	27.20	74.50	0.69
	9/18/10	16:28:00	124,920	30.0	25.0	27.60	74.20	0.75
	9/19/10	9:37:00	186,660	30.0	25.0	30.60	71.90	0.77
	9/19/10	12:35:00	197,340	30.0	25.0	31.00	71.60	0.75
	9/19/10	16:38:00	211,920	30.0	25.0	31.70	71.00	0.86
	9/20/10	5:37:00	258,660	30.0	25.0	33.80	69.30	0.81
	9/20/10	10:22:00	275,760	30.0	25.0	34.50	68.60	1.00

Test Pressure = 30.0 psi Differential Head = 5.6 psi, 396.5 cm H2O
Gradient = 5.022E 01 Flow rate = 4.133E-05 cc/sec R squared = 0.99972
Permeability, K21.5° = 2.026E-08 cm/sec, K20° = 1.954E-08 cm/sec

CONSTANT HEAD PERMEABILITY TEST RESULTS ASTM D5084

PROJECT NAME: Laraway Landfill Phase 1A West
FILE NO.: 0086-04-16-04
PROJECT LOCATION: Elwood, Illinois
PROJECT NO.: 0086-04-16
SAMPLE IDENTIFICATION: IC-BS-2
LAB NO.: 7

DESCRIPTION: Gray LEAN CLAY, trace gravel
SAMPLE TYPE: Remold

MAX. DRY DENS.: 108.7 OPT. WATER CONTENT: 18.1 DATE: 9/20/10

SPECIMEN DATA

INITIAL PARAMETERS:	FINAL PARAMETERS:
HEIGHT: 7.89 cm	HEIGHT: 7.81 cm
DIAMETER: 7.19 cm	DIAMETER: 7.18 cm
WET WEIGHT: 656.6 g	WET WEIGHT: 658.6 g
MOISTURE CONTENT: 19.1 %	MOISTURE CONTENT: 19.4 %
DRY DENSITY: 107.4 pcf	DRY DENSITY: 108.9 pcf
PERCENT COMPACTION: 98.8	

TEST PARAMETERS

CELL NO.: 7 PANEL NO.: POSITIONS:

	RUN NO. 1	RUN NO. 2
CELL PRESSURE:	40.0 psi	
TEST PRESSURE:	30.0 psi	
BACK PRESSURE:	24.4 psi /	
/ 0.0 psi		
DIFFERENTIAL HEAD:	5.6 psi	

PERMEABILITY DATA

	RUN NO. 1	RUN NO. 2
AVERAGE FLOW RATE:	4.13E-05 cc/sec	
COEFFICIENT OF CORRELATION:	0.99972	
AVERAGE GRADIENT:	50.2	
TEMPERATURE:	21.5 deg C	
PERMEABILITY, K, at 20 deg C:	1.95E-08 cm/sec	

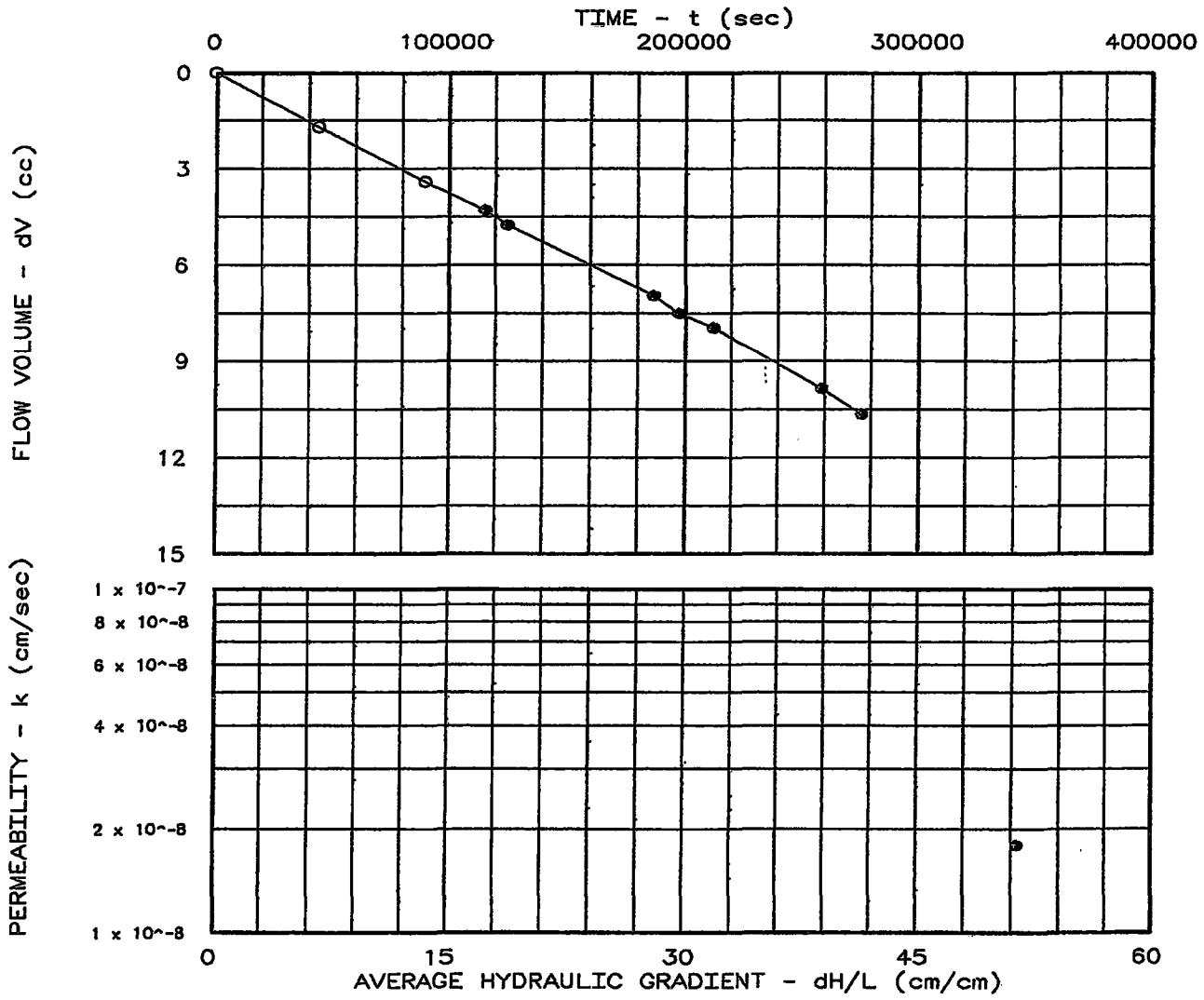
PERMEABILITY TEST REPORT

TEST DATA:
Specimen Height (cm): 7.85
Specimen Diameter (cm): 7.19
Dry Unit Weight (pcf): 105.8
Moisture Before Test (%): 20.1
Moisture After Test (%): 20.4
Run Number: 1 ● 2 ▲
Cell Pressure (psi): 40.0
Test Pressure(psi): 30.0
Back Pressure(psi): 24.3
Diff. Head (psi): 5.7
Flow Rate (cc/sec): 3.89 x 10^-5
Perm. (cm/sec): 1.80 x 10^-8

SAMPLE DATA:
Sample Identification: IC-BS-3

Visual Description: Gray LEAN CLAY, trace gravel
Remarks:

Maximum Dry Density (pcf): 108.6
Optimum Moisture Content (%): 17.8
ASTM(D698)
Percent Compaction: 97.4%
Permeameter type: Flexible Wall
Sample type: Remold



Project: Laraway Landfill Phase 1A West
Location: Elwood, Illinois
Date: 9/20/10

PERMEABILITY TEST REPORT

Weaver Boos Consultants

Project No.: 0086-04-16
File No.: 0086-04-16-04
Lab No.: 4
Tested by: jjw
Checked by: tg
Test: CH - Constant head

PERMEABILITY TEST DATA

PROJECT DATA

Project Name:	Laraway Landfill Phase 1A West
File No.:	0086-04-16-04
Project Location:	Elwood, Illinois
Project No.:	0086-04-16
Sample Identification:	IC-BS-3
Lab No.:	4
Description:	Gray LEAN CLAY, trace gravel
Sample Type:	Remold
Max. Dry Dens.:	108.6
Method (D1557/D698):	D698
Opt. Water Content:	17.8
Date:	9/20/10
Remarks:	
Permeameter Type:	Flexible Wall
Tested by:	jjw
Checked by:	tg
Test type:	CH - Constant head

PERMEABILITY TEST SPECIMEN DATA

	Before test:			After test:		
Diameter:	1	2		1	2	
Top:	2.836 in	2.817 in		2.824 in	2.838 in	
Middle:	2.823 in	2.839 in		2.834 in	2.848 in	
Bottom:	2.834 in	2.844 in		2.836 in	2.847 in	
Average:	2.83 in	7.19 cm		2.84 in	7.21 cm	
Length:	1	2	3	1	2	3
	3.099 in	3.085 in	3.092 in	3.017 in	3.052 in	3.066 in
Average:	3.09 in	7.85 cm		3.05 in	7.73 cm	

Moisture, Density and Sample Parameters:

Specific Gravity:	2.70		
Wet Wt. & Tare:	649.70		651.20
Dry Wt. & Tare:	541.00		541.00
Tare Wt.:	0.00		0.00
Moisture Content:	20.1 %		20.4 %
Dry Unit Weight:	105.8 pcf	97.4 % of max	107.0 pcf
Porosity:	0.3722		0.3655
Saturation:	91.5 %		95.5 %

CONSTANT HEAD PERMEABILITY TEST CONDITIONS DATA

Cell No.: 4 Panel No.: Positions:

Run Number:	1	2
Cell Pressure:	40.0 psi	0.0 psi
Saturation Pressure:	35.0 psi	0.0 psi
Inflow Corr. Factor:	1.00	1.00
Outflow Corr. Factor:	1.00	1.00
Test Temperature:	21.5 °C	0.0 °C

PERMEABILITY TEST READINGS DATA

CASE D X S R	DATE	TIME (24 hr)	ELAPSED TIME-sec	GAUGE PRESSURE-psi IN	GAUGE PRESSURE-psi OUT	BURET READING-cc IN	BURET READING-cc OUT	OUTFLOW/ INFLOW RATIO
S X	9/17/10	5:46:00	0	30.0	25.0	21.80	82.20	0.00
X	9/17/10	17:55:00	43,740	30.0	25.0	22.40	79.40	4.67
X	9/18/10	6:44:00	89,880	30.0	25.0	24.20	77.80	0.89
	9/18/10	13:50:00	115,440	30.0	25.0	25.20	77.00	0.80
	9/18/10	16:27:00	124,860	30.0	25.0	25.70	76.60	0.80
	9/19/10	9:38:00	186,720	30.0	25.0	28.10	74.60	0.83
	9/19/10	12:37:00	197,460	30.0	25.0	28.70	74.10	0.83
	9/19/10	16:37:00	211,860	30.0	25.0	29.20	73.70	0.80
	9/20/10	5:38:00	258,720	30.0	25.0	31.20	71.90	0.90
	9/20/10	10:24:00	275,880	30.0	25.0	32.00	71.10	1.00

Test Pressure = 30.0 psi Differential Head = 5.7 psi, 403.3 cm H2O
Gradient = 5.135E 01 Flow rate = 3.894E-05 cc/sec R squared = 0.99868
Permeability, K21.5° = 1.866E-08 cm/sec, K20° = 1.800E-08 cm/sec

CONSTANT HEAD PERMEABILITY TEST RESULTS ASTM D5084

PROJECT NAME: Laraway Landfill Phase 1A West — FILE NO.: 0086-04-16-04
PROJECT LOCATION: Elwood, Illinois — PROJECT NO.: 0086-04-16
SAMPLE IDENTIFICATION: IC-BS-3 — LAB NO.: 4

DESCRIPTION: Gray LEAN CLAY, trace gravel — SAMPLE TYPE: Remold
MAX. DRY DENS.: 108.6 OPT. WATER CONTENT: 17.8 DATE: 9/20/10

SPECIMEN DATA

INITIAL PARAMETERS:	FINAL PARAMETERS:
HEIGHT: 7.85 cm	HEIGHT: 7.73 cm
DIAMETER: 7.19 cm	DIAMETER: 7.21 cm
WET WEIGHT: 649.7 g	WET WEIGHT: 651.2 g
MOISTURE CONTENT: 20.1 %	MOISTURE CONTENT: 20.4 %
DRY DENSITY: 105.8 pcf	DRY DENSITY: 107.0 pcf
PERCENT COMPACTION: 97.4	

TEST PARAMETERS

CELL NO.: 4 PANEL NO.: POSITIONS:

	RUN NO. 1	RUN NO. 2
CELL PRESSURE:	40.0 psi	
TEST PRESSURE:	30.0 psi	
BACK PRESSURE:	24.3 psi /	
/ 0.0 psi		
DIFFERENTIAL HEAD:	5.7 psi	

PERMEABILITY DATA

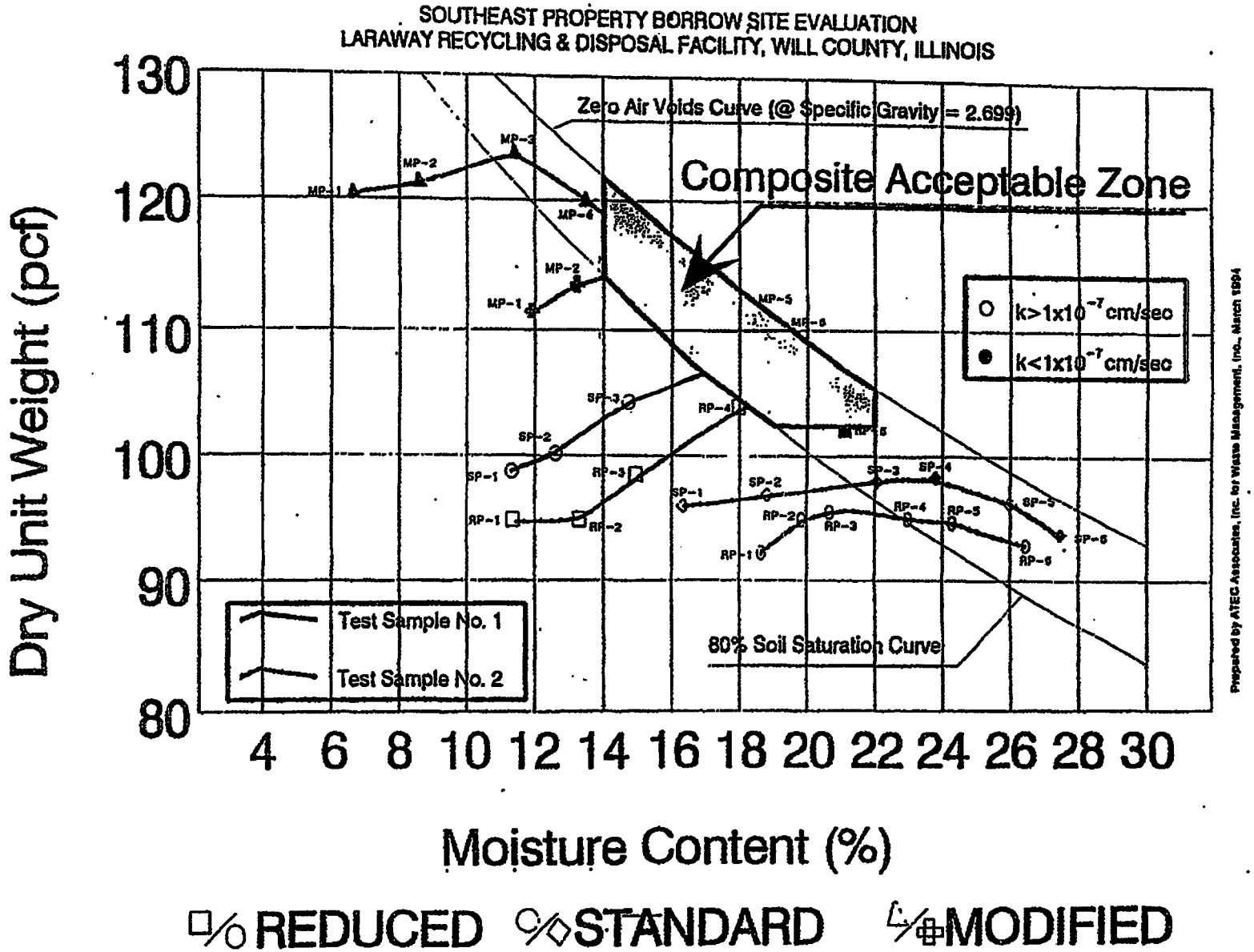
	RUN NO. 1	RUN NO. 2
AVERAGE FLOW RATE:	3.89E-05 cc/sec	
COEFFICIENT OF CORRELATION:	0.99868	
AVERAGE GRADIENT:	51.4	
TEMPERATURE:	21.5 deg C	
PERMEABILITY, K, at 20 deg C:	1.80E-08 cm/sec	

APPENDIX B.5

Clay Liner Acceptable Zone

BROWN/GRAY CLAY

Fig. 4.2: Composite Acceptable Zone



APPENDIX C

GEOMEMBRANE MQA & CONFORMANCE TESTING

APPENDIX C.1 – Manufacturer's MQA Testing Results
APPENDIX C.2 – Field Inventory
APPENDIX C.3 – Conformance Testing Results

APPENDIX C.1

Manufacturer's MQA Testing Results

SOLMAX

LIST OF GEOMEMBRANE ROLLS

SOLMAX Daniel Vazquez APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 12840166

SALES ORDER: SO-095825

PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

ROLL NUMBER	RESIN LOT NUMBER	MANUFACT. DATE	RESIN MELT INDEX 190/2.16 g/10 min D1238	RESIN DENSITY g/cc D1505	OIT min D8117	HPOIT min D5885	ESCR SP-NCTL hours D5397
Product Code : 1101421-43291-1							
HDPE 60 mil Black Textured RT			**1.0**	**> 0.932**	**100**		**500**
0102-211220	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211221	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211222	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211223	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211224	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211225	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211226	PQG822020	2023-08-15	0.10	0.937	120		>500 Certified 0102-211227
0102-211227	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211228	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211229	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211230	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211231	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211232	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211233	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227

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LIST OF GEOMEMBRANE ROLLS

SOLMAX
Daniel Vasquez
APPROVED
QUALITY ASSURANCE

PROJECT NUMBER: 12840166
SALES ORDER: SO-095825
PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

0102-211234	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211235	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211236	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211240	PQG822020	2023-08-16	0.10	0.937	120		>500 Certified 0102-211227
0102-211241	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211242	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211243	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211244	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211245	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211246	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211247	PQG822020	2023-08-17	0.10	0.937	120		>500 Certified 0102-211227
0102-211248	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211249	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211250	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211251	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211252	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211253	PQH820050	2023-08-17	0.10	0.937	120		>500 Certified 0102-211387
0102-211254	23F1310	2023-08-17	0.07	0.938	120		>500 Certified 0102-211017

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LIST OF GEOMEMBRANE ROLLS

SOLMAX Daniel Vazquez APPROVED QUALITY ASSURANCE

PROJECT NUMBER: 12840166

SALES ORDER: SO-095825

PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

0102-211255	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211256	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211257	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211258	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211259	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211260	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211261	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211262	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211263	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211264	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211265	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017
0102-211266	23F1310	2023-08-18	0.07	0.938	120		>500 Certified 0102-211017

QUANTITY (ROLLS): 44

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SOLMAX
Daniel Vazquez
APPROVED
QUALITY ASSURANCE

PROJECT NUMBER: 12840166

SALES ORDER: SO-095825

PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

PRODUCT: 1101421-43291-1

HDPE 60 mil Black Textured RT

Properties	Thickness ave/min.	GeoM Density	Carbon Black Content	Carbon Black Dispersion	Tensile Yield Strength	Tensile Yield Elong.	Tensile Break Strength	Tensile Break Elong.	Tear Resist.	Puncture Resist.	Dimension Stability	Asperity Height In/Out
Unit	mils	g/cc	%	Cat 1 and 2	ppi	%	ppi	%	lbs	lbs	%	mils
Test Method	D5994	D792	D4218	D5596	D6693				D1004	D4833	D1204	D7466
Frequency	Each roll	Every 4 rolls	Every 2 rolls	Every 4 rolls	Every 2 rolls				Every 4 rolls	Every 4 rolls		Every roll
Specification	60.0 / 60.0	≥ 0.940	2.0 - 3.0	Cat. 1 & Cat. 2	132	13	132	150	45	120		20 / 20
0102-211220 MD	68.6 / 65.0	0.942	2.76	10/10 views	175.8	19.2	254	575	57	148		23.6 / 26.6
XD					179.5	19.2	221	529	57			
0102-211221 MD	68.0 / 65.0	0.942	2.79	10/10 views	195.6	19.0	270	550	57	148		23.9 / 28.2
XD					200.2	18.7	246	535	57			
0102-211222 MD	69.8 / 65.5	0.942	2.79	10/10 views	195.6	19.0	270	550	57	148		24.1 / 29.3
XD					200.2	18.7	246	535	57			
0102-211223 MD	67.2 / 65.0	0.942	2.60	10/10 views	196.9	19.4	284	584	57	148		29.5 / 35.5
XD					200.0	17.1	246	551	57			
0102-211224 MD	68.0 / 63.0	0.942	2.60	10/10 views	196.9	19.4	284	584	58	158		27.0 / 31.0
XD					200.0	17.1	246	551	57			
0102-211225 MD	69.2 / 65.5	0.942	2.59	10/10 views	204.7	19.4	253	503	58	158		24.7 / 26.9
XD					211.4	17.4	254	500	57			
0102-211226 MD	72.1 / 69.0	0.942	2.59	10/10 views	204.7	19.4	253	503	58	158		23.2 / 25.1
XD					211.4	17.4	254	500	57			
0102-211227 MD	71.1 / 67.0	0.942	2.40	10/10 views	176.2	19.3	253	579	58	158		28.1 / 26.1
XD					185.1	15.9	216	467	57			
0102-211228 MD	71.7 / 68.0	0.941	2.60	10/10 views	172.0	18.7	240	545	63	159		22.4 / 24.7
XD					175.0	16.1	210	511	61			
0102-211229 MD	69.3 / 65.5	0.941	2.60	10/10 views	172.0	18.7	240	545	63	159		26.6 / 23.3
XD					175.0	16.1	210	511	61			
0102-211230 MD	72.1 / 68.0	0.941	2.34	10/10 views	184.2	17.8	234	533	63	159		24.8 / 22.5
XD					189.6	15.6	222	545	61			
0102-211231 MD	73.5 / 68.5	0.941	2.34	10/10 views	184.2	17.8	234	533	63	159		24.9 / 27.0
XD					189.6	15.6	222	545	61			
0102-211232 MD	73.1 / 68.5	0.945	2.39	10/10 views	190.1	19.1	286	604	59	159		22.5 / 24.0
XD					191.8	16.5	247	561	62			

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

SOLMAX.COM



TEST RESULTS

R 000555

PROJECT NUMBER: 12840166

SALES ORDER: SO-095825

PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

0102-211233	MD	68.8 / 66.5	0.945	2.39	10/10 views	190.1	19.1	286	604	59	159		24.1 / 28.6
	XD					191.8	16.5	247	561	62			
0102-211234	MD	67.9 / 63.5	0.945	2.42	10/10 views	194.7	19.2	288	602	59	159		23.0 / 27.2
	XD					200.8	17.9	271	597	62			
0102-211235	MD	68.8 / 65.0	0.945	2.42	10/10 views	194.7	19.2	288	602	59	159		23.3 / 26.0
	XD					200.8	17.9	271	597	62			
0102-211236	MD	67.8 / 65.0	0.940	2.48	10/10 views	202.4	18.4	288	581	58	158		23.4 / 26.9
	XD					204.4	17.2	254	570	58			
0102-211240	MD	68.7 / 66.0	0.942	2.62	10/10 views	207.5	18.7	277	542	59	165		23.9 / 27.7
	XD					211.7	17.1	265	545	59			
0102-211241	MD	71.8 / 67.5	0.942	2.62	10/10 views	207.5	18.7	277	542	59	165		24.4 / 24.0
	XD					211.7	17.1	265	545	59			
0102-211242	MD	70.0 / 66.5	0.942	2.62	10/10 views	169.9	18.9	235	548	59	165		24.0 / 24.2
	XD					178.0	15.9	230	556	59			
0102-211243	MD	73.2 / 65.5	0.942	2.62	10/10 views	169.9	18.9	235	548	59	165		22.7 / 24.3
	XD					178.0	15.9	230	556	59			
0102-211244	MD	69.3 / 66.5	0.941	2.66	10/10 views	187.7	18.2	248	544	56	158		22.1 / 22.2
	XD					195.7	15.5	232	520	59			
0102-211245	MD	69.7 / 66.0	0.941	2.66	10/10 views	187.7	18.2	248	544	56	158		23.6 / 24.1
	XD					195.7	15.5	232	520	59			
0102-211246	MD	67.3 / 61.5	0.941	2.41	10/10 views	174.0	15.9	232	567	56	158		23.4 / 23.1
	XD					183.2	16.9	244	584	59			
0102-211247	MD	66.9 / 61.0	0.941	2.41	10/10 views	174.0	15.9	232	567	56	158		23.3 / 23.7
	XD					183.2	16.9	244	584	59			
0102-211248	MD	64.9 / 60.5	0.947	2.65	10/10 views	190.1	18.9	267	581	57	159		21.3 / 22.6
	XD					202.2	17.0	234	541	57			
0102-211249	MD	65.6 / 62.5	0.947	2.65	10/10 views	190.1	18.9	267	581	57	159		22.0 / 22.8
	XD					202.2	17.0	234	541	57			
0102-211250	MD	65.8 / 64.5	0.947	2.48	10/10 views	179.5	18.6	245	570	57	159		24.7 / 24.8
	XD					192.2	16.3	214	505	57			
0102-211251	MD	66.4 / 64.0	0.947	2.48	10/10 views	179.5	18.6	245	570	57	159		22.7 / 23.0
	XD					192.2	16.3	214	505	57			
0102-211252	MD	67.8 / 62.5	0.945	2.35	10/10 views	191.3	19.0	263	555	61	156		25.4 / 25.4
	XD					207.7	16.3	223	466	60			
0102-211253	MD	66.4 / 63.5	0.945	2.35	10/10 views	191.3	19.0	263	555	61	156		25.2 / 22.6
	XD					207.7	16.3	223	466	60			
0102-211254	MD	67.7 / 64.5	0.945	2.23	10/10 views	179.2	17.8	242	555	61	156		23.3 / 22.8
	XD					184.8	16.9	210	489	60			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073

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SOLMAX
Daniel Vazquez
APPROVED
QUALITY ASSURANCE

PROJECT NUMBER: 12840166

SALES ORDER: SO-095825

PACKING SLIP NUMBER: Pre-SO-095825-1

PROJECT NAME : LARAWAY RDF PHASE 10/11 CELL

0102-211255	MD	71.4 / 67.5	0.945	2.23	10/10 views	179.2	17.8	242	555	61	156		27.9 / 30.9
	XD					184.8	16.9	210	489	60			
0102-211256	MD	68.6 / 62.0	0.945	2.56	10/10 views	160.3	19.2	231	548	61	156		26.3 / 26.6
	XD					175.0	16.7	208	460	60			
0102-211257	MD	69.8 / 66.0	0.945	2.56	10/10 views	160.3	19.2	231	548	64	153		23.4 / 29.7
	XD					175.0	16.7	208	460	62			
0102-211258	MD	69.7 / 68.0	0.945	2.56	10/10 views	169.9	15.6	238	551	64	153		24.6 / 25.6
	XD					170.7	15.2	216	528	62			
0102-211259	MD	68.8 / 64.0	0.945	2.56	10/10 views	169.9	15.6	238	551	64	153		24.3 / 29.4
	XD					170.7	15.2	216	528	62			
0102-211260	MD	70.0 / 61.5	0.945	2.57	10/10 views	172.5	17.7	236	557	64	153		22.9 / 28.6
	XD					173.4	17.5	210	519	62			
0102-211261	MD	70.5 / 67.5	0.945	2.57	10/10 views	172.5	17.7	236	557	64	153		23.8 / 29.2
	XD					173.4	17.5	210	519	62			
0102-211262	MD	64.3 / 60.0	0.941	2.40	10/10 views	181.7	18.5	252	569	58	153		26.4 / 29.8
	XD					190.9	17.4	210	471	57			
0102-211263	MD	65.4 / 62.5	0.941	2.40	10/10 views	181.7	18.5	252	569	58	153		24.9 / 27.0
	XD					190.9	17.4	210	471	57			
0102-211264	MD	65.8 / 61.5	0.941	2.63	10/10 views	174.6	18.3	240	553	58	153		24.8 / 26.5
	XD					179.1	16.5	206	507	57			
0102-211265	MD	64.6 / 61.0	0.941	2.63	10/10 views	174.6	18.3	240	553	58	153		25.9 / 25.7
	XD					179.1	16.5	206	507	57			
0102-211266	MD	66.1 / 60.0	0.949	2.63	10/10 views	185.4	18.5	234	502	60	154		25.6 / 24.5
	XD					201.8	17.0	220	481	60			

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Solmax Geosynthetics LLC
19103 GUNDLE RD,, HOUSTON, TX, UNITED STATES, 77073



FORMOSA PLASTICS CORPORATION, TEXAS
[illegible] FORMOSA DRIVE
P. BOX 700
POINT COMFORT TX 77978
PHONE:(888)FPCUSA3

Certificate of Analysis
(CONFIDENTIAL)

CUSTOMER:SOLMAX GEOSYNTHETICS LLC
19103 GUNDLE ROAD

HOUSTON TX 77073
PRODUCT :HL3812
RAILCAR FPAX215272
CLEANING/INSPECTION NO: 215272062823

S/O NO : E36A772
CUSTOMER PO : PO-608189
DATE SHIPPED: 7/21/23
LOT NO : 23F1310
WEIGHT (LB) : 193,600.00
CUSTID:FT05970 SPIDM6

TEST ITEM	REFERENCE METHOD	TEST VALUE
Melt Index,g/10min	ASTM D1238	.071
HLMI, g/10 min.	ASTM D1238	12.2
Density, g/cm3	ASTM D1505	.9382

[illegible]tes:
[illegible]itive levels were tested and meet the min specification for this lo
t. As a result Standard OIT (by ASTM D3895) is greater than 120 mins (
nominal values not tested on every lot). As a result, High Pressure OI
T (by ASTM D5885) is greater than 1000 mins.

Linda Kao

QC SUPERVISOR: LINDA KAO

APPENDIX C.2

Field Inventory

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: HDPE 60 mil

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Date	Roll Number 0102-211	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	255		23'	480'	60mil		Y	
11/13/23	260						Y	
11/13/23	221						Y	
11/13/23	261						Y	
11/13/23	257						Y	
11/13/23	243						Y	
11/13/23	250						Y	
11/13/23	253						Y	
11/13/23	236						Y	
11/13/23	235						Y	
11/13/23	249					Y	Y	
11/13/23	240						Y	
11/13/23	256						Y	
11/13/23	245						Y	
11/13/23	259						Y	
11/13/23	262					Y	Y	
11/13/23	258						Y	
11/13/23	233					Y	Y	
11/13/23	244						Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: HDPE 60 mil

Project Number: 0086-004-16-22

QA/QC Monitor:

Date	Roll Number 0102-211	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	241		23'	480'	60 mil		Y	
11/13/23	246						Y	
11/13/23	242						Y	
11/13/23	248						Y	
11/13/23	254						Y	
11/13/23	228						Y	
11/13/23	229						Y	
11/13/23	266						Y	
11/13/23	252						Y	
11/13/23	251						Y	
11/13/23	232						Y	
11/13/23	227						Y	
11/13/23	234						Y	
11/13/23	224						Y	
11/13/23	230						Y	
11/13/23	263						Y	
11/13/23	231						Y	
11/13/23	222						Y	
11/13/23	223						Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: HDPE 60 mil

Project Number: 0086-004-16-22

QA/QC Monitor:

Date	Roll Number 0102-211	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	264		23'	480'	60 mil		Y	
11/13/23	265						Y	
11/13/23	226						Y	
11/13/23	247						Y	
11/13/23	220					Y	Y	
11/13/23	225						Y	

APPENDIX C.3

Conformance Testing Results

TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

August 31, 2023

Mail To:

Ian Johnson
Waste Management Inc
29755 S. Prairie View Drive
Wilmington, IL 60481

email: ljohnson@wm.com

Bill To:

<= Same

Dear Mr. Johnson:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Laraway Landfill RDF Phase 10/11 Cell**
TRI Job Reference Number:	23-003258
Material(s) Tested:	Three, Solmax 60 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D5994) Density (ASTM D1505) Carbon Black Content (ASTM D1603, mod.) Tensile Properties (ASTM D6693) Puncture Strength (ASTM D4833) Tear Resistance (ASTM D1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

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GEOMEMBRANE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF Phase 10/11 Cell

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-211220
TRI Log #: 23-003258

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	76	74	70	72	73	74	76	65	76	74	73	3
											65	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.947	0.947	0.947								0.947	0.000
Carbon Black Content (ASTM D1603, mod.)												
% Carbon Black	2.56	2.59									2.58	0.02
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	187	187	192	189	179						187	5
TD Yield Strength (ppi)	194	192	202	196	198						196	4
MD Break Strength (ppi)	193	250	223	256	223						229	25
TD Break Strength (ppi)	218	203	155	180	222						196	28
MD Yield Elongation (%)	18	15	17	18	19						17	2
TD Yield Elongation (%)	17	17	18	17	17						17	0
MD Break Elongation (%)	427	572	476	591	519						517	68
TD Break Elongation (%)	542	522	441	490	538						507	42
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	166	166	168	166	170						167	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	65	60	71	63	61	65	64	68	59	60	64	4
TD Tear Strength (lbs)	64	67	78	67	67	63	63	72	68	67	68	5

MD Machine Direction TD Transverse Direction

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TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

GEOMEMBRANE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF Phase 10/11 Cell

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-211233
TRI Log #: 23-003258

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	70	74	66	71	72	73	73	66	75	70	71	3
											66	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.943	0.943	0.943								0.943	0.000
Carbon Black Content (ASTM D1603, mod.)												
% Carbon Black	2.06	2.11									2.09	0.04
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	186	194	188	191	204						193	7
TD Yield Strength (ppi)	194	191	181	192	188						189	5
MD Break Strength (ppi)	243	223	222	254	227						234	14
TD Break Strength (ppi)	235	210	244	214	184						217	23
MD Yield Elongation (%)	21	20	19	19	17						19	1
TD Yield Elongation (%)	18	20	20	19	19						19	1
MD Break Elongation (%)	601	522	547	613	500						557	49
TD Break Elongation (%)	564	502	636	526	451						536	69
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	172	169	167	166	167						168	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	64	66	71	59	61	60	61	68	57	62	63	4
TD Tear Strength (lbs)	62	63	68	65	61	68	70	72	63	66	66	4

MD Machine Direction TD Transverse Direction

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES

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GEOMEMBRANE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF Phase 10/11 Cell

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-211249
TRI Log #: 23-003258

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	71	73	70	74	70	70	72	72	74	70	72 70	2 << min
Density (ASTM D1505)												
Density (g/cm3)	0.946	0.946	0.946								0.946	0.000
Carbon Black Content (ASTM D1603, mod.)												
% Carbon Black	2.40	2.55									2.48	0.11
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	197	199	188	195	188						193	5
TD Yield Strength (ppi)	201	207	200	179	195						196	11
MD Break Strength (ppi)	254	252	215	249	237						241	16
TD Break Strength (ppi)	148	212	170	182	232						189	33
MD Yield Elongation (%)	19	19	19	19	22						20	1
TD Yield Elongation (%)	18	19	19	17	18						18	1
MD Break Elongation (%)	603	575	523	588	571						572	30
TD Break Elongation (%)	195	507	430	479	588						440	148
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	150	154	151	151	149						151	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	67	58	69	62	57	62	65	71	63	65	64	5
TD Tear Strength (lbs)	64	70	66	64	67	71	67	79	70	77	69	5

MD Machine Direction TD Transverse Direction

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TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

September 18, 2023

Mail To:

Ian Johnson
Waste Management Inc
29755 S. Prairie View Drive
Wilmington, IL 60481

email: ijohnson@wm.com

Bill To:

<= Same

Dear Mr. Johnson:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Laraway Landfill RDF**
TRI Job Reference Number:	23-003344
Material(s) Tested:	One, Solmax 60 mil Textured HDPE Geomembrane(s)
Test(s) Requested:	Thickness (ASTM D5994) Density (ASTM D1505) Carbon Black Content (ASTM D1603, mod.) Tensile Properties (ASTM D6693) Puncture Strength (ASTM D4833) Tear Resistance (ASTM D1004)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

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GEOMEMBRANE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax 60 mil Textured HDPE Geomembrane
Sample Identification: 0102-211262
TRI Log #: 23-003344

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Thickness (ASTM D5994)												
Thickness (mils)	72	71	71	72	77	75	78	71	66	69	72	4
											66	<< min
Density (ASTM D1505)												
Density (g/cm3)	0.945	0.945	0.945								0.945	0.000
Carbon Black Content (ASTM D1603, mod.)												
% Carbon Black	2.60	2.64									2.62	0.03
Tensile Properties (ASTM D6693, 2 ipm strain rate)												
MD Yield Strength (ppi)	196	182	192	183	180						187	7
TD Yield Strength (ppi)	192	188	193	206	205						197	8
MD Break Strength (ppi)	266	268	247	192	250						245	31
TD Break Strength (ppi)	130	202	175	151	221						176	37
MD Yield Elongation (%)	17	19	19	19	19						19	1
TD Yield Elongation (%)	19	20	20	20	20						20	0
MD Break Elongation (%)	588	639	535	408	572						548	87
TD Break Elongation (%)	46	522	440	403	540						390	201
Puncture Resistance (ASTM D4833)												
Puncture Strength (lbs)	169	165	165	163	163						165	2
Tear Resistance (ASTM D1004)												
MD Tear Strength (lbs)	61	64	68	66	63	61	60	66	66	66	64	3
TD Tear Strength (lbs)	63	59	72	67	68	62	60	71	66	68	66	4

MD Machine Direction TD Transverse Direction

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

APPENDIX D

GEOTEXTILE MQA & CONFORMANCE TESTING

APPENDIX D.1 – Cushion Geotextile MQA Data
APPENDIX D.2 – Cushion Geotextile Field Inventory
APPENDIX D.3 – Cushion Geotextile Conformance Testing
APPENDIX D.4 – Filter Geotextile MQA Data
APPENDIX D.5 – Filter Geotextile Field Inventory
APPENDIX D.6 – Filter Geotextile Conformance Testing

APPENDIX D.1

Cushion Geotextile MQA Data

Solmax Roll Allocation

Order : SO-095825
Customer : Waste Management, Inc.
Project Name : LARAWAY RDF PHASE 10/11 CELL

Roll#	Product Code	Mfg Date	Length
2027574900	1116762-43291-2	8/17/2023	300
2027574901	1116762-43291-2	8/17/2023	300
2027574902	1116762-43291-2	8/17/2023	300
2027574903	1116762-43291-2	8/17/2023	300
2027574904	1116762-43291-2	8/17/2023	300
2027574905	1116762-43291-2	8/17/2023	300
2027574907	1116762-43291-2	8/17/2023	300
2027574908	1116762-43291-2	8/17/2023	300
2027574909	1116762-43291-2	8/17/2023	300
2027574910	1116762-43291-2	8/17/2023	300
2027574911	1116762-43291-2	8/17/2023	300
2027574912	1116762-43291-2	8/17/2023	300
2027574913	1116762-43291-2	8/17/2023	300
2027574914	1116762-43291-2	8/17/2023	300
2027574915	1116762-43291-2	8/17/2023	300
2027574916	1116762-43291-2	8/17/2023	300
2027574917	1116762-43291-2	8/17/2023	300
2027574918	1116762-43291-2	8/17/2023	300
2027574919	1116762-43291-2	8/17/2023	300
2027574920	1116762-43291-2	8/17/2023	300
2027574921	1116762-43291-2	8/17/2023	300
2027574922	1116762-43291-2	8/17/2023	300
2027574923	1116762-43291-2	8/17/2023	300
2027574924	1116762-43291-2	8/17/2023	300
2027574925	1116762-43291-2	8/17/2023	300
2027574926	1116762-43291-2	8/17/2023	300
2027574927	1116762-43291-2	8/17/2023	300
2027574928	1116762-43291-2	8/17/2023	300
2027574929	1116762-43291-2	8/17/2023	300
2027574930	1116762-43291-2	8/17/2023	300
2027574931	1116762-43291-2	8/17/2023	300
2027574932	1116762-43291-2	8/17/2023	300
2027574933	1116762-43291-2	8/17/2023	300
2027574934	1116762-43291-2	8/17/2023	300
2027574935	1116762-43291-2	8/17/2023	300
2027574936	1116762-43291-2	8/17/2023	300
2027574937	1116762-43291-2	8/17/2023	300
2027574938	1116762-43291-2	8/17/2023	300
2027574939	1116762-43291-2	8/17/2023	300
2027574940	1116762-43291-2	8/17/2023	300
2027574941	1116762-43291-2	8/17/2023	300
2027574942	1116762-43291-2	8/17/2023	300

2027574943	1116762-43291-2	8/17/2023	300
2027574944	1116762-43291-2	8/17/2023	300
2027574945	1116762-43291-2	8/17/2023	300
2027574946	1116762-43291-2	8/17/2023	300
2027574947	1116762-43291-2	8/17/2023	300
2027574948	1116762-43291-2	8/17/2023	300
2027574949	1116762-43291-2	8/18/2023	300
2027574950	1116762-43291-2	8/18/2023	300
2027574951	1116762-43291-2	8/18/2023	300
2027574952	1116762-43291-2	8/18/2023	300
2027574953	1116762-43291-2	8/18/2023	300
2027574954	1116762-43291-2	8/18/2023	300
2027574955	1116762-43291-2	8/18/2023	300
2027574956	1116762-43291-2	8/18/2023	300
2027574957	1116762-43291-2	8/18/2023	300
2027574958	1116762-43291-2	8/18/2023	300
2027574959	1116762-43291-2	8/18/2023	300
2027574960	1116762-43291-2	8/18/2023	300
2027574961	1116762-43291-2	8/18/2023	300
2027574962	1116762-43291-2	8/18/2023	300
2027574963	1116762-43291-2	8/18/2023	300
2027574964	1116762-43291-2	8/18/2023	300
2027574965	1116762-43291-2	8/18/2023	300
2027574966	1116762-43291-2	8/18/2023	300
2027574967	1116762-43291-2	8/18/2023	300
2027574968	1116762-43291-2	8/18/2023	300
2027574969	1116762-43291-2	8/18/2023	300
2027574970	1116762-43291-2	8/18/2023	300
2027574971	1116762-43291-2	8/18/2023	300
2027574972	1116762-43291-2	8/18/2023	300
2027574973	1116762-43291-2	8/18/2023	300
2027574974	1116762-43291-2	8/18/2023	300
2027574975	1116762-43291-2	8/18/2023	300
2027574976	1116762-43291-2	8/18/2023	300
2027574977	1116762-43291-2	8/18/2023	300
2027574978	1116762-43291-2	8/18/2023	300
2027574979	1116762-43291-2	8/18/2023	300
2027574980	1116762-43291-2	8/18/2023	300
2027574981	1116762-43291-2	8/18/2023	300
2027574982	1116762-43291-2	8/18/2023	300
2027574983	1116762-43291-2	8/18/2023	300
2027574984	1116762-43291-2	8/18/2023	300
2027574985	1116762-43291-2	8/18/2023	300
2027574986	1116762-43291-2	8/18/2023	300
2027574987	1116762-43291-2	8/18/2023	300
2027574988	1116762-43291-2	8/18/2023	300
2027574989	1116762-43291-2	8/18/2023	300
2027574990	1116762-43291-2	8/18/2023	300
2027574991	1116762-43291-2	8/18/2023	300

2027574992	1116762-43291-2	8/18/2023	300
2027574993	1116762-43291-2	8/18/2023	300
2027574994	1116762-43291-2	8/18/2023	300
2027574996	1116762-43291-2	8/18/2023	300
2027574997	1116762-43291-2	8/18/2023	300
2027574998	1116762-43291-2	8/18/2023	300
2027574999	1116762-43291-2	8/18/2023	300
2027575000	1116762-43291-2	8/18/2023	300
2027575001	1116762-43291-2	8/18/2023	300
2027575002	1116762-43291-2	8/19/2023	300
2027575003	1116762-43291-2	8/19/2023	300
2027575005	1116762-43291-2	8/19/2023	300
2027575006	1116762-43291-2	8/19/2023	300
2027575007	1116762-43291-2	8/19/2023	300

SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® S1600 - 16 oz. Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027574900	0.15	1469	18.29	86	638.68	249.63	0.485	1.076	341.64	201	79.23	78	792.95	301.4
2027574901	0.15	1469	18.29	86	638.68	249.63	0.485	1.076	341.64	201	79.23	78	792.95	301.4
2027574902	0.15	1469	18.29	86	638.68	249.63	0.485	1.076	341.64	201	79.23	78	792.95	301.4
2027574903	0.15	1469	18.29	86	638.68	249.63	0.485	1.076	341.64	201	79.23	78	792.95	301.4
2027574904	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574905	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574907	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574908	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574909	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574910	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574911	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574912	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574913	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574914	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574915	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574916	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574917	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574918	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574919	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574920	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574921	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574922	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574923	0.15	1469	17.24	85	575.39	212.05	0.485	1.076	341.64	192	79.23	76	706.93	278.81
2027574924	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574925	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574926	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574927	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574928	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574929	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574930	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574931	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	341.64	196	79.23	108	627.98	273.02
2027574932	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574933	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02

Laboratory Supervisor: Daniel Vasquez

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SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® S1600 - 16 oz. Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027574934	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574935	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574936	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574937	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574938	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574939	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574940	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574941	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574942	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574943	0.15	1469	17.73	94	596.84	194.12	0.485	1.076	321.4	196	79.23	108	627.98	273.02
2027574944	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574945	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574946	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574947	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574948	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574949	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574950	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574951	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574952	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574953	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574954	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574955	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574956	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574957	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574958	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574959	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574960	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574961	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574962	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574963	0.15	1469	17.42	90	585.82	226.75	0.485	1.076	321.4	189	79.23	90	761.5	288.58
2027574964	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	321.4	202	79.23	91	670.79	291.04
2027574965	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574966	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04

Laboratory Supervisor: Daniel Vasquez

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SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® S1600 - 16 oz. Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 AOS (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027574967	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574968	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574969	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574970	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574971	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574972	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574973	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574974	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574975	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574976	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574977	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574978	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574979	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574980	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574981	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574982	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574983	0.15	1469	17.96	94	569.01	201.22	0.485	1.076	293.91	202	79.23	91	670.79	291.04
2027574984	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574985	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574986	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574987	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574988	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574989	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574990	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574991	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574992	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574993	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574994	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574996	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574997	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	293.91	204	77.9	95	816.68	323.84
2027574998	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84
2027574999	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84
2027575000	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84

Laboratory Supervisor: Daniel Vasquez

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SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® S1600 - 16 oz. Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027575001	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84
2027575002	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84
2027575003	0.15	1641.68	18.57	90	540.09	239.75	0.514	1.058	316.6	204	77.9	95	816.68	323.84
2027575005	0.15	1641.68	17.89	87	576.6	311.08	0.514	1.058	316.6	199	77.9	85	742.29	359.67
2027575006	0.15	1641.68	17.89	87	576.6	311.08	0.514	1.058	316.6	199	77.9	85	742.29	359.67
2027575007	0.15	1641.68	17.89	87	576.6	311.08	0.514	1.058	316.6	199	77.9	85	742.29	359.67

Laboratory Supervisor: Daniel Vasquez

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APPENDIX D.2

Cushion Geotextile Field Inventory

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

Material Type: 16 02

QA/QC Monitor: GPC

Date	Roll Number 202757	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/7/23	5002		15	300	16 07		Y	
	4994						Y	
	4993						Y	
	4987						Y	
	4947						Y	
	4968						Y	
	5000						Y	
	4956						Y	
	4951						Y	
	4952						Y	
	4907						Y	
	4997						Y	
	4939						Y	
	4990						Y	
	4959						Y	
	4992						Y	
	4913						Y	
	5003						Y	
	4957		↓	↓	↓		Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: 16oz

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Date	Roll Number 20275749	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/17/23	29		15	300	16oz		Y	
	19						Y	
	20						Y	
	24						Y	
	38						Y	
	36						Y	
	35						Y	
	40						Y	
	03						Y	
	41						Y	
	23						Y	
	30						Y	
	46						Y	
	42						Y	
	20275750 07						Y	
	20275750 06						Y	
	20275749 81						Y	
	31						Y	
	02						Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

Material Type: 60 oz

QA/QC Monitor: GPC

Date	Roll Number 202757	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/17/23	4969		15	300	16 oz		Y	
	4948		↓	↓	↓		Y	
	4975						Y	
	4949						Y	
	4989						Y	
	4965					Y	Y	
	4916						Y	
	5001						Y	
	4998					Y	Y	
↓	5005		↓	↓	↓		Y	

APPENDIX D.3

Cushion Geotextile Conformance Testing

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

September 5, 2023

Mail To:

Ian Johnson
Waste Management Inc
29755 S. Prairie View Drive
Wilmington, IL 60481

email: ijohnson@wm.com

Bill To:

<= Same (P.O. # 04008438)

Dear Mr. Johnson:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Laraway Landfill RDF**
TRI Job Reference Number:	23-003290
Material(s) Tested:	Four, Solmax Nonwoven Geotextile(s)
Test(s) Requested:	Mass/Unit Area (ASTM D5261) Grab Tensile (ASTM D4632) CBR Puncture Strength (ASTM D6241) Trapezoidal Tear (ASTM D4533)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027574900
TRI Log #: 23-003290

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	7.19	7.69	7.87	7.53	6.73	6.78	7.18	7.68	7.71	7.83	7.42	0.42
Mass/Unit Area (oz/sq.yd)	16.72	17.89	18.31	17.51	15.65	15.77	16.70	17.86	17.93	18.21	17.26	0.98
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	618	837	804	749	717	680	694	814	911	750	757	86
TD - Tensile Strength (lbs)	601	565	602	556	583	541	545	542	533	537	561	26
MD - Elong. @ Max. Load (%)	104	94	98	95	99	95	96	100	100	94	98	3
TD - Elong. @ Max. Load (%)	101	89	97	91	96	96	93	89	91	94	94	4
CBR Puncture Strength (ASTM D6241)												
Puncture Resistance (lbs)	1599	1868	1773	1654	1693	1905	1615	1612	1846	1933	1750	131
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	245	218	270	218	246	209	189	265	263	232	235	27
TD - Tear Strength (lbs)	404	360	335	284	309	319	269	400	322	327	333	44

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027574932
TRI Log #: 23-003290

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	7.25	7.80	7.46	7.85	7.06	7.91	7.38	7.86	7.56	7.06	7.52	0.33
Mass/Unit Area (oz/sq.yd)	16.86	18.14	17.35	18.26	16.42	18.40	17.17	18.28	17.58	16.42	17.49	0.77
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	525	624	562	539	559	540	627	522	531	592	562	39
TD - Tensile Strength (lbs)	691	838	732	778	738	676	737	788	858	758	759	58
MD - Elong. @ Max. Load (%)	97	96	98	94	104	99	102	94	91	101	98	4
TD - Elong. @ Max. Load (%)	103	97	95	105	105	102	98	95	112	110	102	6
CBR Puncture Strength (ASTM D6241)												
Puncture Resistance (lbs)	1771	1596	1702	1692	1804	1629	1531	1755	1516	1776	1677	104
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	225	231	238	218	196	237	233	213	250	236	228	15
TD - Tear Strength (lbs)	274	300	360	395	307	318	316	358	334	285	325	37

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027574965
TRI Log #: 23-003290

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	6.99	7.89	7.50	7.38	7.53	7.26	7.80	7.16	6.83	7.42	7.38	0.33
Mass/Unit Area (oz/sq.yd)	16.26	18.35	17.45	17.17	17.51	16.89	18.14	16.65	15.89	17.26	17.16	0.77
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	512	583	573	586	524	481	614	486	614	548	552	49
TD - Tensile Strength (lbs)	653	770	827	771	758	571	820	802	762	735	747	79
MD - Elong. @ Max. Load (%)	97	102	100	101	95	94	105	95	105	104	100	4
TD - Elong. @ Max. Load (%)	108	103	117	108	110	98	116	111	115	106	109	6
CBR Puncture Strength (ASTM D6241)												
Puncture Resistance (lbs)	1620	1499	1624	1416	1580	1602	1418	1683	1578	1662	1568	94
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	257	243	212	244	197	217	207	220	194	218	221	21
TD - Tear Strength (lbs)	262	342	287	307	376	334	319	358	377	329	329	37

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027574998
TRI Log #: 23-003290

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	7.60	6.99	7.72	8.19	7.82	8.28	8.15	7.40	7.10	8.14	7.74	0.46
Mass/Unit Area (oz/sq.yd)	17.68	16.26	17.96	19.05	18.19	19.26	18.96	17.21	16.51	18.93	18.00	1.08
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	557	625	569	580	560	526	635	560	602	587	580	33
TD - Tensile Strength (lbs)	717	806	817	816	738	823	814	757	736	705	773	47
MD - Elong. @ Max. Load (%)	101	99	91	103	92	91	93	91	97	95	95	5
TD - Elong. @ Max. Load (%)	110	101	102	103	97	111	100	103	105	105	104	4
CBR Puncture Strength (ASTM D6241)												
Puncture Resistance (lbs)	1770	1765	1689	1713	1715	1695	1826	1802	1666	1730	1737	52
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	210	207	223	255	207	244	241	238	247	229	230	18
TD - Tear Strength (lbs)	292	330	269	354	344	270	358	399	384	350	335	45

MD Machine Direction TD Transverse Direction

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APPENDIX D.4

Filter Geotextile MQA Data

Solmax Roll Allocation

Order : SO-095825
Customer : Waste Management, Inc.
Project Name : LARAWAY RDF PHASE 10/11 CELL

Roll#	Product Code	Mfg Date	Length
2027541000	1116773-43291-3	7/18/2023	360
2027541001	1116773-43291-3	7/18/2023	360
2027541002	1116773-43291-3	7/18/2023	360
2027541003	1116773-43291-3	7/18/2023	360
2027541004	1116773-43291-3	7/18/2023	360
2027541005	1116773-43291-3	7/18/2023	360
2027541006	1116773-43291-3	7/18/2023	360
2027541007	1116773-43291-3	7/18/2023	360
2027541008	1116773-43291-3	7/18/2023	360
2027541009	1116773-43291-3	7/18/2023	360
2027541010	1116773-43291-3	7/18/2023	360
2027541011	1116773-43291-3	7/18/2023	360
2027541012	1116773-43291-3	7/18/2023	360
2027541013	1116773-43291-3	7/18/2023	360
2027541014	1116773-43291-3	7/18/2023	360
2027541015	1116773-43291-3	7/18/2023	360
2027541016	1116773-43291-3	7/18/2023	360
2027541017	1116773-43291-3	7/18/2023	360
2027541018	1116773-43291-3	7/18/2023	360
2027541019	1116773-43291-3	7/18/2023	360
2027541020	1116773-43291-3	7/18/2023	360
2027541021	1116773-43291-3	7/18/2023	360
2027541022	1116773-43291-3	7/18/2023	360
2027541023	1116773-43291-3	7/18/2023	360
2027541024	1116773-43291-3	7/18/2023	360
2027541025	1116773-43291-3	7/18/2023	360
2027541026	1116773-43291-3	7/18/2023	360
2027541027	1116773-43291-3	7/18/2023	360
2027541028	1116773-43291-3	7/19/2023	360
2027541029	1116773-43291-3	7/19/2023	360
2027541030	1116773-43291-3	7/19/2023	360
2027541031	1116773-43291-3	7/19/2023	360
2027541032	1116773-43291-3	7/19/2023	360
2027541033	1116773-43291-3	7/19/2023	360
2027541034	1116773-43291-3	7/19/2023	360
2027541035	1116773-43291-3	7/19/2023	360
2027541036	1116773-43291-3	7/19/2023	360
2027541037	1116773-43291-3	7/19/2023	360
2027541038	1116773-43291-3	7/19/2023	360
2027541039	1116773-43291-3	7/19/2023	360
2027541040	1116773-43291-3	7/19/2023	360
2027541041	1116773-43291-3	7/19/2023	360

2027541042	1116773-43291-3	7/19/2023	360
2027541043	1116773-43291-3	7/19/2023	360
2027541044	1116773-43291-3	7/19/2023	360
2027541045	1116773-43291-3	7/19/2023	360
2027541046	1116773-43291-3	7/19/2023	360
2027541047	1116773-43291-3	7/19/2023	360
2027541048	1116773-43291-3	7/19/2023	360
2027541049	1116773-43291-3	7/19/2023	360
2027541050	1116773-43291-3	7/19/2023	360
2027541051	1116773-43291-3	7/19/2023	360
2027541052	1116773-43291-3	7/19/2023	360
2027541053	1116773-43291-3	7/19/2023	360
2027541054	1116773-43291-3	7/19/2023	360
2027541055	1116773-43291-3	7/19/2023	360
2027541056	1116773-43291-3	7/19/2023	360
2027541057	1116773-43291-3	7/19/2023	360
2027541058	1116773-43291-3	7/19/2023	360
2027541059	1116773-43291-3	7/19/2023	360
2027541060	1116773-43291-3	7/19/2023	360
2027541061	1116773-43291-3	7/19/2023	360
2027541062	1116773-43291-3	7/19/2023	360
2027541063	1116773-43291-3	7/19/2023	360
2027541064	1116773-43291-3	7/19/2023	360
2027541065	1116773-43291-3	7/19/2023	360
2027541066	1116773-43291-3	7/19/2023	360
2027541067	1116773-43291-3	7/19/2023	360
2027541068	1116773-43291-3	7/19/2023	360
2027541069	1116773-43291-3	7/19/2023	360
2027541070	1116773-43291-3	7/19/2023	360
2027541071	1116773-43291-3	7/19/2023	360
2027541072	1116773-43291-3	7/19/2023	360
2027541073	1116773-43291-3	7/19/2023	360
2027541074	1116773-43291-3	7/19/2023	360
2027541075	1116773-43291-3	7/19/2023	360
2027541076	1116773-43291-3	7/19/2023	360
2027541077	1116773-43291-3	7/19/2023	360
2027541078	1116773-43291-3	7/19/2023	360
2027541079	1116773-43291-3	7/19/2023	360
2027541080	1116773-43291-3	7/19/2023	360
2027541081	1116773-43291-3	7/19/2023	360
2027541082	1116773-43291-3	7/19/2023	360
2027541083	1116773-43291-3	7/19/2023	360
2027541084	1116773-43291-3	7/19/2023	360
2027541085	1116773-43291-3	7/19/2023	360
2027541086	1116773-43291-3	7/19/2023	360
2027541087	1116773-43291-3	7/19/2023	360

SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® 140N - Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D3786 Mullen Burst (psi)	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027541000	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541001	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541002	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541003	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541004	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541005	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541006	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541007	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541008	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541009	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541010	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541011	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541012	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541013	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541014	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541015	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541016	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541017	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541018	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541019	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541020	0.18	377.84	4.46	67	131.5	60.6	250	0.231	2.16	70.01	44	159	85	145.44	72.75
2027541021	0.18	377.84	4.69	67	168.66	71.64	250	0.231	2.16	70.01	44	159	77	134.92	88.79
2027541022	0.18	377.84	4.69	67	168.66	71.64	250	0.231	2.16	70.01	44	159	77	134.92	88.79
2027541023	0.18	377.84	4.69	67	168.66	71.64	250	0.231	2.16	70.01	44	159	77	134.92	88.79
2027541024	0.18	377.84	4.69	67	168.66	71.64	250	0.231	2.16	70.01	44	159	77	134.92	88.79
2027541025	0.18	377.84	4.69	67	168.66	71.64	250	0.231	2.16	70.01	44	159	77	134.92	88.79
2027541026	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541027	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541028	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541029	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541030	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541031	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541032	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79

Laboratory Supervisor: Daniel Vasquez

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SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® 140N - Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D3786 Mullen Burst (psi)	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027541033	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541034	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541035	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541036	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541037	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541038	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541039	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541040	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541041	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541042	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541043	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541044	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541045	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541046	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541047	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541048	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541049	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541050	0.18	377.84	4.69	67	168.66	71.64	250	0.291	2.81	70.01	44	207	77	134.92	88.79
2027541051	0.18	377.84	4.09	64	145.09	67.15	250	0.291	2.81	70.01	44	207	81	133.96	80.33
2027541052	0.18	377.84	4.09	64	145.09	67.15	250	0.291	2.81	70.01	44	207	81	133.96	80.33
2027541053	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541054	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541055	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541056	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541057	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541058	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541059	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541060	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541061	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541062	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541063	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541064	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541065	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33

Laboratory Supervisor: Daniel Vasquez

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SOLMAX

ROLL TEST DATA REPORT

Report Date: 9/7/2023

Sales Order No.	Customer Name	Project Location	Product Name	BOL Number
SO-095825	Waste Management, Inc.	Joliet,IL	Mirafi® 140N - Geotextile	

SOLMAX Daniel Vasquez APPROVED QUALITY ASSURANCE

ROLL #	ASTM D4751 A0S (mm)	ASTM D6241 CBR PUNCTURE (lbs)	Mass per Unit Area ASTM D5261 (oz/yd²)	ASTM D4632 Elongation @ Break (%) MD	ASTM D4632 Grab Strength (lbs) MD	ASTM D4533 Trapezoidoal Tear (lbs) MD	ASTM D3786 Mullen Burst (psi)	ASTM D4491 Permeability (cm/sec)	ASTM D4491 Permittivity (sec-1)	ASTM D4833 Puncture Resistance (lbs)	ASTM D5199 Thickness (mils)	Water Flow D4491 gpm/ft2	ASTM D4632 Elongation @ Break (%) TD	ASTM D4632 Grab Strength (lbs) TD	ASTM D4533 Trapezoidoal Tear (lbs) TD
2027541066	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541067	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541068	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541069	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541070	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541071	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541072	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541073	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541074	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541075	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541076	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541077	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541078	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541079	0.212	377.84	4.09	64	145.09	67.15	250	0.319	3.32	70.01	44	244.4	81	133.96	80.33
2027541080	0.212	377.84	4.09	64	145.09	67.15	250	0.247	2.2	70.01	44	161.9	81	133.96	80.33
2027541081	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541082	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541083	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541084	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541085	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541086	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43
2027541087	0.212	377.84	4.56	74	154.48	73.57	250	0.247	2.2	70.01	44	161.9	98	179.92	88.43

Laboratory Supervisor: Daniel Vasquez

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APPENDIX D.5

Filter Geotextile Field Inventory

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

Material Type: 4 oz

QA/QC Monitor: GPC

Date	Roll Number 20275410—	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	11		15	360	4 oz		Y	
11/13/23	59		"	"	"		Y	
11/13/23	61		"	"	"		Y	
11/13/23	43		"	"	"		Y	
11/13/23	27		"	"	"		Y	
11/13/23	17		"	"	"		Y	
11/13/23	60		"	"	"		Y	
11/13/23	18		"	"	"		Y	
11/13/23	45		"	"	"		Y	
11/13/23	44		"	"	"		Y	
11/13/23	07		"	"	"		Y	
11/13/23	82		"	"	"		Y	
11/13/23	20		"	"	"		Y	
11/13/23	19		"	"	"		Y	
11/13/23	04		"	"	"		Y	
11/13/23	03		"	"	"		Y	
11/13/23	33		"	"	"		Y	
11/13/23	06		"	"	"		Y	
11/13/23	05		"	"	"		Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: 402

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Date	Roll Number 20275410—	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	30		15	360	402		Y	
11/13/23	65						Y	
11/13/23	66						Y	
11/13/23	25						Y	
11/13/23	32						Y	
11/13/23	31						Y	
11/13/23	54						Y	
11/13/23	10						Y	
11/13/23	09						Y	
11/13/23	08						Y	
11/13/23	81						Y	
11/13/23	02						Y	
11/13/23	39						Y	
11/13/23	22						Y	
11/13/23	21						Y	
11/13/23	17						Y	
11/13/23	41						Y	
11/13/23	75						Y	
11/13/23	79						Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: 402

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Date	Roll Number 20275410—	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	78		15	360	402		Y	
11/13/23	71						Y	
11/13/23	72						Y	
11/13/23	77						Y	
11/13/23	29						Y	
11/13/23	76						Y	
11/13/23	73						Y	
11/13/23	28						Y	
11/13/23	69						Y	
11/13/23	49						Y	
11/13/23	52						Y	
11/13/23	16						Y	
11/13/23	23						Y	
11/13/23	40						Y	
11/13/23	37						Y	
11/13/23	36						Y	
11/13/23	66						Y	
11/13/23	38						Y	
11/13/23	67						Y	

Reviewed By: [illegible]M

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

Material Type: 4 oz

QA/QC Monitor: GPC

Date	Roll Number 20275410	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	142		15	360	4oz		Y	
11/13/23	147						Y	
11/13/23	46						Y	
11/13/23	58						Y	
11/13/23	57						Y	
11/13/23	50						Y	
11/13/23	63						Y	
11/13/23	62						Y	
11/13/23	64						Y	
11/13/23	85						Y	
11/13/23	01						Y	
11/13/23	83						Y	
11/13/23	66						Y	
11/13/23	84						Y	
11/13/23	55						Y	
11/13/23	56						Y	
11/13/23	70						Y	
11/13/23	87						Y	
11/13/23	51						Y	

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

Material Type: 4 oz

QA/QC Monitor: GPC

Date	Roll Number 20275410—	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/13/23	15		15	360	4 oz		Y	
11/13/23	13						Y	
11/13/23	14						Y	
11/13/23	35						Y	
11/13/23	34						Y	
11/13/23	74						Y	
11/13/23	00					Y	Y	
11/13/23	24						Y	
11/13/23	48						Y	
11/13/23	53					Y	Y	
11/13/23	80					Y	Y	
11/13/23	26					Y	Y	

APPENDIX D.6

Filter Geotextile Conformance Testing

TRI ENVIRONMENTAL
TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

September 5, 2023

Mail To:

Ian Johnson
Waste Management Inc
29755 S. Prairie View Drive
Wilmington, IL 60481

email: ijohnson@wm.com

Bill To:

<= Same (P.O. # 04008438)

Dear Mr. Johnson:

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report of the laboratory testing for the sample(s) listed below.

Project:	**Laraway Landfill RDF**
TRI Job Reference Number:	23-003287
Material(s) Tested:	Four, Solmax Nonwoven Geotextile(s)
Test(s) Requested:	Mass/Unit Area (ASTM D5261) Grab Tensile (ASTM D4632) Trapezoidal Tear (ASTM D4533) Apparent Opening Size (ASTM D4751) Permittivity (ASTM D4491)

If you have any questions or require any additional information, please call us at 1-800-880-8378

Sincerely,

Mansukh Patel
Laboratory Manager
Geosynthetic Services Division

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027541000
TRI Log #: 23-003287

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	1.99	1.70	2.20	1.84	1.85	1.65	1.52	1.64	1.64	1.51	1.75	0.22
Mass/Unit Area (oz/sq.yd)	4.63	3.95	5.12	4.28	4.30	3.84	3.54	3.81	3.81	3.51	4.08	0.51
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	143	123	148	113	152	208	109	116	114	140	137	30
TD - Tensile Strength (lbs)	240	254	190	135	150	210	166	146	173	150	181	41
MD - Elong. @ Max. Load (%)	81	74	84	99	70	85	73	73	71	81	79	9
TD - Elong. @ Max. Load (%)	91	91	84	104	85	92	96	102	89	91	93	6
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	70	56	61	55	73	78	68	51	72	71	65	9
TD - Tear Strength (lbs)	78	85	75	79	89	76	75	126	73	52	81	19
Apparent Opening Size (ASTM D4751, Method B.)												
Opening Size Diameter (mm)	0.145	0.142	0.121	0.129	0.187						0.145	0.026
Sieve No.	100	100	100	100	70						100	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	51	47.5	46.1	47	49.3	45	44.8	55	50.1	54.3	49.0	3.6
Thickness (mm)	1.30	1.21	1.17	1.19	1.25	1.14	1.14	1.40	1.27	1.38	1.24	0.09
Permittivity (Sec-1)	2.36	2.22	1.81	1.96	3.73	3.57	2.60	2.29	3.81	1.56	2.59	0.82
Permittivity (GPM/ft2)	176.5	166.1	135.4	146.6	279.0	267.0	194.5	171.3	285.0	116.7	193.8	61.6
Flow rate (LPM/m2)	7193	6766	5516	5973	11368	10880	7924	6979	11612	4754	7897	2508
Permittivity (cm/sec)	0.306	0.268	0.212	0.234	0.467	0.408	0.296	0.320	0.485	0.215	0.321	0.100

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027541026
TRI Log #: 23-003287

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	1.87	1.67	1.45	1.83	2.18	1.84	2.03	1.86	2.07	1.95	1.88	0.21
Mass/Unit Area (oz/sq.yd)	4.35	3.88	3.37	4.26	5.07	4.28	4.72	4.33	4.81	4.54	4.36	0.48
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	120	122	178	133	166	222	115	104	127	105	139	38
TD - Tensile Strength (lbs)	144	133	197	148	112	174	233	171	141	165	162	35
MD - Elong. @ Max. Load (%)	91	87	89	79	69	77	60	68	81	65	77	11
TD - Elong. @ Max. Load (%)	101	92	81	81	105	93	90	89	89	98	92	8
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	56	47	63	63	78	93	71	67	65	54	66	13
TD - Tear Strength (lbs)	97	81	68	58	72	79	58	54	78	89	73	14
Apparent Opening Size (ASTM D4751, Method B.)												
Opening Size Diameter (mm)	0.161	0.143	0.135	0.157	0.191						0.157	0.022
Sieve No.	70	100	100	70	70						70	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	53.5	49	44.3	51	46	47	51.3	55	50.9	50.1	49.8	3.3
Thickness (mm)	1.36	1.24	1.13	1.30	1.17	1.19	1.30	1.40	1.29	1.27	1.27	0.08
Permittivity (Sec-1)	2.67	2.24	1.86	2.34	3.32	3.37	2.58	4.15	2.21	2.15	2.69	0.71
Permittivity (GPM/ft2)	199.7	167.6	139.1	175.0	248.3	252.1	193.0	310.4	165.3	160.8	201.1	53.1
Flow rate (LPM/m2)	8137	6827	5669	7132	10118	10271	7863	12648	6735	6553	8195	2164
Permittivity (cm/sec)	0.363	0.279	0.209	0.303	0.388	0.402	0.336	0.580	0.286	0.274	0.342	0.102

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027541053
TRI Log #: 23-003287

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	1.82	1.82	1.62	1.80	2.27	1.93	2.40	1.82	1.64	1.82	1.89	0.25
Mass/Unit Area (oz/sq.yd)	4.23	4.23	3.77	4.19	5.28	4.49	5.58	4.23	3.81	4.23	4.41	0.58
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	151	123	147	179	128	154	125	113	140	173	143	22
TD - Tensile Strength (lbs)	154	196	229	143	162	194	141	148	132	132	163	33
MD - Elong. @ Max. Load (%)	81	73	75	83	63	81	76	100	61	83	78	11
TD - Elong. @ Max. Load (%)	90	92	78	82	91	86	86	87	85	103	88	7
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	80	60	65	63	59	63	56	54	52	76	63	9
TD - Tear Strength (lbs)	59	60	103	108	57	78	57	63	70	78	73	19
Apparent Opening Size (ASTM D4751, Method B.)												
Opening Size Diameter (mm)	0.191	0.149	0.151	0.135	0.155						0.156	0.021
Sieve No.	70	100	70	100	70						70	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	46.5	40.5	39.5	43.3	48.6	48	48.7	52.6	62.1	53.2	48.3	6.7
Thickness (mm)	1.18	1.03	1.00	1.10	1.23	1.22	1.24	1.34	1.58	1.35	1.23	0.17
Permittivity (Sec-1)	3.08	1.79	2.11	1.99	2.54	2.41	3.03	3.03	2.51	1.92	2.44	0.49
Permittivity (GPM/ft2)	230.4	133.9	157.8	148.9	190.0	180.3	226.6	226.6	187.7	143.6	182.6	36.4
Flow rate (LPM/m2)	9387	5455	6431	6065	7741	7345	9235	9235	7650	5852	7439	1481
Permittivity (cm/sec)	0.364	0.184	0.212	0.219	0.314	0.294	0.375	0.405	0.396	0.259	0.302	0.081

MD Machine Direction TD Transverse Direction

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GEOTEXTILE TEST RESULTS
TRI Client: Waste Management Inc
Project: Laraway Landfill RDF

Material: Solmax Nonwoven Geotextile
Sample Identification: 2027541080
TRI Log #: 23-003287

PARAMETER	TEST REPLICATE NUMBER										MEAN	STD. DEV.
	1	2	3	4	5	6	7	8	9	10		
Mass/Unit Area (ASTM D5261)												
5" diameter circle (grams)	2.01	1.81	1.51	1.55	2.16	1.85	2.34	1.74	1.85	1.83	1.87	0.25
Mass/Unit Area (oz/sq.yd)	4.68	4.21	3.51	3.61	5.02	4.30	5.44	4.05	4.30	4.26	4.34	0.59
Grab Tensile Properties (ASTM D4632)												
MD - Tensile Strength (lbs)	170	212	142	138	121	123	128	185	198	150	157	33
TD - Tensile Strength (lbs)	156	163	227	171	169	139	246	150	151	133	170	37
MD - Elong. @ Max. Load (%)	89	80	83	85	71	71	78	81	86	64	79	8
TD - Elong. @ Max. Load (%)	107	98	85	80	109	104	89	77	85	96	93	11
Trapezoidal Tear (ASTM D4533)												
MD - Tear Strength (lbs)	68	56	73	69	49	51	63	65	77	77	65	10
TD - Tear Strength (lbs)	86	70	57	66	58	68	70	67	57	79	68	9
Apparent Opening Size (ASTM D4751, Method B.)												
Opening Size Diameter (mm)	0.116	0.163	0.146	0.203	0.189						0.163	0.035
Sieve No.	100	70	100	70	70						70	
Permittivity (ASTM D4491,Method C)												
Thickness (mil)	53.3	51.7	47.2	45.3	42	42.4	45	45.2	49.7	58	48.0	5.1
Thickness (mm)	1.35	1.31	1.20	1.15	1.07	1.08	1.14	1.15	1.26	1.47	1.22	0.13
Permittivity (Sec-1)	1.33	2.53	1.99	3.57	3.26	3.74	3.35	2.79	2.81	2.90	2.83	0.74
Permittivity (GPM/ft2)	99.5	189.2	148.9	267.0	243.8	279.8	250.6	208.7	210.2	216.9	211.5	55.1
Flow rate (LPM/m2)	4053	7711	6065	10880	9936	11398	10210	8503	8564	8838	8616	2245
Permittivity (cm/sec)	0.180	0.332	0.239	0.411	0.348	0.403	0.383	0.320	0.355	0.427	0.340	0.078

MD Machine Direction TD Transverse Direction

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APPENDIX E

GCL MQA & CONFORMANCE TESTING

APPENDIX E.1 – Manufacturer's MQA Testing Results
APPENDIX E.2 – GCL Field Inventory
APPENDIX E.3 – Conformance Testing Results

APPENDIX E.1

Manufacturer's MQA Testing Results

Date: 08-Aug-2023 23:56
Purchase Order: 12879769
ORDER NUMBER: 55080810

IAN JOHNSON
21233 W. LARAWAY RD.
Joliet, IL 60436

To Whom It May Concern:

Please find the enclosed Manufacturing Quality Assurance/Manufacturing Quality Control (MQA/MQC) test data package for Geosynthetic Clay Liner (GCL) shipments to Laraway RDF .

The enclosed data package includes results for all MQC tests required by ASTM D5889, with the exception of index flux/ hydraulic conductivity. This test, which is run according to ASTM D5887, is normally performed once every 250,000 sq./ ft. of GCL produced, unless a higher frequency is required by the project specifications. Because of the GCL's low permeability, this test can take several weeks to complete. The index flux/hydraulic conductivity results associated with this lot of material will be provided under separate cover as soon as they are available.

Although the index flux/hydraulic conductivity test results are not yet available, CETCO® accepts responsibility for our GCL should the index flux/hydraulic conductivity test produce unacceptable results. If, upon delivery and prior to installation, individual rolls of GCL are found to be nonconforming to accepted project specifications, CETCO® will replace the nonconforming material at no charge.

Questions regarding this information should be directed to CETCO® Technical Services at eptechservices@cetco.com.

Sincerely,

NICHOLLS, RYAN J
Quality Assurance Coordinator
CETCO® Lovell Plant

PRODUCT CERTIFICATIONS

PROJECT NAME:
CUSTOMER P.O.: 12879769
ORDER NUMBER: 55080810
PREPARED FOR: LARAWAY

The GCL Manufactured for the above-referenced order number is certified to meet the values listed in the tables below:

GCL PROPERTY SPECIFICATIONS FOR BENTOMAT® ST

Test Method	Test Method Property	Test Frequency	Certified Value
ASTM D5890	Bentonite Free Swell	50 tons	24 - ml
ASTM D5891	Bentonite Fluid Loss	50 tons	18 - ml
ASTM D6496	GCL Peel Strength	40,000 sq ft (4,000 sq m)	3.5 - lbs/in
ASTM D5887	GCL-Index Flux	250,000 sq ft	1x10-8 - m3/m2/s
ASTM D5887	GCL-Hydraulic Conductivity	250,000 sq ft	5x10-9 - cm/s
ASTM D6243	GCL Hydrated Internal Shear Strength	1,000,000 sq ft	500 - psf
ASTM D5993	Bentonite Mass/Area	40,000 sq ft (4,000 sq m)	.75 - lbs/sq ft
ASTM D6768	GCL Grab Strength	200,000 sq ft (20,000 sq m)	30 - lbs/in

All tensile testing is in the machine direction using ASTM D 6768. All peel strength testing is performed using ASTM D 6496. An "*" indicates non-standard testing, frequency, or certified value .

NEEDLE DETECTION AND REMOVAL PROCEDURE

CETCO® hereby affirms that all Bentomat® geosynthetic clay liner material manufactured for this project is continually passed under a magnet for needle removal and then screened with a metal detection device. CETCO® certifies Bentomat® to be essentially free of broken needless and fragments of needles that would negatively affect the performance of the final product.

Sincerely,

NICHOLLS, RYAN J
Quality Assurance Coordinator
CETCO® Lovell Plant

GCL MANUFACTURING QUALITY CONTROL TEST DATA

The following rolls in GCL certification package number 55080810 have been tested in our production facility lab.

Product	Lot# Tested	Roll# Tested	Mass Area	Grab Strength	Peel Strength			
	ASTM Test Method:		ASTM D5993	ASTM D6768	ASTM D6496			
	Required Value:		.75 - lbs/sq ft	30 - lbs/in	3.5 - lbs/in			
BENTOMAT® ST	LL-32-2023	6671	.82	52.8	6.5			

BENTONITE CLAY CERTIFICATION

The Bentonite Clay used to produce package 55080810 was tested in our production facility lab and yielded the following results.

Clay Lot #	Moist	Swell	Fluid Loss
ASTM Test Method:	ASTM D2216	ASTM D5890	ASTM D5891
Required Value:	12 - %	24 - ml	18 - ml
L-218-23-D	10.33	31	11.8

APPENDIX E.2

GCL Field Inventory

Initial Roll Inventory

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Material Type: GCL

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Date	Roll Number	Lot Number	Width	Length	Thickness	Conf. Sample (Yes/No)	MQC Certificate (Yes/No)	Visual Inspection/Remarks
11/15/23	6671		15	150			Y	
11/15/23	6672		↓	↓		Y	Y	
11/15/23	6673		↓	↓			Y	

APPENDIX E.3

Conformance Testing Results

TRI ENVIRONMENTAL

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
Austin, TX - USA | CA - USA | SC - USA | Gold Coast - Australia | Suzhou - China | Sao Paulo, Brazil | Johannesburg - Africa

September 1, 2023

Mail To:

Ian Johnson
Waste Management

ijohnson@wm.com

Bill To:

<= Same

Greetings,

Thank you for consulting TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs.
TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway Landfill RDF**
TRI Job Reference Number:	23-003134
Material(s) Tested:	One Cetco Bentomat ST GCL
Test(s) Requested:	Mass Per Unit Area (ASTM D5993) Bentonite - Fluid Loss (ASTM D5891) Bentonite - Swell Index (ASTM D5890) Index Flux (ASTM D5887)

If you have any questions or require any additional information, please call us at 1-800-880-8378.

Sincerely,

Mansukh Patel, Ph.D.

Geosynthetic Services Division

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
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GCL TEST RESULTS
TRI Client: Waste Management
Project: Laraway Landfill RDF

Material: GCL
Sample Identification: 6672
TRI Log #: 23-003134

PARAMETER	TEST REPLICATE NUMBER 1	2	3	4	5	MEAN	STD. DEV.
Bentonite - Mass/Unit Area (ASTM D5993, result @ 0% M.C.)							
Mass/unit area (lbs/ft^2)							
GCL (ω = 0%)	0.98	0.93	1.12	1.06	0.86	0.99	0.10
Non-Bentonite Components	0.073	(Assumed Material-Specific Value)					
Bentonite (ω = 0%)	0.91	0.85	1.05	0.98	0.79	0.92	0.10
Moisture Content (%)	25.6	25.4	25.5	24.2	26.2	25.4	0.7
Bentonite - Fluid Loss (ASTM D5891)							
Slurry temperature at test intiation:	26.4 ° C			Slurry temperature at test completion:	22.4 ° C		
Fluid Loss (mL)	14.8					14.8	
Note: Bentonite sample tested is taken from finished GCL product.							
Bentonite - Swell Index (ASTM D5890)							
Swell index (mL/2g)	27.0					27	
Note: Bentonite sample tested is taken from finished GCL product.							
Index Flux (ASTM D5887)							
Index Flux (m^3/m^2/sec)	3.2E-09					3.2E-09	
Hydraulic Conductivity (cm/sec)	1.3E-09					1.3E-09	

MD Machine Direction

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TRI ENVIRONMENTAL, INC.
9063 Bee Caves Rd. – Austin, TX 78733 – USA | PH: 800.880.TEST OR 512.263.2101

APPENDIX F

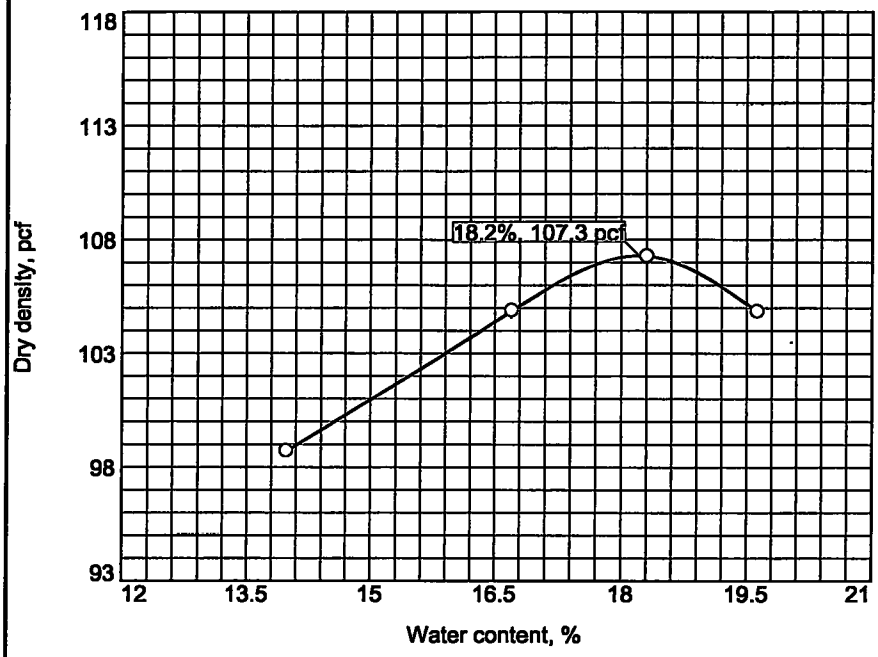
CLAY LINER CONSTRUCTION LABORATORY TEST RESULTS

APPENDIX F.1 – Clay Liner Moisture Content/Density Relationship Testing Results
APPENDIX F.2 – Clay Liner Hydraulic Conductivity Testing Results
APPENDIX F.3 – Comparison of Nuclear Density Gauge Readings/Drive Tube Samples
APPENDIX F.4 – Nuclear Density Gauge Calibration Certificates

APPENDIX F.1

Clay Liner Moisture Content/Density Relationship Testing Results

COMPACTION TEST REPORT



Curve No.
Clay-1

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing #4 **Sieve**

Soil Data

NM 21.0 **Sp.G.** _____
LL _____ **PI** _____
%>#4 _____ **%<#200** _____
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	12.81	13.14	13.29	13.24		
WM	9.06	9.06	9.06	9.06		
WW + T #1	282.0	318.3	272.2	307.2		
WD + T #1	248.2	273.7	231.3	258.1		
TARE #1	6.6	6.8	7.9	8.0		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	14.0	16.7	18.3	19.6		
DRY DENSITY	98.7	104.9	107.3	104.8		

TEST RESULTS	**Material Description**
Maximum dry density = 107.3 pcf Optimum moisture = 18.2 %	Brown-Gray LEAN CLAY (Visual)
Project No. 0086-004-16- **Client:** Waste Management **Project:** Laraway RDF - Phases 9C & 10 B ○ **Sample Number:** Clay-1	**Remarks:**
Weaver Consultants Group **Granger, Indiana**	**Figure**

Tested By: RS **Checked By:** JJW

MOISTURE DENSITY TEST DATA

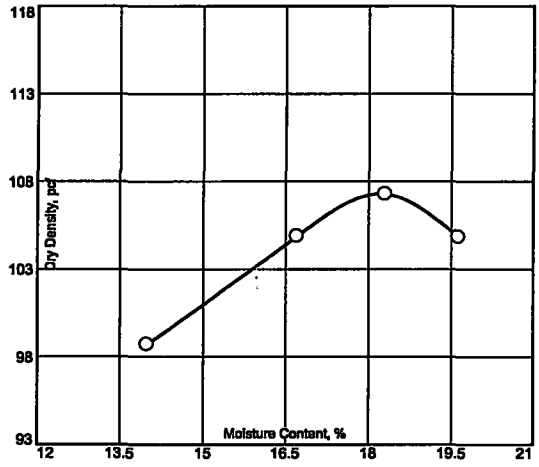
10/21/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: Clay-1
Description:
Brown-Gray LEAN CLAY (Visual)
Natural Moisture: 21.0
Tested by: RS **Checked by:** JJW

Test Data and Results For Curve Clay-1

Test Specification:

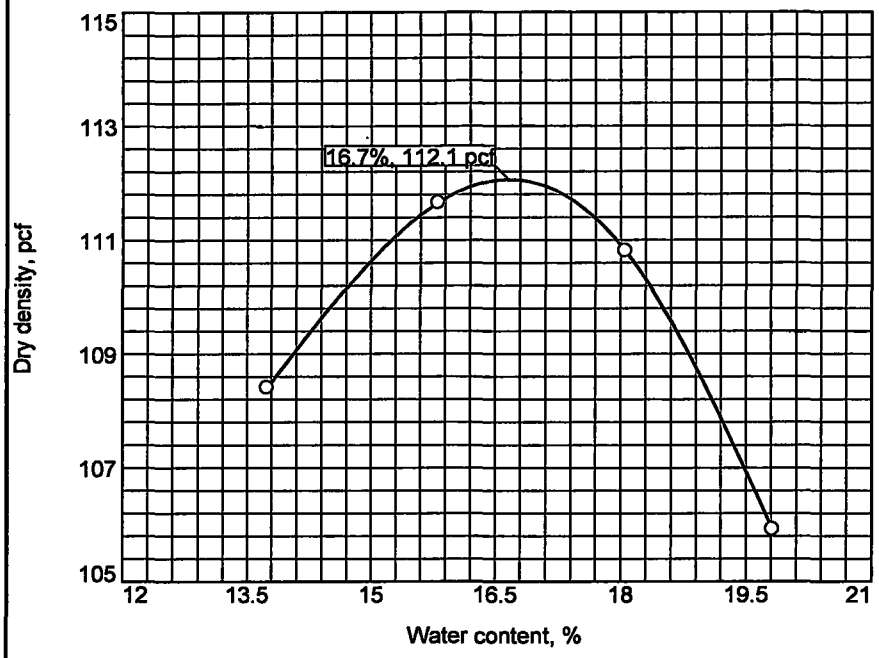
Type of Test: ASTM D 698-12 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	12.81	13.14	13.29	13.24
Wt. M	9.06	9.06	9.06	9.06
Wt. W+T	282.0	318.3	272.2	307.2
Wt. D+T	248.2	273.7	231.3	258.1
Tare	6.6	6.8	7.9	8.0
Moist.	14.0	16.7	18.3	19.6
Dry Den.	98.7	104.9	107.3	104.8

Test Results: **Max. Dry Den.=** 107.3 pcf **Opt. Moist.=** 18.2%

COMPACTION TEST REPORT



Curve No.
Clay-2

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing #4 **Sieve**

Soil Data

NM 16.8 **Sp.G.** _____
LL _____ **PI** _____
%>#4 _____ **%<#200** _____
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	13.18	13.38	13.43	13.30		
WM	9.07	9.07	9.07	9.07		
WW + T #1	301.7	379.4	409.1	363.9		
WD + T #1	266.2	328.5	347.8	304.8		
TARE #1	8.0	6.6	8.3	6.6		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	13.7	15.8	18.1	19.8		
DRY DENSITY	108.4	111.7	110.8	105.9		

TEST RESULTS	Material Description
Maximum dry density = 112.1 pcf Optimum moisture = 16.7 %	Brown-Gray LEAN CLAY (Visual)
Project No. 0086-004-16- **Client:** Waste Management **Project:** Laraway RDF - Phases 9C & 10 B ○ **Sample Number:** Clay-2	**Remarks:**
Weaver Consultants Group **Granger, Indiana**	**Figure**

Tested By: JJW

MOISTURE DENSITY TEST DATA

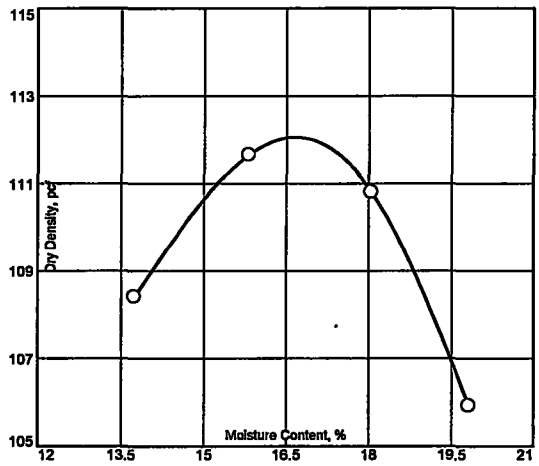
11/7/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: Clay-2
Description:
Brown-Gray LEAN CLAY (Visual)
Natural Moisture: 16.8
Tested by: JJW

Test Data and Results For Curve Clay-2

Test Specification:

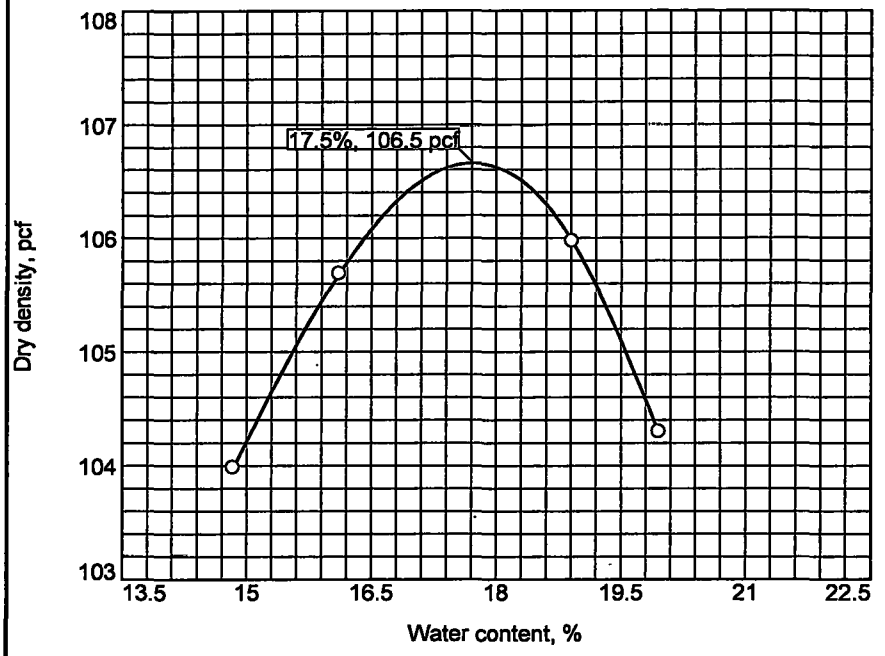
Type of Test: ASTM D 698-12 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	13.18	13.38	13.43	13.30
Wt. M	9.07	9.07	9.07	9.07
Wt. W+T	301.7	379.4	409.1	363.9
Wt. D+T	266.2	328.5	347.8	304.8
Tare	8.0	6.6	8.3	6.6
Moist.	13.7	15.8	18.1	19.8
Dry Den.	108.4	111.7	110.8	105.9

Test Results: **Max. Dry Den.=** 112.1 pcf **Opt. Moist.=** 16.7%

COMPACTION TEST REPORT



Curve No.
Clay-3

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing #4 **Sieve**

Soil Data

NM 22.1 **Sp.G.** _____
LL _____ **PI** _____
%>#4 _____ **%<#200** _____
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	13.05	13.16	13.27	13.24		
WM	9.07	9.07	9.07	9.07		
WW + T #1	309.3	375.4	347.5	335.4		
WD + T #1	270.2	324.4	293.3	281.0		
TARE #1	6.7	7.8	6.7	8.4		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	14.8	16.1	18.9	20.0		
DRY DENSITY	104.0	105.7	106.0	104.3		

TEST RESULTS	Material Description
Maximum dry density = 106.5 pcf Optimum moisture = 17.5 %	Brown-Gray LEAN CLAY (Visual)
Project No. 0086-004-16- **Client:** Waste Management **Project:** Laraway RDF - Phases 9C & 10 B ○ **Sample Number:** Clay-3 **Weaver Consultants Group** **Granger, Indiana**	**Remarks:** **Figure**

Tested By: JB **Checked By:** JJW

MOISTURE DENSITY TEST DATA

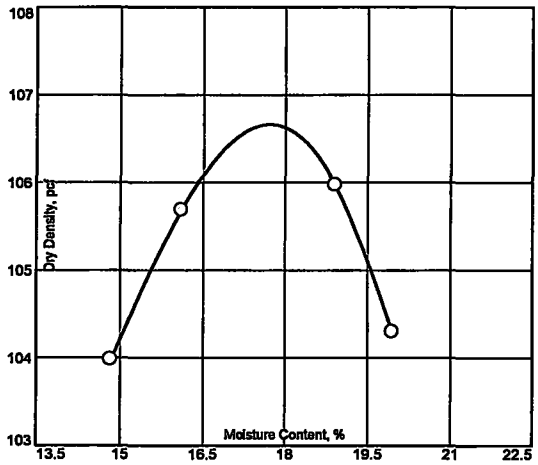
11/10/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: Clay-3
Description:
Brown-Gray LEAN CLAY (Visual)
Natural Moisture: 22.1
Tested by: JB **Checked by:** JJW

Test Data and Results For Curve Clay-3

Test Specification:

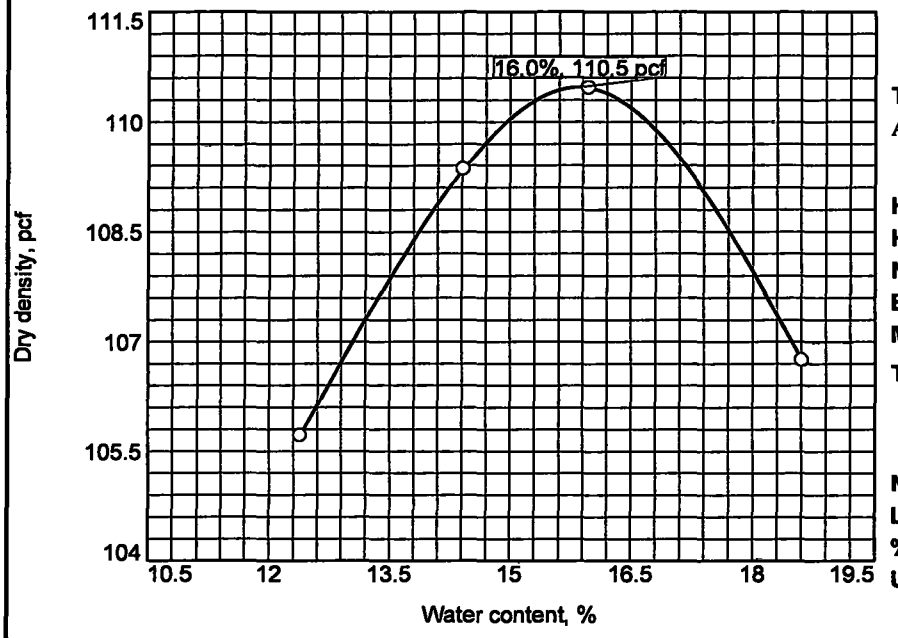
Type of Test: ASTM D 698-12 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	13.05	13.16	13.27	13.24
Wt. M	9.07	9.07	9.07	9.07
Wt. W+T	309.3	375.4	347.5	335.4
Wt. D+T	270.2	324.4	293.3	281.0
Tare	6.7	7.8	6.7	8.4
Moist.	14.8	16.1	18.9	20.0
Dry Den.	104.0	105.7	106.0	104.3

Test Results: **Max. Dry Den.=** 106.5 pcf **Opt. Moist.=** 17.5%

COMPACTION TEST REPORT



Curve No.
Clay-4

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.
Test Performed on Material Passing #4 **Sieve**

Soil Data
NM 17.5 **Sp.G.** ____
LL ____ **PI** ____
%>#4 ____ **%<#200** ____
USCS ____ **AASHTO** ____

TESTING DATA

	1	2	3	4	5	6
WM + WS	13.04	13.25	13.35	13.30		
WM	9.08	9.08	9.08	9.08		
WW + T #1	316.1	312.6	372.3	364.8		
WD + T #1	282.0	274.3	322.1	308.9		
TARE #1	6.8	8.6	7.9	8.5		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	12.4	14.4	16.0	18.6		
DRY DENSITY	105.7	109.3	110.5	106.7		

TEST RESULTS	Material Description
Maximum dry density = 110.5 pcf Optimum moisture = 16.0 %	Brown-Gray LEAN CLAY (Visual)
Project No. 0086-004-16- **Client:** Waste Management **Project:** Laraway RDF - Phases 9C & 10 B ○ **Sample Number:** Clay-4	**Remarks:**
Weaver Consultants Group **Granger, Indiana**	**Figure**

Tested By: JB **Checked By:** JJW

MOISTURE DENSITY TEST DATA

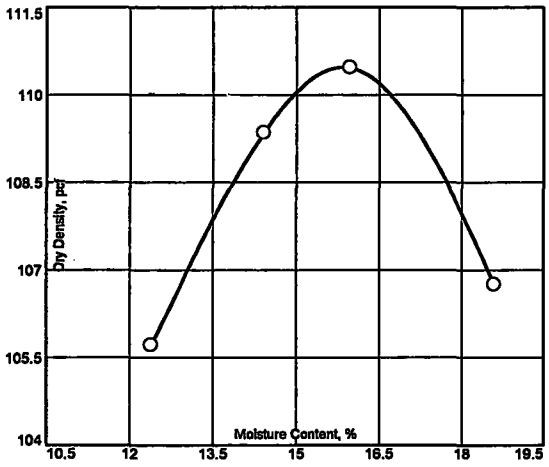
11/15/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: Clay-4
Description:
Brown-Gray LEAN CLAY (Visual)
Natural Moisture: 17.5
Tested by: JB **Checked by:** JJW

Test Data and Results For Curve Clay-4

Test Specification:

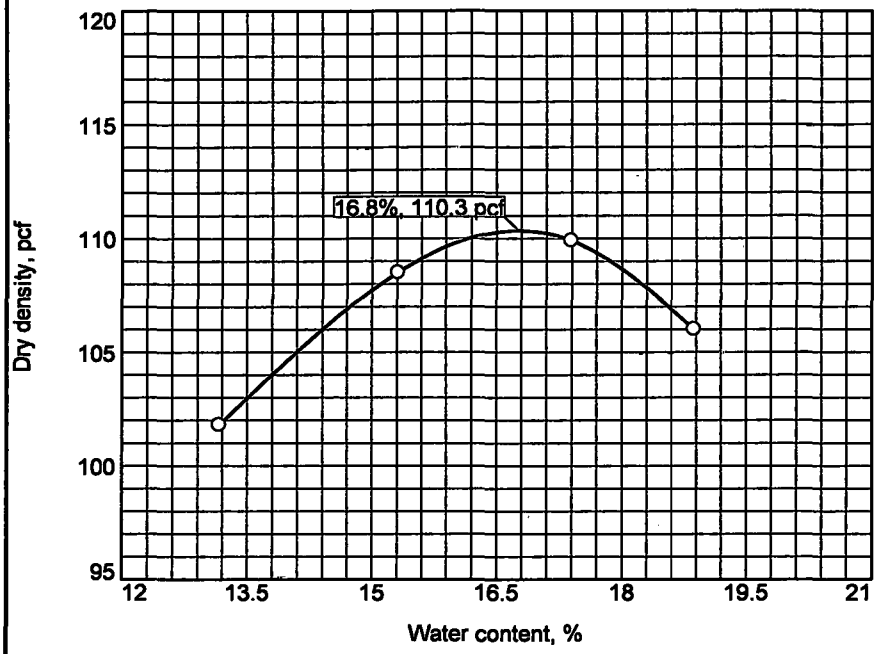
Type of Test: ASTM D 698-12 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	13.04	13.25	13.35	13.30
Wt. M	9.08	9.08	9.08	9.08
Wt. W+T	316.1	312.6	372.3	364.8
Wt. D+T	282.0	274.3	322.1	308.9
Tare	6.8	8.6	7.9	8.5
Moist.	12.4	14.4	16.0	18.6
Dry Den.	105.7	109.3	110.5	106.7

Test Results: **Max. Dry Den.= 110.5 pcf Opt. Moist.= 16.0%**

COMPACTION TEST REPORT



Curve No.
Clay-5

Test Specification:
ASTM D 698-12 Method A Standard

Hammer Wt.: 5.5 lb.
Hammer Drop: 12 in.
Number of Layers: three
Blows per Layer: 25
Mold Size: 0.03333 cu. ft.

Test Performed on Material Passing #4 **Sieve**

Soil Data
NM 14.6 **Sp.G.** _____
LL _____ **PI** _____
%>#4 _____ **%<#200** _____
USCS _____ **AASHTO** _____

TESTING DATA

	1	2	3	4	5	6
WM + WS	12.91	13.24	13.37	13.27		
WM	9.07	9.07	9.07	9.07		
WW + T #1	337.5	391.4	384.4	378.9		
WD + T #1	299.0	340.3	328.6	319.8		
TARE #1	6.6	6.6	7.8	6.7		
WW + T #2						
WD + T #2						
TARE #2						
MOISTURE	13.2	15.3	17.4	18.9		
DRY DENSITY	101.8	108.5	109.9	106.0		

TEST RESULTS	Material Description
Maximum dry density = 110.3 pcf Optimum moisture = 16.8 %	Brown-Gray LEAN CLAY (Visual)
Project No. 0086-004-16- **Client:** Waste Management **Project:** Laraway RDF - Phases 9C & 10 B ○ **Sample Number:** Clay-5 **Weaver Consultants Group** **Granger, Indiana**	**Remarks:** **Figure**

Tested By: JB **Checked By:** JJW

MOISTURE DENSITY TEST DATA

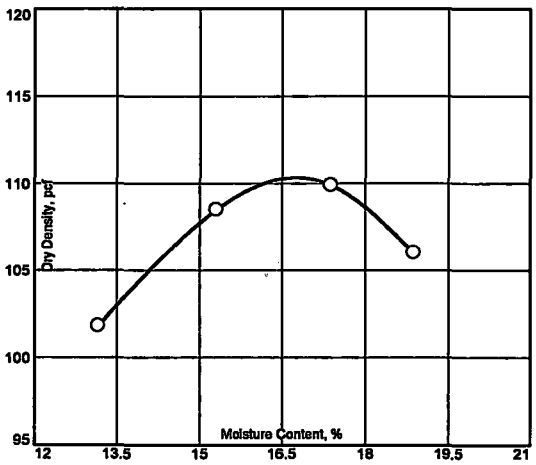
11/17/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: Clay-5
Description:
Brown-Gray LEAN CLAY (Visual)
Natural Moisture: 14.6
Tested by: JB **Checked by:** JJW

Test Data and Results For Curve Clay-5

Test Specification:

Type of Test: ASTM D 698-12 Method A Standard
Mold Dia: 4.00 **Hammer Wt.:** 5.5 lb. **Drop:** 12 in. **Layers:** three **Blows per Layer:** 25



Point No.	1	2	3	4
Wt. M+S	12.91	13.24	13.37	13.27
Wt. M	9.07	9.07	9.07	9.07
Wt. W+T	337.5	391.4	384.4	378.9
Wt. D+T	299.0	340.3	328.6	319.8
Tare	6.6	6.6	7.8	6.7
Moist.	13.2	15.3	17.4	18.9
Dry Den.	101.8	108.5	109.9	106.0

Test Results: **Max. Dry Den.= 110.3 pcf Opt. Moist.= 16.8%**

APPENDIX F.2

Clay Liner Hydraulic Conductivity Testing Results

10/23/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B			Project No: 0086-004-16-22-04		
Boring #:		Sample #	ST-1-1A	Depth (ft)	
Sample Received: 10-19-2023			Sample Tested: 10-23-2023		
Tested By:	JB		Reviewed By:	JJW	
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.82		
Test Sample Length (in)			3.04		
Test Sample Wet Weight (gms)			666.06		
Moisture Content of Sample (%)			20.19		
Dry Density of Sample (pcf)			111.0		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.97E-09		

11/7/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B		Project No: 0086-004-16-22-04			
Boring #:		Sample #	ST-2-6A	Depth (ft)	
Sample Received: 11-2-2023			Sample Tested: 11-7-2023		
Tested By:		JB	Reviewed By:		JJW
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.85		
Test Sample Length (in)			2.98		
Test Sample Wet Weight (gms)			664.24		
Moisture Content of Sample (%)			16.66		
Dry Density of Sample (pcf)			113.9		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.62E-09		

11/10/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B			Project No: 0086-004-16-22-04		
Boring #:		Sample #	ST-3-5A	Depth (ft)	
Sample Received: 11-7-2023			Sample Tested: 11-10-2023		
Tested By:	JB		Reviewed By:	JJW	
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.84		
Test Sample Length (in)			3.05		
Test Sample Wet Weight (gms)			667.07		
Moisture Content of Sample (%)			17.89		
Dry Density of Sample (pcf)			111.8		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.09E-09		

11/13/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B			Project No: 0086-004-16-22-04		
Boring #:		Sample #	ST-4-4A	Depth (ft)	
Sample Received: 11-9-2023			Sample Tested: 11-12-2023		
Tested By:		JJW	Reviewed By:		JJW
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.83		
Test Sample Length (in)			3.09		
Test Sample Wet Weight (gms)			690.19		
Moisture Content of Sample (%)			19.04		
Dry Density of Sample (pcf)			113.6		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			5.99E-09		

11/17/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B Project No: 0086-004-16-22-04					
Boring #:		Sample #	ST-5-3A	Depth (ft)	
Sample Received: 11-14-2023			Sample Tested: 11-17-2023		
Tested By:	JB		Reviewed By:	JJW	
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.84		
Test Sample Length (in)			2.97		
Test Sample Wet Weight (gms)			645.22		
Moisture Content of Sample (%)			19.69		
Dry Density of Sample (pcf)			109.2		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.43E-09		

11/17/2023

Weaver Consultants Group
Summary of Soil Data

Weaver Consultants Group

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B		Project No: 0086-004-16-22-04			
Boring #:		Sample #	ST-6-2A	Depth (ft)	
Sample Received: 11-14-2023			Sample Tested: 11-17-2023		
Tested By:	JB		Reviewed By:	JJW	
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.82		
Test Sample Length (in)			3.00		
Test Sample Wet Weight (gms)			650.03		
Moisture Content of Sample (%)			15.33		
Dry Density of Sample (pcf)			114.5		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.64E-09		

APPENDIX F.3

Comparison of Nuclear Density Gauge Readings/Drive Tube Samples

Comparison of Nuclear Density Gauge Readings and Drive Tube Samples
Compacted Clay Liner Testing Results
Laraway RDF - 2023 Cell Construction

Test No.	Shelby Tube ID	Nuclear Density Gauge Results		Drive Tube Results	
		Dry Density (pcf)	Moisture Content (%)	Dry Density (pcf)	Moisture Content (%)
7	ST-1-1A	112.6	16.8	111.0	20.2
40	ST-2-6A	115.7	16.0	113.9	16.7
118	ST-3-5A	112.5	15.5	111.8	17.9
167	ST-4-4A	114.1	15.2	113.6	19.0
246	ST-5-3A	111.1	15.8	109.2	19.7
282	ST-6-2A	111.8	15.8	114.5	15.3

APPENDIX F.4

Nuclear Density Gauge Calibration Certificates

TROXLER®
The Leader in Construction Testing Equipment

Troxler Electronic Laboratories, Inc. - Troxler International, Ltd.
3008 Cornwallis Road, P.O. Box 12057, Research Triangle Park, NC 27709 - USA
Telephone: 919/549-8661 Telefax: 919/549/0761

Troxler Model 03440A Main Calibration Report

Gauge Serial number: 61758 Calibration Date: 1/17/2023
Density Standard Count: 1978 Water Standard Count: 659 Bay: 53

The density counts used in this calibration are shown hereunder. "Pos" refers to the source position below the surface of the standard, in millimeters. "SR" refers to a gauge reading with 1.3 mm. shims beneath the gauge.

Pos	Magnes	Mag/Al	Lime	Granit	Alumin	SR Lime	Mg/Pol
BS	00960	00630	00490	00407	00414	00518	01394
051	03365	02185	01729	01320	01359	01749	04873
102	03440	02108	01591	01180	01219	01623	05135
152	02803	01569	01181	00831	00829	01185	04421
203	01938	01003	00735	00489	00509	00767	03330
254	01217	00561	00402	00265	00260	00427	02303
305	00712	00318	00214	00133	00139	00228	01477

The density system calibration constants and performance parameters for each source position are listed hereunder. The gauge precision ("Prec")is the measurement precision under a set of repeatability conditions of measurement (VIM Sec. 2.21.) Bend is the accuracy gained by using a third calibration constant, C, MP-D is the density read by the gauge on the mag/poly block, CE is the anticipated error due to elemental composition on calcareous soils, ("SR E"), is the anticipated error due to texture imperfections, and Exerr is a linear combination of CE, SR E, and Prec. A and C are unitless, B is in units of cubic meter per kilogram, and the other six parameters are in units of kilograms per cubic meter. Precision is evaluated at 1922 kilograms per cubic meter.

Pos	A	B*1000	C	Bend	MP-D	Prec	CE	SR E	Exerr
BS	3.195	1.13521	-0.03781	-12.4	1380	8.7	40.8	-57.5	53.5
051	9.781	0.97374	0.10498	8.6	1373	4.5	22.8	-10.6	25.5
102	12.299	1.08834	0.12758	12.2	1385	4.0	27.3	-15.8	29.8
152	15.055	1.32908	0.05351	8.5	1417	3.8	24.5	-2.3	26.0
203	16.600	1.63194	-0.01766	-5.4	1409	4.1	14.8	-27.4	22.1
254	18.387	1.94419	-0.01978	-13.2	1428	4.5	22.9	-34.3	30.3
305	11.417	1.99031	-0.00504	-6.1	1374	5.7	19.1	-33.3	28.4

The water system calibration counts, constants, precision ("Prec"), and anticipated errors for this gauge are listed hereunder. The "SR" value refers to a count made on the magnesium/polyethylene standard with 1.3 mm. shims beneath the gauge. "SR Error" is the anticipated error in the water system readings due to surface texture imperfections and "Exerr" is the anticipated error from the combination of gauge imprecision and texture imperfections. The calibration constant F is listed in units of cubic meter per kilogram, and the precision and errors are listed in units of kilogram per cubic meter. The precision is evaluated at 240.3 kilograms per cubic meter.

Magnesium Standard count	Mag/Poly Standard count	SR count	E	F*1000	Prec	SR Error	Exerr
22	438	428	0.03338	1.06632	5.0	-14.2	13.3

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3008 Cornwallis Road, P.O. Box 12057, Research Triangle Park, NC 27709 - USA
Telephone: 919/549-8661 Telefax: 919/549/0761

Troxler Model 03440A Main Calibration Report

Gauge Serial number: 61758 Calibration Date: 1/17/2023
Density Standard Count: 1978 Water Standard Count: 659 Bay: 53

Listed hereunder is a range of projected density standard counts at future dates. These projected ranges are computed based solely upon the known decay rate of the density source

Date	Lower Limit of Projected density Standard Count	Upper Limit of Projected density Standard Count
2/1/2023	1956	1996
3/1/2023	1953	1992
4/1/2023	1949	1989
5/1/2023	1945	1985
6/1/2023	1942	1981
7/1/2023	1938	1977
8/1/2023	1934	1973
9/1/2023	1930	1969
10/1/2023	1927	1966
11/1/2023	1923	1962
12/1/2023	1919	1958
1/1/2024	1916	1954
2/1/2024	1912	1951

This gauge was calibrated using the method described in Troxler Report M-708. The density standards utilized in this calibration listed hereunder are traceable to the National Institute of Standards & Technology (NIST) as documented in Troxler Reports R-703 and R-705. The uncertainties for these standards are expressed as expanded uncertainty values at approximately the 95% confidence level using a coverage factor of k = 2.

Standard Material	Standard Serial No.	Density (kg/m^3)	Density Expanded Uncert. (kg/m^3)	Date of Measurement	Date of Expiration
Magnesium	151	1778.0	7.6	11/19/2019	11/19/2024
Mag/Alum	152	2229.0	10	11/19/2019	11/19/2024
Limestone	180	2333.0	10	11/20/2019	11/20/2024
Granite	166	2636.0	13	11/20/2019	11/20/2024
Aluminum	147	2704.0	12	11/19/2019	11/19/2024

To account for the influence of the elemental composition of these blocks on instrument response (as prescribed in ASTM D7759, Section 13.3), the densities for the metallic block are multiplied by elemental composition correction factors prior to the calculation of the density calibration parameters shown on Page 1 of this document. These correction factors are 0.9843 for magnesium, 0.9715 for magnesium/aluminum, and 0.9631 for aluminum. Limestone and granite standards are only used for the five-block calibration process.

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Troxler Model 03440A Main Calibration Report

Gauge Serial number: 61758 Calibration Date: 1/17/2023
Density Standard Count: 1978 Water Standard Count: 659 Bay: 53

The measurements used to establish the water mass per unit volume values for the standards utilized in this calibration are traceable to the National Institute of Standards & Technology (NIST) as documented in Troxler Report R-704. The uncertainty for this standard is expressed as an expanded uncertainty value at approximately the 95% confidence level using a coverage factor of k = 2. Water mass per unit volume is defined as the mass of water contained in a unit volume of material, and is represented in the table hereunder as 'M'.

Standard Material	Standard Serial No.	M Value (kg/m^3)	M Expanded Uncert. (kg/m^3)	Date of Measurement	Date of Expiration
Mag/Poly	143	592.0	40	11/19/2019	11/19/2024

The maximum estimated measurement uncertainties (EMUs) of this gauge are listed hereunder. The uncertainties apply to measurements of one minute in duration on typical soil, and are expressed as expanded uncertainty values at approximately the 95% confidence level using a coverage factor of k = 2. These values relate only to the source rod positions for which this gauge has been manufactured to operate. EMU values are in kilograms per cubic meter.

For DENSITY Measurements:

Pos	Max EMU	Pos	Max EMU	Pos	Max EMU	Pos	Max EMU
BS	33	51	24	76	22	102	20
127	23	152	26	178	22	203	18
229	18	254	17	279	19	305	21

The maximum EMU for M measurements is 41 kilograms per cubic meter.

This instrument was found to be mechanically sound and electronically stable prior to and after its calibration. This calibration was performed in an environment with a temperature between 14.4 ºC and 25.6 ºC. All data listed in this report are applicable to this instrument only. This instrument was calibrated by cm using the Five Block Calibration process. This process is fit for the intended use of the instrument.

This calibration was performed by cm at Troxler Electronic Labs
1430 Brook Dr., Downers Grove, IL 60515
Special considerations and limitations of use for this device and its calibration are described in the Manual of Operation and Instruction provided with this instrument.

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Troxler Model 3440 As Left Calibration Report

Gauge Serial number: 61758 Measurement Date: 1/17/2023
Density Standard Count: 1968 Water Standard Count: 658 Bay: 53

Listed hereunder are the results of a gauge accuracy check for this instrument for soil and asphalt measurement modes. The results are listed in terms of measurement error (as defined in VIM Section 2.16), where the measurement error is the value read by the instrument minus the value assigned to the standard upon which the measurement was made. Measurement errors for density are listed in kilograms per cubic meter, as are measurement errors for water mass per unit volume measurements (denoted by M.) "Pos " refers to the source position below the surface of the standard, in millimeters.

Pos	Magnes standard	Mag/Al standard	Alumin standard
BS	-11	11	-14
051	-13	-13	-9
102	-16	-12	-14
152	-6	-10	-1
203	-6	-12	-1
254	8	1	-4
305	-14	-9	9

M measurement errors: On mag. = 6 kg/m^3 On mag/poly = 2 kg/m^3

All measurements were one minute in duration, except for the standard counts, which were four minutes in duration. These measurements were made at the conclusion of the factory calibration for this gauge.

This instrument was evaluated using the method described in Troxler Report W-700. The quantity values and uncertainties of the standards used in this calibration are listed in the Main Calibration Report for this instrument. The maximum estimated measurement uncertainties (EMUs) of a gauge of this variety that has undergone a Troxler factory calibration are listed and in the Main Calibration Report for this instrument.

This calibration was performed in an environment with a temperature between 14.4 ºC and 25.6 ºC.
This "as left" calibration was performed by Curtis Mcgruder at Troxler Electronic Labs, 1430 Brook Dr., Downers Grove, IL 60515.

This report shall not be reproduced except in full, without the written approval of Troxler Electronic Laboratories, Inc. This process is fit for the intended use of the gauge, compliant with ASTM D7759, Sections 12.3.1.

Curtis McGruder 01/17/23

Approved Signatory (Sign and Print) Date

APPENDIX G

GEOMEMBRANE INSTALLATION FIELD LOGS

APPENDIX G.1 – Certificate of Acceptance of Soil Surface
APPENDIX G.2 – Panel Placement Summary
APPENDIX G.3 – Trial Weld Summary
APPENDIX G.4 – Panel Seaming Summary
APPENDIX G.5 – Non-Destructive Test Summary
APPENDIX G.6 – Repair Summary
APPENDIX G.7 – Geomembrane Seam Destructive Sample Test Results

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC

PROJECT NAME: Laraway RDF 2023 Cell 9C /108 PROJECT NO: 23-02-1033

LOCATION: 21101 W. Laraway Road ,Joliet IL 60436

AREA ACCEPTED: _____

PANEL NUMBERS: P-1 thru P-30

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: Curran

OWNER: WMI

AUTHORIZED REPRESENTATIVE: Weavers Consultants Group

The undersigned, _____,certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on _____ and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC

Signature	Title	DATE
	Supervisor	11/14/2023

OWNER REPRESENTATIVE

Signature	Title	DATE
	CQA/Weaver	11/14/2023

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC

PROJECT NAME: Laraway RDF 2023 Cell 9C /108 PROJECT NO: 23-02-1033

LOCATION: 21101 W. Laraway Road ,Joliet IL 60436

AREA ACCEPTED:

PANEL NUMBERS: P-31 thru P-56

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR: Curran

OWNER: WMI

AUTHORIZED REPRESENTATIVE: Weavers Consultants Group

The undersigned, _____,certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on _____ and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC

Signature	Title	DATE
	Supervisor	11/16/2023

OWNER REPRESENTATIVE

Signature	Title	DATE
	CQA/Weaver	11/16/2023

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC

PROJECT NAME: Laraway RDF 2023 Cell 9C /108 PROJECT NO: 23-02-1033

LOCATION: 21101 W. Laraway Road ,Joliet IL 60436

AREA ACCEPTED: _____

PANEL NUMBERS: P-57 thru P-84

GRADE ACCEPTANCE: INSPECTOR: _____

GENERAL CONTRACTOR: Curran

OWNER: WMI

AUTHORIZED REPRESENTATIVE: Weavers Consultants Group

The undersigned, _____,certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on _____ and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC

	Supervisor	11/16/2023
Signature	*Title*	*DATE*

OWNER REPRESENTATIVE

	CQA/Weaver	11/16/2023
Signature	*Title*	*DATE*

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC

PROJECT NAME: Laraway RDF 2023 Cell 9C /108 PROJECT NO: 23-02-1033

LOCATION: 21101 W. Laraway Road ,Joliet IL 60436

AREA ACCEPTED:

PANEL NUMBERS: P-85 thru P-101

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR: Curran

OWNER: WMI

AUTHORIZED REPRESENTATIVE: Weavers Consultants Group

The undersigned, _____,certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on _____ and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC

Signature	Supervisor	11/17/2023
Signature	*Title*	*DATE*

OWNER REPRESENTATIVE

Signature	CQA/Weaver	11/17/2023
Signature	*Title*	*DATE*

CERTIFICATE OF SUBGRADE SURFACE ACCEPTANCE

INSTALLER: GLOBAL CONTAINMENT SOLUTIONS, LLC

PROJECT NAME: Laraway RDF 2023 Cell 9C /108 PROJECT NO: 23-02-1033

LOCATION: 21101 W. Laraway Road ,Joliet IL 60436

AREA ACCEPTED:

PANEL NUMBERS: P-102 thru P-130

GRADE ACCEPTANCE: INSPECTOR:

GENERAL CONTRACTOR: Curran

OWNER: WMI

AUTHORIZED REPRESENTATIVE: Weavers Consultants Group

The undersigned, _____,certifies that he/she is a representative of GLOBAL CONTAINMENT SOLUTIONS, LLC authorized to execute this certificate, that he/she has visually inspected the subgrade surface described above on _____ and found the surface to be acceptable for installation of the geomembrane.

This certification is based on observation of the surface of the subgrade only. No subsurface inspections or test have been performed and Environmental Specialties International, Inc. makes no representations or warranties regarding conditions which may exist below the surface of the subgrade.

AUTHORIZED REPRESENTATIVE OF GLOBAL CONTAINMENT SOLUTIONS, LLC

Signature	Supervisor	11/18/2023
Signature	*Title*	*DATE*

OWNER REPRESENTATIVE

Signature	CQA/Weaver	11/18/2023
Signature	*Title*	*DATE*

APPENDIX G.2

Panel Placement Summary

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P1		0850	1240	60 mil	47	23	1081	
P2		0855	1240		47		1081	
P3		0900	1240		47		1081	
P4		0907	1240		47		1081	
P5		0910	1240		47		1081	
P6		0917	1240		48		1104	
P7		0920	1240		48		1104	
P8		0923	1240		47		1081	
P9		0927	1240		47		1081	
P10		0930	1255		47		1081	
P11		0940	1255		28		322	Triangle
P12		0950	1255		11		126.5	Triangle
P13		0958	1255		10		115	Triangle
P14		1013	1255		30.5		350.75	Triangle
P15		1034	1255		277		6371	
P16		1040	1249		277		6371	
P17		1046	1249		207		4761	
P18		1102	1260		70		1610	
P19		1250	1260		277		6371	
						Total Area Placed:	37,254.25	

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: GBC

Project Number: 0086-004-16-22

Material ID: 60mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P20	11/14/23	1257	1260	60mil	125	23	2875	
P21	11/14/23	1320	1261		155		3565	
P22	11/14/23	1325	1261		280		6440	
P23	11/14/23	1342	1261		44		1012	
P24	11/14/23	1400	1235		230		5290	
P25	11/14/23	1410	1235		225		5175	
P26	11/14/23	1420	1221		55		1265	
P27	11/14/23	1429	1221		280		6440	
P28	11/14/23	1449	1221		143		3289	
P29	11/14/23	1500	1257		140		3220	
P30	11/14/23	1505	1257		283		6509	
								82,334.25 Daily

Total Area Placed: 45080

Reviewed By: NMM

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: GPC

Project Number: 0086-004-16-22

Material ID: 60 mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P31	11/15/23	0758	1257	60mil	52	23	1196	
P32	11/15/23	0810	1236	60mil	286	23	6578	
P33	11/15/23	0817	1236	60mil	257	23	5911	
P34	11/15/23	0838	1243		30		690	
P35	11/15/23	0844	1243		280		6440	
P36	11/15/23	0850	1243		158		3634	
P37	11/15/23	0908	1253		121		2921	
P38	11/15/23	0916	1253		285		6555	
P39	11/15/23	0936	1253		67		1541	
P40	11/15/23	0946	1250		217		4991	
P41	11/15/23	0954	1250		260		5980	
P42	11/15/23	1013	1245		30		690	
P43	11/15/23	1015	1245		290		6670	
P44	11/15/23	1020	1245		162		3726	
P45	11/15/23	1045	1256		126		2898	
P46	11/15/23	1310	1256		288		6624	
P47	11/15/23	1321	1256		65		1495	
P48	11/15/23	1333	1246		228		5267	
P49	11/15/23	1342	1246		249		5727	
						Total Area Placed:	79534	

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P50	11/15/23	1350	1259	60mil	38	23	874	
P51	11/15/23	1358	1259		287		6601	
P52	11/15/23	1417	1259		160		3680	
P53	11/15/23	1420	1262		126		2898	
P54	11/15/23	1425	1262		286		6578	
P55	11/15/23	1435	1262		65		1495	
P56	11/15/23	1440	1233	↓	222	↓	5106	
								Daily 106 766
						Total Area Placed:	27232	

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke

Material ID: 60 mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P57	11/16/23	0640	1233	60mil	255	23	6865	
P58	11/16/23	0658	1258		32		736	
P59	11/16/23	0700	1258		287		6601	
P60	11/16/23	0715	1258		152		3496	
P61	11/16/23	0730	1244		133		3059	
P62	11/16/23	0738	1244		285		6555	
P63	11/16/23	0743	1244		56		1288	
P64	11/16/23	0833	1248		227		5221	
P65	11/16/23	0841	1248		249		5727	
P66	11/16/23	0844	1241		34		782	
P67	11/16/23	0855	1241		282		6486	45816
P68	11/16/23	0913	1241		169		3887	
P69	11/16/23	0918	1241		111		2553	
P70	11/16/23	0925	1242		280		6440	
P71	11/16/23	0930	1242		84		1932	
P72	11/16/23	1000	1220		197		4531	
P73	11/16/23	1022	1220		280		6440	
P74	11/16/23	1030	1232		280		6440	
P75	11/16/23	1045	1232	↳	206	↓	4738	
						Total Area Placed:	82777	

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke

Material ID: 60 mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P76	11/16/23	1105	1225	60mil	74	23	1702	
P77	11/16/23	1125	1225		277		6371	
P78	11/16/23	1308	1225		121		2783	
P79	11/16/23	1316	1226		154		3542	
P80	11/16/23	1326	1226		275		6325	20723
P81	11/16/23	1346	1254		277		6371	
P82	11/16/23	1357	1254		200		4600	
P83	11/16/23	1405	1247		77		1771	
P84	11/16/23	1410	1247	↓	275	↓	6325	
								Daily 122,567

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
P85	11/17/23	1237	1247	60 mil	125	23	2875	
P86	11/17/23	1241	1227		150		3450	
P87	11/17/23	1249	1227		280		6440	
P88	11/17/23	1307	1251		270		3105	Triangle
P89	11/17/23	1319	1251		201		4961	
P90	11/17/23	1329	1234		45.5		523.25	Triangle
P91	11/17/23	1344	1234		187		2150.5	Triangle
P92	11/17/23	1406	1234		106.5		2449.5	
93	11/17/23	1410	1234		68		1587	
94	11/17/23	1420	1263		123		2829	
95	11/17/23	1428	1263		123		2829	
96	11/17/23	1438	1263		117		2691	
97	11/17/23	1450	1263		85		1955	
98	11/17/23	1508	1226		30		690	
99	11/17/23	1525	1229		117		2691	
100	11/17/23	1530	1229		117		2691	
101	11/17/23	1535	1229		117		2691	

Total Area Placed: 46405.25

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA

Material ID: 60 mil HDPE

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
102	11/17/23	7:28	1229	60mil	108	23	2484	
103	↓	7:40	1230	↓	160	↓	3680	
104		7:50	↓		192		4416	
105		7:59	↓		17		391	
106		8:08	↓		89		2047	
107		8:14	1222		137		3151	
108		8:35	↓		261		6003	
109		8:48	↓		48		1104	
110		9:06	1224		217		4991	
111		9:21	↓		262		6026	
112		9:40	1228		27		621	
113		9:45	↓		276		6348	
114		10:09	↓		195		4485	
115		10:20	1291		45		1035	
116		10:28	↓		240		5520	
117		10:50	↓		178		4094	
118		12:44	1231		43		989	
119		12:52	↓		218		5014	
120	↓	1:00	↓	↓	190	↓	4370	
					Total Area Placed:		66,769	

Panel Placement Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA

Material ID: 60 mil HDPE

Panel Number	Date	Time	Roll Number	Thickness	Length (Feet)	Width (Feet)	Area (Sq. Ft.)	Comments
121	11/17/23		1223	60mil	172	23	3956	
122	↓		↓	↓	156	↓	3588	
123	↓		↓	↓	139	↓	3197	
124	↓		1265	↓	123	↓	2829	
125	↓		↓	↓	109	↓	2507	
126	↓		↓	↓	88	↓	2024	
127	↓		↓	↓	75	↓	1725	
128	↓		↓	↓	58	↓	1334	
129	↓		1227	↓	39	↓	897	
130	↓		1231	↓	23	↓	265	Δ *rounded up

Total Area Placed: 22,322

APPENDIX G.3

Trial Weld Summary

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke

Material ID: 60 mil

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
1	11/14/23	0900	53	BI	6160	860/7.5	F	164	160	139	168	140	163	164	166	158	160	190	200	187	P	S/S
2	11/14/23	0916	53	FP	5007	860/7	F	130	142	138	173	176	123	157	163	170	159	200	158	147		S/S
3	11/14/23	0921	53	AD	5009	860/7	F	137	134	166	161	157	144	148	154	144	167	200	201	187		S/S
4	11/14/23	0926	53	BI	6160	860/5.5	F	166	172	156	165	146	160	175	166	154	165	176	198	187		T/T
5	11/14/23	0938	53	AD	5009	860/5	F	189	167	178	163	168	165	158	180	172	176	174	178	176		T/T
6	11/14/23	0900	53	FP	5007	860/6	F	160	162	182	163	178	176	173	193	174	167	200	210	188		T/T
7	11/14/23	1009	54	KO	50441	480	Ext	153	150	158	167	154						200	210	211		S/T
8	11/14/23	1020	54	BI	6161	860/5.5	F	148	117	151	156	154	141	140	159	146	145	158	189	157		S/S
9	11/14/23	1024	54	LP	5009	860/7	F	167	154	178	166	132	145	176	177	154	166	187	188	176		S/S
10	11/14/23	1025	54	LP	5009	860/5.5	F	147	139	145	167	155	165	157	176	176	135	190	187	188		T/T
11	11/14/23	1105	54	BI	6161	860/5.5	F	173	159	166	155	166	150	137	176	177	145	187	180	198		S/S
12	11/14/23	1250	62	BI	6161	860/5	F	157	154	173	145	144	153	159	154	155	154	189	190	178		S/S
13	11/14/23	1255	61	BI	6161	860/7	F	168	132	167	167	166	130	157	160	154	154	190	188	198		T/T
14	11/14/23	1248	61	LP	5009	860/5.5	F	173	145	145	168	155	168	166	166	176	156	190	196	199		T/T
15	11/14/23	1250	62	LP	5009	860/7	F	184	159	145	155	145	157	136	177	168		187	188	190		S/S
16	11/14/23	1258	61	FP	5007	860/7	F	157	155	160	149	168	174	136	161	170	176	227	178	230		S/S
17	11/14/23	1315	60	FP	5007	860/5	F	170	160	152	152	154	152	148	140	150	179	224	230	221		T/T
18	11/14/23	1320	60	KO	50441	480/5.0	Ext	199	206	200	187	187						230	213	190	W	T/T
19	11/14/23	1400	62	KO	50440	480/5.0	Ext	147	158	158	154	176						206	212	214		T/T
20	11/15/23	0730	52	AD	5009	860/6.5	FUS	161	148	139	184	150	166	161	156	145	144	200	210	211		S/S
21	11/15/23	0725	52	FP	5007	860/7.0	FUS	155	154	141	145	145	155	156	141	176	154	211	210	214		S/S

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
22	11/15/23	0730	52	BI	6161	860/6.5	FUS	159	150	152	154	151	151	146	146	152	176	214	219	217	P	S/S
23	11/15/23	0730	52	FP	5007	860/5.0	FUS	124	123	125	124	147	187	179	179	161	153	217	214	214	P	T/T
24	11/15/23	0735	52	BI	6161	860/4.5	FUS	181	151	169	157	151	173	169	177	159	187	215	218	198	P	T/T
25	11/15/23	0730	52	AO	5009	860/6.0	FUS	186	167	133	141	166	164	153	145	143	144	214	218	214	P	T/T
26	11/15/23	0730	52	VK	50802	500/500	EXT	147	146	158	145	168						214	214	214	P	T/T
27	11/15/23	1255	58	BI	6161	860/6.5	FUS	145	135	127	126	143	139	144	130	135	132	176	188	190	P	S/S
28	11/15/23	1255	58	FP	5007	860/7.0	FUS	139	127	126	129	158	136	137	133	140	135	190	212	180	P	S/S
29	11/15/23	1244	58	AO	5009	860/6.5	FUS	123	124	119	129	158	182	187	170	136	167	190	198	197	P	S/S
30	11/15/23	1300	62	VK	50802	500/500	EXT	156	153	135	115	153						188	176	198	P	T/T
31	11/15/23	1300	62	BI	6161	860/4.5	FUS	166	145	176	167	176	154	150	150	150	144	211	214	214	P	T/T
32	11/15/23	1300	62	FP	5007	860/4.0	FUS	168	136	100	114	113	159	155	119	122	114	198	190	165	P	T/T
33	11/15/23	1244	62	AO	5009	860/5.5	FUS	150	154	153	158	134	161	158	144	154	154	188	190	197	P	T/T
34	11/15/23	1253	62	LP	5004	860/5.5	FUS	165	145	165	132	198	171	161	149	132	143	187	186	167	P	T/T
35	11/15/23	1533	60	FP	5007	860/4.0	FUS	132	141	138	126	134	135	166	143	129	154	147	159	150	P	T/T old to new

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
36	11/16/23	0645	42	BJ	6161	860-65	F	143	160	150	142	155	169	167	164	148	155	211	214	218	P	S/S
37	11/16/23	0650	42	BJ	6161	860-65	F	156	165	149	163	154	161	167	164	181	154	199	214	217	P	T/T
38	11/16/23	0650	42	AD	5007	860-65	F	177	169	169	151	187	148	151	170	160		217	222	223	P	S/S
39	11/16/23	0600	42	AD	5007	860-5	F	179	166	176	178	167	[illegible]	175	187	171	171	215	216	218	P	T/T
40	11/16/23	0706	42	VK	50802	506	E	105	102	93	101	100						216	212	213	P	T/T
41	11/16/23	0735	42	FP	5007	860-4	F	158	156	158	165	143	163	152	159	154	154	214	214	217	P	T/T
42	11/16/23	0820	47	DT	6160	860-65	F	155	151	169	164	154	170	154	154	143	144	214	219	221	P	S/S
43	11/16/23	0821	47	DT	6160	860-4	F	125	126	154	154	154	132	130	132	143	154	214	214	217	P	T/T
44	11/16/23	1300	62	AD	5004	860-65	F	146	140	148	131	145	137	139	134	132	143	169	199	198	P	S/S
45	11/16/23	1333	62	DT	6160	860-65	F	161	162	147	144	149	156	154	153	153	145	189	189	190	P	S/S
46	11/16/23	1305	62	DI	6161	860-65	F	148	143	133	157	154	145	148	168	154	133	187	178	177	P	S/S
47	11/16/23	1310	62	BJ	6161	860-45	F	141	155	161	142	154	162	155	150	158	176	187	178	187	P	T/T
48	11/16/23	1306	62	AD	5004	860-45	F	157	160	168	162	154	165	157	166	158	153	211	217	219	P	T/T
49	11/16/23	1310	62	FP	5007	860-45	F	129	146	131	146	140	101	133	141	142	142	187	199	187	P	T/T
50	11/16/23	1245	62	VK	50866	500	E	147	145	149	154	145						211	214	215	P	T/T

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: 6PC

Material ID: 60 mil

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
51	11/17/23	0700	42	AD	5056	500	E	144	120	139	128	140						211	214	217	P	T/T
52	11/17/23	0700	42	VK	5056	500	E	103	108	140	102	142						200	210	214	P	T/T
53	11/17/23	0930	42	AD	5056	500	E	154	153	144	116	154						211	214	215	P	T/T
54	11/17/23	1235	52	BI	6161	860-65	F	144	135	143	154	149	153	137	157	135	142	187	187	188	P	S/S
55	11/17/23	1245	52	FP	5007	860-65	F	158	150	149	181	155	170	131	149	161	176	188	179	212	P	S/S
56	11/17/23	1240	52	FP	5007	860-4	F	164	147	163	168	143	179	169	176	171	154	211	214	199	P	T/T
57	11/17/23	1225	52	DT	6160	860-65	F	154	132	156	160	154	167	165	167	133	154	182	199	165	P	S/S
58	11/17/23	1235	52	AD	5009	860-45	F	175	160	147	143	186	165	135	150	144	143	211	200	218	P	T/T
59	11/17/23	1236	52	AD	5009	860-65	F	161	144	151	150	171	143	158	153	153	154	214	218	219	P	S/S
60	11/17/23	1240	52	BI	6161	860-45	F	166	143	168	168	178	152	147	169	143	189	217	218	219	P	T/T
61	11/17/23	1430	52	BI	6161	860-45	F	124	147	158	145	132	154	142	167	154	190	219	224	225	P	S/T

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA

Material ID: 60 mil HDPE

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
62	11/18/23	6:30	27	B1	61161	860/6	F	177	182	179	172	178	169	174	175	176	186	225	220	224	P	S/S
63		6:32	27	FP	5007	860/4	F	199	174	187	176	176	193	197	187	177	176	225	224	223	P	T/T
64		6:35	27	B1	61161	860/4	F	170	178	173	173	187	202	200	190	187	192	224	225	227	P	T/T
65		6:36	27	AD	61160	860/6.5	F	172	180	178	187	197	189	185	187	188	187	228	223	220	P	S/S
66		7:00	28	KD	50802	500/520	Ex	178	189	178	186	185	—	—	—	—	—	221	227	228	P	T/T
67		8:13	28	AD	61160	860/4	F	147	148	159	144	132	143	157	177	154	133	214	214	216	P	T/T
68		8:18	28	AD	61160	860/4	F	147	148	168	143	177	184	143	176	132	177	224	220	221	P	S/T
69		12:35	32	B1	61161	860/6	F	149	143	142	141	154	160	151	153	149	154	214	215	217	P	S/S
70		12:40	32	B1	61161	860/4	F	169	163	159	170	167	165	160	182	169	154	221	221	222	P	T/T
71		12:46	32	AD	61160	860/6.5	F	166	144	147	133	132	154	155	154	144	132	217	215	218	P	S/S
72		12:46	32	AD	61160	860/4	F	156	162	155	168	154	171	165	177	158	143	211	215	215	P	T/T
73		12:50	32	FP	5007	860/4	F	143	157	158	153	154	159	162	158	175	177	221	225	190	P	T/T
74	↓	1:00	32	KD	50802	500/520	Ex	158	159	156	155	145	—	—	—	—	—	214	224	225	P	T/T

Trial Weld Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA

Material ID: 60 mil HDPE

Project Specifications

Material	Weld Method	Peel	Shear
60 MIL HDPE	FUSION	91	120
60 MIL HDPE	EXTRUSION	78	120

Test No.	Date	Time	Amb. Temp. (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld (Fus/ Ext)	PEEL (ppi) Outside Weld 1	2	3	4	5	PEEL (ppi) Inside Weld 1	2	3	4	5	SHEAR (ppi) 1	2	3	Test Result (P/F)	Comments
75	11/19/23	7:00	36	KO	50802	500/520	Ex	125	154	143	153	154	–	–	–	–	–	211	214	214	P	T/T
76	↓	7:00	36	LP	50567	500/350	Ex	143	143	145	144	154	–	–	–	–	–	215	215	215	P	T/T
77	11/20/23	7:00	28	EP	50802	500/500	Ex	148	166	176	177	188	–	–	–	–	–	215	213	218	P	T/T
78	11/22/23	7:00	28	LP	50802	500/500	Ex	187	198	188	186	154	–	–	–	–	–	199	215	187	P	T/T
79	11/22/23	12:48	35	LP	50802	500/500	Ex	147	159	157	154	167	–	–	–	–	–	214	212	215	P	T/T
80	11/24/23	7:00	28	HR	50802	500/500	Ex	147	158	168	200	199	–	–	–	–	–	214	217	220	P	T/T
81	12/15/23	15:00	51	JM	4940	860/6	FUS	186	170	176	156	153	189	154	167	170	163	224	214	193	P	T/T
82	12/15/23	15:30	51	DB	770	550/550	EX	182	179	175	181	173	–	–	–	–	–	223	213	215	P	T/T

APPENDIX G.4

Panel Seaming Summary

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: 60mil

Date: 11/14/23
Machine Number: 6160
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 0

Passing Trial Welds

Sample Number	Welder ID	Time
1	BI	0900
4	BI	0906

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
1 / 2	W-E	BI	860-750	53	0858	47	0	47				
2 / 3	W-E	BI	860-750	53	0907	47	69	25	DS1			
/												
/												
/												
/												
/												
/												
/												
/												
/												
/												
/												
/												
Daily Total:						94		25	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: 60mil

Date: 11/14/23
Machine Number: 5009
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 0

Passing Trial Welds

Sample Number	Welder ID	Time
3	AD	0821
5	AD	0828
4	LP	1024
10	LP	1025

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
7 18	W-E	AD	860-700	54	0926	47	0	47				
6 19	W-E	AD	860-700	54	0932	47	47	94				
9 110	W-E	AD	860-700	54	0940	47	116	25	PS2			
4 112	W-E	AD	860-700	54	0957	9	25	34				
13 114	SW-SE	AD	860-700	56	1000	11	34	45				
11 114	SW-SE	LP	860-5.5	56	1030	28	45	73				
12 114	SW-SE	LP	860-5.5	56	1033	13	73	86				
12 113	SW-SE	LP	860-5.5	56	1036	9	86	95				
14 115	S-N	LP	860-5.5	56	1048	50	95	145				
10 115	S-N	LP	860-5.5	56	1054	22	145	167				
9 115	S-N	LP	860-5.5	56	1057	22	167	189				
8 115	S-N	LP	860-5.5	57	1100	22	189	211				
7 115	S-N	LP	860-5.5	57	1103	22	211	233				
6 115	S-N	LP	860-5.5	57	1106	22	233	255				
					Daily Total:	371		255	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: 60mil

Date: 11/14/23
Machine Number: 5004
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 255

Passing Trial Welds

Sample Number	Welder ID	Time
9	LP	1024
10	LP	1225
14	LP	1248
15	LP	1250

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
5 115	S-N	LP	860-5.5	57	1109	22	255	277				
4 115	S-N	LP	860-5.5	57	1112	22	277	299				
3 115	S-N	LP	860-5.5	57	1114	22	310	11	DS4			
2 115	S-N	LP	860-5.5	54	1117	22	11	33				
1 115	S-N	LP	860-5.5	57	1120	22	33	55				
18 119	S-N	LP	860-700	61	1203	70	55	125				
17 119	S-N	LP	860-700	61	1310	207	125	332				
22 124	S-N	LP	860-700	60	1407	230	457	105	DS6			
22 123	S-N	LP	860-700	60	1430	44	105	149				
21 129	S-N	LP	860-700	60	1508	140	149	289				
27 128	S-N	LP	860-700	60	1528	141	369	41	DS10			
/												
/												
/												
					Daily Total:	942		41	Destructive Length Carry Over			

Reviewed By: [redacted]

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: 60mil

Date: 11/14/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 0

Passing Trial Welds

Sample Number	Welder ID	Time
2	FP	0916
6	FP	0900
16	FP	1258
17	FP	1315

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
4 5	W-E	FP	860-700	53	0915	47	0	47				
3 4	W-E	FP	860-700	53	0922	47	47	94				
5 16	W-E	FP	860-700	54	0930	47	94	141				
6 17	W-E	FP	860-700	54	0935	48	141	189				
10 11	W-E	FP	860-700	53	0950	47	189	236				
15 16	S-N	FP	860-700	56	1045	277	436	77	DS3			
17 18	W-E	FP	860-600	57	1115	22	77	99				
16 18	S-N	FP	860-700	57	1120	70	99	169				
16 17	S-N	FP	860-700	57	1130	206	169	375				
20 21	W-E	FP	860-500	61	1325	22	375	397				
21 22	S-N	FP	860-700	61	1335	155	472	80	DS5			
20 22	S-N	FP	860-700	60	1350	125	80	205				
23 24	W-E	FP	860-500	60	1417	22	205	227				
25 24	W-E	FP	860-500	60	1425	22	227	249				
					Daily Total:	1190		249	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: Geo4

Date: 11/14/23
Machine Number: SOC7
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 249

Passing Trial Welds

Sample Number	Welder ID	Time
16	FP	1258
17	FP	1315

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
26 27	S-N	FP	860-700	60	1435	55	274	30	DS7			
25 27	S-N	FP	860-700	60	1443	225	230	25	DS9			
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					Daily Total:	280		25	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: Griffin Clarke
Material ID: 60mil

Date: 11/14/23
Machine Number: 6161
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 0

Passing Trial Welds

Sample Number	Welder ID	Time
8	BI	1026
11	BI	1405
12	BI	1250
R3	BI	R255

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
1 1 EX	W-E	BI	860-5.50	57	1110	47	0	47				
19 21	S-N	BI	860-5.00	61	1324	155	47	202				
19 20	S-N	BI	860-5.00	61	1352	124	202	326				
24 26	S-N	BI	860-5.00	61	1430	56	326	382				
24 25	S-N	BI	860-5.00	60	1437	160	482	80	DS8			
23 25	S-N	BI	860-5.00	60	1458	45	80	125				
28 29	W-E	BI	860-4.00	60	1508	22	125	147				
29 30	S-N	BI	860-5.00	60	1518	140	147	287				
28 30	S-N	BI	860-5.00	60	1538	143	412	18	DS11			
/												
/												
/												
/												
/												
					Daily Total:	912		18	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22
QA/QC Monitor:
Material ID:

Date: 11/15/23
Machine Number: 6161
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 18

Passing Trial Welds

Sample Number	Welder ID	Time
22	BI	0730
24	BI	0735
27	BI	1255
31	BI	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
30 32	S-N	BI	860-650	52	0824	232	18	250				
30 31	S-N	BI	860-650	52	0850	52	250	302				
36 134	W-E	BI	860-450	53	0914	22	302	324		\		
37 138	S-N	BI	860-650	53	0924	127	324	451				
36 138	S-N	BI	860-650	53	0938	158	476	133	DS-13			
40 141	S-N	BI	860-650	54	1005	219	133	352				
39 141	S-N	BI	860-650	54	1029	46	352	392				
39 142	S-N	BI	860-650	54	1033	28	406	14	DS-15			
43 145	S-N	BI	860-650	54	1054	126	14	140				
43 144	S-N	BI	860-650	55	1109	102	140	302				
47 48	W-E	BI	860-450	62	1338	22	302	324				
49 150	W-E	BI	860-450	61	1404	22	324	346				
47 150	N-S	BI	860-650	61	1410	38	346	384				
47 148	N-S	BI	860-650	61	1414	25	384	409				
					Daily Total:	1273		409	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor:
Material ID:

Date: 11/15/23
Machine Number: BI61
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 409

Passing Trial Welds

Sample Number	Welder ID	Time
Z1	B1	1255
31	B1	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
48 / 49	W-S	BI	860-650	61	1417	224	484	149	DS18			
55 / 56	W-E	BI	860-450	62	1510	22	149	171				
54 / 55	N-S	BI	860-650	62	1524	65	171	236				
54 / 56	N-S	DI	860-650	62	1531	222	436	22	DS21			
/												
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Daily Total: 533 | 22 Destructive Length Carry Over

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/15/23
Machine Number: GOOT
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 25

35 **Passing Trial Welds** 1533 (EP)

Sample Number	Welder ID	Time
21	EP	0725
23	EP	0730
28	EP	1255
32	EP	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
31 32	W-E	FP	860-500	52	0815	22	25	47				
33 34	W-E	FP	860-500	52	0842	22	47	69				
33 35	S-N	FP	860-700	52	0852	250	69	319				
34 35	S-N	FP	860-700	53	0920	30	319	348				
39 40	W-E	FP	860-500	53	0955	22	349	371				
41 42	W-E	FP	860-500	53	1020	22	382	11	DS14			
44 45	W-E	FP	860-500	62	1055	22	11	33				
46 47	N-S	FP	860-700	62	1342	65	33	98				
46 48	N-S	FP	860-700	62	1356	225	98	323				
52 53	W-E	FP	860-500	62	1430	22	323	345				
51 52	N-S	FP	860-700	62	1440	166	480	25	DS19			
51 53	N-S	FP	860-700	62	1453	126	25	151				
55 EX	W-E	FP	860-400	58	1602	22	151	173				
54 EX	W-E	FP	860-400	58	1608	22	173	195				
					Daily Total:	1032		195	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/15/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 195

Passing Trial Welds

Sample Number	Welder ID	Time
32	FP	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
52 / Ex	W-E	FP	860-400	58	1613	22	195	217				
51 / Ex	W-E	FP	860-400	58	1617	22	228	11	DS22			
50 / Ex	W-E	FP	860-400	57	1620	22	11	33				
47 / Ex	W-E	FP	860-400	57	1625	22	33	55				
46 / Ex	W-E	FP	860-400	57	1632	12	55	67				Not complete
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Daily Total:						100		67	Destructive Length Carry Over			

Reviewed By: MMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: QPC
Material ID: 60mil

Date: 11/15/23
Machine Number: 5009
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 41

Passing Trial Welds

Sample Number	Welder ID	Time
20	AD	0730
29	AD	1244

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
32133	S-N	AD	860-650	52	0830	232	41	273				
31133	S-N	AD	860-650	52	0852	25	298	298				
31134	S-N	AD	860-650	52	0854	28	326	326				
35137	S-N	AD	860-650	53	0914	128	326	454				
35136	S-N	AD	860-650	53	0928	158	479	133	DS12			
38140	S-N	AD	860-650	53	0953	217	133	350				
38139	S-N	AD	860-650	54	1016	67	350	417				
41143	S-N	AD	860-650	55	1031	260	467	240	DS16			
42143	S-N	AD	860-650	56	1100	30	240	240				
45146	S-N	AD	860-650	62	1312	126	240	366				
44146	S-N	AD	860-650	62	1328	162	181	37	DS17			
50151	N-S	AD	860-650	62	1409	38	37	75				
49151	N-S	AD	860-650	62	1413	249	75	324				
52154	N-S	AD	860-650	62	1447	160	459	25	DS20			
					Daily Total:	1680		25	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/15/23
Machine Number: 5004
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 25

Passing Trial Welds

Sample Number	Welder ID	Time
29	HD	1244

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
53 / 54	N-S	HD	860-680	62	1505	126	25	151				
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/												
Daily Total:						126		151	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/16/23
Machine Number: 616
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 22

Passing Trial Welds

Sample Number	Welder ID	Time
36	BI	0645
37	BI	0650

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
57 158	W-E	BI	860-450	42	0909	22	22	44				
55 58	N-S	BI	860-650	47	0800	32	44	76				
55 157	N-S	BI	860-650	47	0804	32	76	108				
56 157	N-S	BI	860-650	47	0808	222	108	330				
63 164	W-E	BI	860-450	47	0853	22	330	352				
65 66	W-E	BI	860-450	47	0912	22	352	374				
63 166	N-S	BI	860-650	49	0921	34	374	408				
63 165	N-S	BF	860-650	48	0925	22	408	430				
64 165	N-S	BI	860-650	49	0927	227	482	175	0525			
68 169	W-E	BI	860-450	49	0957	22	175	197				
71 172	W-E	BI	860-450	50	1019	22	197	219				
71 173	N-S	BI	860-650	50	1034	84	219	303				
72 173	N-S	BI	860-650	50	1043	196	478	21	DS-29			
75 176	W-E	BI	860-450	51	1117	22	21	43				
					Daily Total:	981		43	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/16/23
Machine Number: 6161
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 43

Passing Trial Welds

Sample Number	Welder ID	Time
46	BE	1305
47	BE	1310

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
T6/T7	N-S	BE	660-650	51	1140	74	43	117				
T8/T9	W-E	BE	860-490	65	1325	22	117	139				
T8/80	N-S	BE	860-650	65	1346	121	139	260				
T9/80	N-S	BE	860-650	65	1359	154	260	414				
82/83	W-E	BE	860-450	64	1421	22	414	436				
82/84	N-S	BE	860-650	64	1435	200	486	150	DS34			
83/84	N-S	BE	860-650	64	1458	75	150	225				
/												
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/												
					Daily Total:	668		225				Destructive Length Carry Over

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 11/16/2023
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 67

Passing Trial Welds

Sample Number	Welder ID	Time
41	FP	0735

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
461 Ex	W-E	FP	860-400	47	0812	10	67	77				SPLIT SEAM
441 Ex	W-E	FP	860-400	47	0815	22	77	99				
431 Ex	W-E	FP	860-400	47	0825	22	99	121				
421 Ex	W-E	FP	860-400	47	0829	22	121	143				
391 Ex	W-E	FP	860-400	47	0833	22	143	165				
381 Ex	W-E	FP	860-400	47	0837	22	165	187				
361 Ex	W-E	FP	860-400	47	0841	22	187	209				
351 Ex	W-E	FP	860-400	47	0845	15	209	224				Not complete
351 Ex	W-E	FP	860-400	47	0848	7	224	231				
341 Ex	W-E	FP	860-400	47	0855	22	231	253				
311 Ex	W-E	FP	860-400	49	0925	22	253	275				
301 Ex	W-E	FP	860-400	49	0931	22	275	297				
281 Ex	W-E	FP	860-400	49	0935	22	297	319				
271 Ex	W-E	FP	860-400	49	0938	22	319	341				
					Daily Total:	274		341	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/16/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 341

Passing Trial Welds

Sample Number	Welder ID	Time
47	FP	0926
48	FP	1310

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
25 / Ex	W-E	FP	860-400	50	1045	22	341	363				
23 / Ex	W-E	FP	860-400	50	1055	22	363	385				
22 / Ex	W-E	FP	860-400	50	1059	22	385	407				
20 / Ex	W-E	FP	860-400	51	1103	22	407	429				
19 / Ex	W-E	FP	860-400	51	1108	22	429	451				
17 / Ex	W-E	FP	860-400	51	1112	22	451	473				
16 / Ex	W-E	FP	860-400	51	1116	22	484	11	DS30			
15 / Ex	W-E	FP	860400	51	1122	22	11	33				
67 / Ex	W-E	FP	860-400	64	1425	22	44	11	DS35			
66 / Ex	W-E	FP	860-400	62	1430	22	11	33				
63 / Ex	W-E	FP	860-400	62	1435	22	33	55				
62 / Ex	W-E	FP	860-400	62	1437	22	55	77				
60 / Ex	W-E	FP	860-400	62	1442	22	77	99				
59 / Ex	W-E	FP	860-400	62	1445	22	99	121				
					Daily Total:	306		121	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/16/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 121

Passing Trial Welds

Sample Number	Welder ID	Time
48	FP	1310

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
58 1 Ex	W-E	FP	860-400	62	1450	22	121	143				
82 1 Ex	W-E	FP	860-400	62	1515	22	143	165				
81 1 Ex	W-E	FP	860-400	62	1519	22	165	187				
80 1 Ex	W-E	FP	860-400	62	1523	22	187	209				
P8 1 Ex	W-E	FP	860-400	62	1527	22	209	231				
77 1 Ex	W-E	FP	860-400	62	1530	22	231	253				
75 1 Ex	W-E	FP	860-400	62	1534	22	253	275				
74 1 Ex	W-E	FP	860-400	62	1538	22	275	297				
73 1 Ex	W-E	FP	860-400	62	1543	22	297	319				
71 1 Ex	W-E	FP	860-400	62	1547	22	319	341				
70 1 Ex	W-E	FP	860-400	62	1550	22	341	363				
68 1 Ex	W-E	FP	860-400	62	1554	22	363	385				
1												
					Daily Total:	264		385	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60mil

Date: 11/16/23
Machine Number: 5004
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 151

Passing Trial Welds

Sample Number	Welder ID	Time
38	AD	0650
39	AD	0660
44	AD	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
58 159	N-S	AD	860-650	42	0726	31	151	182				
57 159	N-S	AD	860-650	42	0730	255	237	100	DS-23	-		
60 161	E-W	AD	860-500	47	0809	22	100	122				
58 160	N-S	AD	860-650	47	0830	153	122	275				
58 161	N-S	AD	860 650	47	0850	133	275	408				
66 167	N-S	AD	860-650	49	0933	33	408	441				
65 167	N-S	AD	860-650	49	0936	249	466	224	DS26			
66 170	N-S	AD	860-600	50	1012	169	224	393				
69 170	N-S	AD	860-650	50	1031	112	468	37	DS27			
T3 T4	N-S	AD	860-650	50	1052	280	37	317				
T5 177	N-S	AD	860-650	51	1128	203	492	28	DS32			
T9 T8	N-S	AD	860-650	65	1327	121	28	149				
T7 T9	N-S	AD	860-650	64	1340	157	149	306				
81 162	N-S	AD	860 650	64	[illegible]	200	481	25	DS33			
					Daily Total:	2118		25	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 1/16/23
Machine Number: 5008
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 25

Passing Trial Welds

Sample Number	Welder ID	Time
44	AD	1300

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
81 183	N-S	AD	860-850	64	1456	77	25	102				
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Daily Total: 77 | 102 Destructive Length Carry Over

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: QC
Material ID: Geonet

Date: 11/16/23
Machine Number: 6160
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 25

Passing Trial Welds

Sample Number	Welder ID	Time
42	DT	0820
45	DT	1333

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
60 \ 62	N-S	DT	860-650	47	0830	152	25	177				
61 \ 62	N-S	DT	860-650	47	0843	132	177	309				
62 \ 63	N-S	DT	860-650	49	0911	56	309	365				
62 \ 64	N-S	DT	860-650	48	0918	227	490	102	DS24			
67 \ 68	N-S	DT	860-650	50	1000	169	102	271				
67 \ 69	N-S	DT	860-650	50	1020	111	271	382				
70 \ 71	N-S	DT	860-650	50	1032	84	382	466				
70 \ 72	N-S	DT	860-650	50	1040	197	491	172	DS28			
74 \ 75	N-S	DT	860-650	51	1115	206	172	378				
74 \ 76	N-S	DT	860-650	51	1136	74	428	224	DS31			
80 \ 81	N-S	DT	860-650	64	1405	275	24	299				
/												
/												
/												
					Daily Total:	1683		299	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 11/17/23
Machine Number: 6161
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 225

Passing Trial Welds

Sample Number	Welder ID	Time
60	BI	1240
61	BI	1430
54	BI	1235

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
65 166	W-E	BI	860-450	52	1245	22	225	247				
89 190	W-E	BI	860-450	52	1338	22	247	269				
90 191	S-N	BI	868-650	52	1349	38	269	307				
89 101	S-N	BI	860-650	52	1353	192	482	17	DS40			
93 194	W-E	BI	860-450	52	1448	23	17	40				
92 194	W-E	BI	860-450	52	1452	27	40	67				
91 194	W-E	BI	860-450	52	1457	27	67	94				
90 194	W-E	BI	860-450	52	1501	27	94	121				
88 194	W-E	BI	860-450	52	1505	28	121	149				
97 198	W-E	BI	860-450	52	1517	22	149	171				
99 1100	W-E	BI	860-650	52	1533	117	171	288				
/												
/												
/												
					Daily Total:	545		288	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 11/17/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 385

Passing Trial Welds

Sample Number	Welder ID	Time
55	FP	1245

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
87/88	S-N	FP	860-650	52	1313	280	485	180	DS36			
91/92	S-N	FP	860-650	52	1416	144	180	324				
95/96	W-E	FP	860-650	52	1450	117	324	441				
98/99	W-E	FP	860-650	52	1527	28	441	469				
97/99	W-E	FP	860-650	52	1530	89	494	64	DS38			
100/101	W-E	FP	860-650	52	1540	117	64	181				
/												
/												
/												
/												
/												
/												
/												
/												
					Daily Total:	175		181	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 11/17/23
Machine Number: 5009
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 102

Passing Trial Welds

Sample Number	Welder ID	Time
59	AD	1236

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
84 186	S-N	AD	860-650	52	1245	150	102	252				
64 185	S-N	AD	860-650	52	1303	125	252	377				
88 190	S-N	AD	860-650	52	1343	53	377	430				
88 189	S-N	AD	860-650	52	1349	207	480	157	D537			
92 193	S-N	AD	860-650	52	1417	69	157	226				
94 195	W-E	AD	860-650	52	1448	123	226	349				
46 48	W-E	AD	860-650	52	1523	30	349	379				
96 197	W-E	AD	860-650	52	1528	85	453	11	D5-47			
/												
/												
/												
/												
/												
/												

Daily Total: 842 | 11 Destructive Length Carry Over

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC
Material ID: 60 mil

Date: 11/17/23
Machine Number: 6160
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 299

Passing Trial Welds

Sample Number	Welder ID	Time
57	DT	1225

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
86187	S-N	DT	860-650	52	1256	155	299	454				
85187	S-N	DT	860-650	52	1315	122	479	97	DS36			
/												
/												
/												
/												
/												
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/												
/												
/												
/												
/												
/												
Daily Total:						277		97	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA
Material ID: 60 mil HDPE

Date: 11/18/23
Machine Number: 61160
Weld Type: fusion
Destructive Length Carry Over (Previous Length): 97

Passing Trial Welds

Sample Number	Welder ID	Time
65	AD	6:36
67	AD	8:13
71	AD	12:46

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
102 /103	W-E	AD	860/6.5	27	7:51	108	97	122 | 83	DS-41			SIS
103 /104	↓	↓	↓	28	8:31	160	83	243				SIS
104 /106				30	9:04	55	243	298				SIS
104 /107				30	9:11	137	298	435				SIS
111 /112	S-N		860/4	30	9:35	22	435	457				T/T
109 /112	W-E		860/6.5	30	9:43	27	457	472 | 12	DS-53			SIS
109 /111	↓		↓	30	9:57	48	12	60				SIS
110 /111				30	10:02	214	60	110 | 164	DS-44			SIS
112 /113				30	10:30	12	164	176				SIS
111 /113				30	10:32	264	176	440				SIS
115 /116				30	11:07	45	440	485				SIS
114 /116				30	1113	194	485	495 | 184	DS-46			SIS
119 /120				32	1:13	190	184	374				SIS
120 /121	↓	↓	↓	32	1:41	172	374	474 | 72	DS-49			SIS
					Daily Total:	1648		72	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPL / JMA
Material ID: LLD and HDPE

Date: 11/15/23
Machine Number: 61160
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 72

Passing Trial Welds

Sample Number	Welder ID	Time
71	AD	12:36

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
122 /123	W-E	AD	850/6.5	32	2:03	139	72	211				SIS
124 /125	↓	↓	↓	32	2:23	109	211	320				SIS
126 /127				32	2:40	75	320	395				SIS
128 /129				32	3:13	39	395	434				SIS
129 /130				32	3:20	23	434	445/12	DS-51			SIS
/												
/												
/												
/												
/												
/												
/												
/												
/												
Daily Total:						385		12	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC/JMA
Material ID: 60 mil HDPE

Date: 11/18/23
Machine Number: 601601
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 288

Passing Trial Welds

Sample Number	Welder ID	Time
67	B1	6:30
64	B1	6:35

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
101 /102	W-E	BI	860/6	28	7:55	104	288	392				SIS
102 /105	S-N	↓	860/4	28	8:24	22	392	414				T/T
101 /105	W-E		860/6	28	8:32	10	414	424				SIS
103 /105	↓		↓	28	8:43	17	424	441				SIS
106 / 107	S-N		860/4	30	8:53	22	441	463				T/T
106 /108	W-E		860/6	30	9:05	89	463	488 | 64	DS-42			SIS
107 / 108	↓		↓	30	9:15	137	64	201				SIS
109 /110	S-N		860/4	30	9:40	22	201	223				T/T
108 /109	W-E		860/6	30	9:48	44	223	267				SIS
108 /110	↓		↓	30	9:53	217	267	484				SIS
114 /115	S-N		860/4	30	10:30	22	484	495 | 11	DS-45			T/T
113 /115	W-E		860/6	30	10:43	56	11	67				SIS
113 /114	↓		↓	30	10:50	195	67	262				SIS
116 /117	↓	↓	↓	30	11:15	175	262	437				SIS
					Daily Total:	1132		437	Destructive Length Carry Over			

Reviewed By: [redacted]

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA
Material ID: 60 mil HDPE

Date: 11/18/23
Machine Number: 61161
Weld Type: fusion
Destructive Length Carry Over (Previous Length): 437

Passing Trial Welds

Sample Number	Welder ID	Time
69	B1	12:35
70	B1	12:40

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
117 / 118	S-N	B1	860/4	32	12:58	22	437	459				T/T
116 / 118	W-E		860/6	32	1:11	43	459	484 | 18	DS-48			S/S
118 / 119				32	1:19	40	18	58				S/S
117 / 119				32	1:24	178	58	236				S/S
121 / 122				32	1:52	156	236	392				S/S
123 / 124				32	2:15	123	392	492 | 23	DS-50			S/S
125 / 126				32	2:34	88	23	111				S/S
127 / 128	↓	↓	↓	32	2:53	58	111	169				S/S
/												
/												
/												
/												
/												
/												
					Daily Total:	708		169	Destructive Length Carry Over			

Reviewed By: NMM

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC/JMA
Material ID: 60 mil HDPE

Date: 11/18/23
Machine Number: 5007
Weld Type: Fusion
Destructive Length Carry Over (Previous Length): 181

Passing Trial Welds

Sample Number	Welder ID	Time
63	FP	6:32

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
100 / ex	S-N	FP	860/4	28	8:30	22	181	203				T/T
99 / ex	↓	↓	↓	28	8:42	22	203	225				T/T
98 / ex				28	8:46	22	225	247				T/T
96 / ex				28	8:48	22	247	269				T/T
95 / ex				30	8:52	22	269	291				T/T
94 / ex				30	8:56	22	291	313				T/T
93 / ex				30	9:00	57	313	370				T/T
92 / ex				30	9:09	63	370	433				T/T
91 / ex				30	9:20	73	433	483/23	DS-43			T/T
89 / ex	↓			30	9:40	16	23	39				T/T
89 / ex	W-E			30	10:55	14	39	53				T/T
88 / ex	↓			30	10:59	22	53	75				T/T
87 / ex				30	11:03	22	75	97				T/T
85 / ex	↓	↓	↓	30	11:07	22	97	119				T/T
					Daily Total:	421		119	Destructive Length Carry Over			

Panel Seaming Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phase 9C and 10B
Project Number: 0086-004-16-22

QA/QC Monitor: GPC / JMA
Material ID: 60 mil HDPE

Date: 11/18/23
Machine Number: 5007
Weld Type: fusion
Destructive Length Carry Over (Previous Length): 119

Passing Trial Welds

Sample Number	Welder ID	Time
73	FP	12:50

Seam Number	Seaming Direction	Welder ID	Machine Temp/ Speed or Preheat	Ambient Temp (°F)	Start Time	Length Welded (FT)	Length from Previous DS Sample	Carry Over Length	DS Sample Number	Seam End Coupon Results	Non-Destructive Test Date	Comments
84 / ex	W-E	FP	860/4	30	11:11	22	119	141				TT
109 / ex	↓	↓	↓	32	2:22	28	141	169				TT
108 / ex				32	2:30	42	169	211				TT
106 / ex				32	2:39	42	211	253				TT
104 / ex				32	2:45	42	253	295				TT
103 / ex	↓			32	2:52	37	295	314 | 18	DS-52			TT
105 / ex	S-N			32	2:59	26	18	44				TT
101 / ex	↓	↓	↓	32	3:04	22	44	66				TT
/												
/												
/												
/												
/												
/												
					Daily Total:	261		66	Destructive Length Carry Over			

Reviewed By: NMM

APPENDIX G.5

Non-Destructive Test Summary

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: STB / JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
1 / 1A	Eeas - Weas	11/14/23	30	11:30	30	11:35	P		Y	
1 / 2	↓	↓	↓	9:05	30	9:10	P		Y	
2 / 3				9:15	30	9:20	P		Y	
3 / 4				9:30	30	9:35	P		Y	
4 / 5				9:23	30	9:28	P		Y	
5 / 6				9:35	30	9:40	P		Y	
6 / 7				9:45	30	9:50	P		Y	
7 / 8				9:37	30	9:42	P		Y	
8 / 9				9:43	30	9:48	P		Y	
9 / 10				9:50	30	9:55	P		Y	
10 / 11				9:54	30	9:59	P		Y	
11 / 12	↓			10:00	30	10:05	P		Y	
13 / 14	Seas - Neas			10:05	30	10:10	P		Y	
12 / 13	↓			11:05	30	11:10	P		Y	
12 / 14				11:06	30	11:11	P		Y	
11 / 14				11:07	30	11:12	P		Y	
1 / 15				11:25	30	11:30	P		Y	
2 / 15	↓	↓	↓	11:25	30	11:30	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: STB / JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
3 /15	Seas-Neas	11/14/23	30	11:25	30	11:30	P		Y	
4 /15	↓	↓	↓	11:25	30	11:30	P		Y	
5 /15	↓	↓	↓	11:25	30	11:30	P		Y	
6 /15	↓	↓	↓	11:25	30	11:30	P		Y	
7 /15	↓	↓	↓	11:25	30	11:30	P		Y	
8 /15	↓	↓	↓	11:25	30	11:30	P		Y	
9 /15	↓	↓	↓	11:15	30	11:20	P		Y	
10 /15	↓	↓	↓	11:15	30	11:20	P		Y	
14 /15	↓	↓	↓	11:15	30	11:20	P		Y	
15 /16	↓	↓	↓	11:35	29	11:40	P		Y	
17 /18	Eeas-Neas	↓	↓	11:40	30	11:45	P		Y	
16 /18	Seas-Neas	↓	↓	12:06	30	12:11	P		Y	
16 /17	↓	↓	↓	12:06	30	12:11	P		Y	
18 /19	↓	↓	↓	1:40	30	1:45	P		Y	
17 /19	↓	↓	↓	1:40	30	1:45	P		Y	
20 /21	Eeas-Neas	↓	↓	1:35	30	1:40	P		Y	
19 /21	Seas-Neas	↓	↓	2:22	30	2:27	P		Y	
19 /20	↓	↓	↓	2:22	30	2:27	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: STB / JMA

Project Number: 0086-004-16-22

Material ID: Leos mel HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
21 / 22	Seos - Neos	11/14/23	30	2:25	30	2:30	P		Y	
20 / 22	↓			2:25	30	2:30	P		Y	
23 / 24	Eeos - Weos			2:20	30	2:25	P		Y	
25 / 26	↓			2:35	30	2:40	P		Y	
22 / 24	Seos - Neos			2:40	30	2:45	P		Y	
22 / 23	↓			2:40	30	2:45	P		Y	
24 / 26	↓			3:05	29	3:10	P		Y	
24 / 25	↓			3:05	29	3:10	P		Y	
23 / 25	↓			3:05	29	3:10	P		Y	
26 / 27	↓			3:25	30	3:30	P		Y	
25 / 27	↓			3:25	30	3:30	P		Y	
28 / 29	Eeos - Weos			3:20	30	3:25	P		Y	
27 / 29	Seos - Neos			3:40	30	3:45	P		Y	
27 / 28	↓			3:40	30	3:45	P		Y	
29 / 30	↓			3:50	30	3:55	P		Y	
28 / 30	↓	↓		3:50	30	3:55	P		Y	
31 / 32	Eeos - Weos	11/15/23		8:30	30	8:35	P		Y	
30 / 32	Seos - Neos	↓	↓	9:17	30	9:22	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B — QA/QC Monitor: STB / JMA

Project Number: 0086-004-16-22 Material ID: LLD and HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
30 / 31	Seos - Neos	11/15/23	30	9:17	30	9:22	P		Y	
33 / 34	Eeos - Weos			9:15	30	9:20	P		Y	
32 / 33	Seos - Neos			9:25	30	9:30	P		Y	
31 / 33	↓			9:14	30	9:19	P		Y	
31 / 34				9:14	30	9:19	P		Y	
33 / 35				9:35	30	9:40	P		Y	
34 / 35	↓			9:35	30	9:40	P		Y	
36 / 37	Eeos - Weos			9:47	30	9:52	P		Y	
35 / 37	Seos - Neos			9:45	30	9:50	P		Y	
35 / 36	↓			9:45	30	9:50	P		Y	
37 / 38				10:07	30	10:12	P		Y	
36 / 38	↓			10:07	30	10:12	P		Y	
39 / 40	Eeos - Weos			10:05	30	10:10	P		Y	
41 / 42	↓			10:50	30	10:10	P		Y	
38 / 40	Seos - Neos			10:52	30	10:57	P		Y	
38 / 39	Seos - 31 NOSEOS			10:52	30	10:57	P		N	R.44
38 / 39	31 NOSEOS - Neos			10:51	30	10:56	P		Y	
40 / 41	Seos - Neos	↓	↓	11:10	30	11:15	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
39 / 141	Seos - Neos	11/15/23	30	11:10	30	11:15	P		Y	
39 / 142	↓			11:10	30	11:15	P		Y	
41 / 143	Seos - 106 NOSEOS			11:15	30	11:20	P		N	R49
41 / 143	106 NOSEOS - Neos			11:16	30	11:21	P		Y	
42 / 143	Seos - Neos			11:16	30	11:21	P		Y	
44 / 145	Eeos - Weos			11:00	30	11:05	P		Y	
43 / 145	Seos - Neos			11:37	30	11:42	P		Y	
43 / 144	↓			11:37	30	11:42	P		Y	
45 / 146				1:50	30	1:55	P		Y	
44 / 146	↓			1:50	30	1:55	P		Y	
47 / 148	Eeos - Weos			1:45	30	1:50	P		Y	
49 / 150	↓			2:10	30	2:15	P		Y	
46 / 148	Seos - Neos			2:15	29	2:20	P		Y	
46 / 147	↓			2:15	29	2:20	P		Y	
48 / 149				2:45	29	2:50	P		Y	
47 / 149				2:45	29	2:50	P		Y	
47 / 150				2:45	29	2:50	P		Y	
49 / 151	↓	↓	↓	2:50	30	2:55	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
50 / 51	Seos - Neos	11/15/23	30	2:50	30	2:55	P		Y	
15 / ex	Eeos - Weos	11/16/23		T:06	30	1:11	P		Y	
16 / ex	↓	↓	↓	1:06	30	1:11	P		Y	
17 / ex				1:05	30	1:10	P		Y	
19 / ex				1:05	30	1:10	P		Y	
20 / ex				1:05	30	1:10	P		Y	
22 / ex				1:05	30	1:10	P		Y	
23 / ex				1:05	30	1:10	P		Y	
25 / ex	↓			1:05	30	1:10	P		Y	
27 / ex	Weos - 10 EOweos			1:05	30	1:10	P		N	R.116
27 / ex	10 - EOweos - Eeos			12:52	30	12:57	P		Y	
28 / ex	Eeos - Weos			12:51	30	12:56	P		Y	
30 / ex	↓			12:51	30	12:56	P		Y	
31 / ex				12:51	30	12:56	P		Y	
34 / ex	↓			12:50	30	12:55	P		Y	
35 / ex	Eeos - 6 WOEEOS			12:50	30	12:55	P		N	R.103
35 / ex	6WOEeos - Weos			1:35	29	1:40	P		Y	
36 / ex	Eeos - Weos	↓	↓	1:35	29	1:40	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test: Date Air Tested	Air Test: Air Pressure Start PSI	Air Test: Air Pressure Start Time	Air Test: Air Pressure End PSI	Air Test: Air Pressure End Time	Air Test Results (P/F)	Date Vacuum Tested	Seam Complete (Yes/No)	Comments
38 / ex	Eeos - Weos	11/16/23	30	1:35	29	1:40	P		Y	
39 / ex				1:35	29	1:40	P		Y	
42 / ex				1:35	29	1:40	P		Y	
43 / ex				1:35	29	1:40	P		Y	
44 / ex				1:35	29	1:40	P		Y	
46 / ex	Weos - 60 EDWeos			1:35	29	1:40	P		N	R.111 split seam
47 / ex	Eeos - Weos	11/17/23		7:12	29	7:17	P		Y	
50 / ex				7:06	30	7:11	P		Y	
51 / ex				7:00	29	7:05	P		Y	
52 / ex				7:00	29	7:05	P		Y	
54 / ex				7:00	29	7:05	P		Y	
55 / ex	Weos - 60 EDWeos			7:00	29	7:05	P		N	R.123
55 / ex	60 EDWeos - Eeos	11/16/23		3:10	29	3:15	P		Y	
58 / ex	Eeos - Weos			3:00	29	3:05	P		Y	
59 / ex				3:00	29	3:05	P		Y	
60 / ex				3:00	29	3:05	P		Y	
62 / ex				3:00	29	3:05	P		Y	
63 / ex				3:00	29	3:05	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: JMA

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
66 / ex	Eeos - Weos	11/16/23	30	3:00	29	3:05	P		Y	
67 / ex	↓	↓	↓	3:00	29	3:05	P		Y	
68 / ex		11/17/23		6:35	29	6:40	P		Y	
70 / ex				6:35	29	6:40	P		Y	
71 / ex				6:35	29	6:40	P		Y	
73 / ex	↓			6:35	29	6:40	P		Y	
74 / ex	Eeos - 60 WOeeos			6:35	29	6:40	P		N	R.152
74 / ex	60 WOeeos - Weos			6:36	29	6:41	P		Y	
75 / ex	Eeos - Weos			6:36	29	6:41	P		Y	
77 / ex				6:36	29	6:41	P		Y	
78 / ex				6:36	29	6:41	P		Y	
80 / ex				6:36	29	6:41	P		Y	
81 / ex				6:36	29	6:41	P		Y	
82 / ex		↓		6:36	29	6:41	P		Y	
52 / 53	↓	11/16/23		2:40	30	2:45	P		Y	
51 / 53	Seos - Neos			3:35	30	3:40	P		Y	
51 / 52	↓			3135	30	3:40	P		Y	
53 / 54	↓	↓	↓	3:36	30	3:41	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
52 /54	Seas - Neas	11/16/23	30	3:36	30	3:41	P		Y	
55 /56	Eeas-Weas			3:35	30	3:40	P		Y	
57 /58	↓			7:38	29	7:43	P		Y	
54 /56	Seas - Neas			4:10	29	4:15	P		Y	
54 /55				4:10	29	4:15	P		Y	
56 /57				1:15	30	1:20	P		Y	
55 /57				1:15	30	1:20	P		Y	
55 /58				1:15	30	1:20	P		Y	
57 /59				1:16	30	1:21	P		Y	
58 /59	↓			1:16	30	1:21	P		Y	
60 /61	E-eas- Weas			3:30	30	3:35	P		Y	
59 /61	Seas - Neas			3:05	30	3:10	P		Y	
59 /60				3:05	30	3:10	P		Y	
61 /62				3:06	30	3:11	P		Y	
60 /62	↓			3:06	30	3:11	P		Y	
63 /64	Eeas - Weas			3:31	29	3:36	P		Y	
62 /64	Seas - Neas			3:07	30	3:12	P		Y	
62 /63	↓	↓	↓	3:07	30	3:12	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60D mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
65 / 66	Eees-Wees	11/16/23	30	3:32	30	3:37	P		Y	
64 / 65	Sees-Nees	↓	↓	3:15	30	3:20	P		Y	
63 / 65	↓	↓	↓	3:15	30	3:20	P		Y	
63 / 66	↓	↓	↓	3:15	30	3:20	P		Y	
67 / 65	↓	↓	↓	3:16	30	3:21	P		Y	
67 / 66	↓	↓	↓	3:16	30	3:21	P		Y	
68 / 69	Eees-Wees	↓	↓	3:40	30	3:45	P		Y	
67 / 69	Sees-Nees	↓	↓	3:17	30	3:22	P		Y	
67 / 68	↓	↓	↓	3:17	30	3:22	P		Y	
69 / 70	↓	11/17/23	↓	6:50	30	6:55	P		Y	
68 / 70	↓	↓	↓	6:50	30	6:55	P		Y	
71 / 72	Eees-Wees	11/16/23	↓	3:42	30	3:47	P		Y	
70 / 72	Sees-Nees	11/17/23	↓	6:51	30	6:56	P		Y	
70 / 71	↓	↓	↓	6:51	30	6:56	P		Y	
72 / 73	↓	↓	↓	6:52	30	6:57	P		Y	
71 / 73	↓	↓	↓	6:52	30	6:57	P		Y	
73 / 74	↓	↓	↓	6:53	30	6:58	P		Y	
75 / 76	Eees-Wees	11/16/23	↓	3:47	30	3:52	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
74 /76	Sees-Neos	11/17/23	30	6:54	30	6:59	P		Y	
74 /75	↓	↓	↓	6:54	30	6:59	P		Y	
76 /77	↓	↓	↓	7:06	30	7:11	P		Y	
75 /77	↓	↓	↓	7:05	30	7:10	P		Y	
78 /79	Eees-Weos	11/16/23	↓	3:45	30	3:50	P		Y	
77 /79	Sees-Neos	11/17/23	↓	7:25	29	7:30	P		Y	
77 /78	↓	↓	↓	7:25	29	7:30	P		Y	
79 /80	↓	↓	↓	7:26	30	7:31	P		Y	
78 /80	↓	↓	↓	7:26	30	7:31	P		Y	
80 /81	↓	↓	↓	7:27	30	7:32	P		Y	
82 /83	Eees-Weos	↓	↓	7:16	30	7:21	P		Y	
81 /83	Sees-Neos	↓	↓	7:17	30	7:22	P		Y	
81 /82	↓	↓	↓	7:15	30	7:20	P		Y	
83 /84	↓	↓	↓	7:28	29	7:33	P		Y	
82 /84	↓	↓	↓	7:28	29	7:33	P		Y	
85 /86	Eees-Weos	↓	↓	12:50	30	12:55	P		Y	
84 /86	Sees-Neos	↓	↓	1:23	30	1:28	P		Y	
84 /85	↓	↓	↓	1:23	30	1:28	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: LLD mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
86 / 87	Seos - Neos	11/17/23	30	1:30	30	1:35	P		Y	
85 / 87	↓	↓	↓	1:30	30	1:35	P		Y	
87 / 88	↓	↓	↓	2:00	30	2:05	P		Y	
89 / 90	Eeos - Weos	↓	↓	1:58	30	2:03	P		Y	
88 / 90	Seos - Neos	↓	↓	2:19	30	2:24	P		Y	
88 / 89	↓	↓	↓	2:19	30	2:24	P		Y	
90 / 91	↓	↓	↓	2:24	30	2:29	P		Y	
89 / 91	Seos - 178 NOSEOS	↓	↓	2:24	30	2:29	P		N	R231
89 / 91	178 NOSEOS - Neos	↓	↓	2:25	30	2:30	P		Y	
91 / 92	Seos - Neos	↓	↓	2:50	30	2:55	P		Y	
92 / 93	↓	↓	↓	2:51	30	2:56	P		Y	
88 / 94	↓	↓	↓	3:29	30	3:34	P		Y	
90 / 94	↓	↓	↓	3:29	30	3:34	P		Y	
91 / 94	↓	↓	↓	3:29	30	3:34	P		Y	
92 / 94	↓	↓	↓	3:29	30	3:34	P		Y	
93 / 94	↓	↓	↓	3:04	30	3:09	P		Y	
94 / 95	Eeos - Weos	↓	↓	3:08	30	3:13	P		Y	
95 / 96	↓	↓	↓	3:33	30	3:38	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
97 /98	Seas - Neas	11/17/23	30	3:23	30	3:28	P		Y	
96 /97	Eeas-Weas			3:37	30	3:42	P		Y	
96 /98	↓			3:37	30	3:42	P		Y	
97 /99				3:43	30	3:48	P		Y	
98 / 99				3:43	30	3:48	P		Y	
99 /100				3:46	30	3:51	P		Y	
100 /101	↓	↓		3:53	30	3:58	P		Y	
102 /105	Seas - Neas	11/18/23		3:31	30	3:36	P		Y	
101 /102	Eeas-Weas			3:34	30	3:39	P		Y	
101 /105	↓			3:33	30	3:38	P		Y	
103 /102				3:32	30	3:37	P		Y	
103 /105				3:30	30	3:35	P		Y	
103 /104	↓			3:41	30	3:46	P		Y	
106 /107	Seas - Neas			3:40	30	3:45	P		Y	
104 /107	Eeas - Weas			3:42	30	3:47	P		Y	
104 /106	↓	↓		3:42	30	3:47	P		Y	
107 /108	↓	11/19/23		6:25	30	6:30	P		Y	
106 /108	↓	↓	↓	6:25	30	6:30	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60D mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
109 /110	Seas-Neas	11/18/23	30	3:45	30	3:50	P		Y	
111 /112	↓	↓		3:46	30	3:51	P		Y	
108 /110	Feas-Weas	11/19/23		6:26	30	6:31	P		Y	
108 /109				6:26	30	6:31	P		Y	
110 /111				6:27	30	6:32	P		Y	
109 /111				6:27	30	6:32	P		Y	
109 /112				6:27	30	6:32	P		Y	
111 /113				6:40	30	6:45	P		Y	
112 /113	↓	↓		6:40	30	6:45	P		Y	
114 /115	Seas - Neas	11/18/23		3:47	30	3:52	P		Y	
113 /114	Feas - weas	11/19/23		6:41	30	6:46	P		Y	
113 /115				6:41	30	6:46	P		Y	
114 /116				6:42	30	6:47	P		Y	
115 /116	↓			6:42	30	6:47	P		Y	
117 /118	Seas - Neas			7:06	30	7:11	P		Y	
116 /117	Feas - Weas			7:02	30	7:07	P		Y	
116 /118				7:00	30	7:05	P		Y	
117 /119	↓	↓	↓	7:09	30	7:14	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JML

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
118 / 119	E-eos - W-eos	11/19/23	30	7:03	30	7:08	P		Y	
119 / 120	↓	↓	↓	7:10	30	7:15	P		Y	
120 / 121				7:11	30	7:16	P		Y	
121 / 122				7:12	30	7:17	P		Y	
122 / 123				7:13	30	7:18	P		Y	
123 / 124				7:14	30	7:19	P		Y	
124 / 125				7:25	30	7:30	P		Y	
125 / 126				7:26	30	7:31	P		Y	
126 / 127				7:27	30	7:32	P		Y	
127 / 128				7:28	30	7:33	P		Y	
128 / 129				7:40	30	7:45	P		Y	
129 / 130	↓	↓	↓	7:41	30	7:46	P		Y	
84 / ex	E-eos - W-eos	11/18/23		11:20	30	11:25	P		N	R.202
84 / ex	W-eos - W-eos	↓		11:15	30	11:20	P		Y	
85 / ex	E-eos - W-eos			11:15	30	11:20	P		Y	
87 / ex	↓			11:10	30	11:15	P		Y	
88 / ex				11:10	30	11:15	P		Y	
89 / ex	↓	↓	↓	11:00	30	11:15	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
89 / ex	Wees - Sees	11/18/23	30	10:55	30	11:00	P		Y	
91 / ex	↓	↓	↓	9:30	29	9:35	P		Y	
92 / ex				9:30	29	9:35	P		Y	
93 / ex				9:30	29	9:35	P		Y	
94 / ex				9:30	29	9:35	P		Y	
95 / ex				9:30	29	9:35	P		Y	
96 / ex				9:30	29	9:35	P		Y	
98 / ex				9:30	29	9:35	P		Y	
99 / ex				9:30	29	9:35	P		Y	
100 / ex				9:30	29	9:35	P		Y	
101 / ex				3:18	30	3:23	P		Y	
105 / ex	↓			3:18	30	3:23	P		Y	
103 / ex	Eees - Wees			3:11	30	3:16	P		Y	
104 / ex	↓			3:11	30	3:16	P		Y	
106 / ex				3:11	30	3:16	P		Y	
108 / ex	↓			3:11	30	3:16	P		Y	
109 / ex	Eees - 6 weeees			3:11	30	3:16	P		Y	R 216
109 / ex	6 weeees - Wees	↓	↓	3:10	30	3:15	P		Y	

Non-Destructive Test Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: JMA

Material ID: 60 mil HDPE

Seam Number	Description	Air Test						Date Vacuum Tested	Seam Complete (Yes/No)	Comments
		Date Air Tested	Air Pressure				Air Test Results (P/F)			
			Start		End					
			PSI	Time	PSI	Time				
46 / ex	6 FOWEOS - Fees	11/17/23	30	7:12	29	7:17	P		Y	
/										
/										
/										
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APPENDIX G.6

Repair Summary

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: STB / JMA

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location		Description (Repair Type)	Size of Repair	Date Vacuum Tested
1	11/14/23	1:30	KD/441	1/2/15	INT		INT	1 x 1	11/17/23
2	↓	1:40	↓	2/3/15	↓		INT	1x1	↓
3		1:55		2/3	25 NOEFOS	DS-1	DS	2x4	
4		1:45		3/15	11 NOSEOS	DS-4	DS	2x4	
5		1:50		3/4/15	INT		INT	1x1	
6		2:00		4/5/15	↓		INT	1x1	
7		2:05		5/6/15			INT	1x1	
8		2:10		6/7/15			INT	1x1	
9		2:15		7/8/15			INT	1x1	
10		2:20		8/9/15			INT	1x1	
11		2:25		9/10/15	↓		INT	1x1	
12		2:30		9/10	25 NOEFOS	DS-2	DS	2x4	
13		3:00		10/11/14/15	INT		INT	1x1	
14		3:05		11/12/14	↓		INT	1x1	
15		3:10		12/13/14	↓		INT	1x1	
16		2:55		15/16	77 SONEOS	DS-3	DS	2x4	
17		3:25		16/17/18	INT		INT	1x1	
18	↓	3:30	↓	17/18/19	↓		INT	1x1	
19	11/15/23	4:20	VK 0802	19/20/21	↓		INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: STJ / JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
20	11/15/23	4:15	VK/0802	20/21/22	INT	INT	1x1	11/17/23
21	11/14/23	3:40	KO/441	21/22	80' SONEOS DS-5	DS	2x4	
22	11/15/23	10:20	VK/0802	22/23/24	INT	INT	1x1	
23		10:22		23/24/25	↓	INT	1x1	
24		4:05		22/24	125 NOSEOS DS-6	DS	2x4	
25		4:20		24/25/26	INT	INT	1x1	
26		4:15		25/26/27	↓	INT	1x1	
27		4:35		26/27	30' NOSEOS DS-7	DS	2x4	
28		4:00		24/25	100 NOSEOS DS-8	DS	2x4	
29		10:30		25/27	200 NOSEOS DS-9	DS	2x4	
30		10:40		27/28	100 NOSEOS DS-10	DS	2x4	
31		3:55		27/28/29	INT	INT	1x1	
32		3:50		28/29/30	↓	INT	1x1	
33		10:45		28/30	125 NOSEOS DS-11	DS	2x4	
34		1:46		30/31/32	INT	INT	1x1	
35		1:48		31/32/33	↓	INT	1x1	
36		1:50		31/33/34	↓	INT	1x1	
37		1:53		33/34/35	↓	INT	1x1	
38	↓	3:40	↓	35/36/37	↓	INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location		Description (Repair Type)	Size of Repair	Date Vacuum Tested
39	11/15/23	3:35	VK 0802	35/36	25 NOSEOS	DS-12	DS	2x4	11/17/23
40	↓	3:42	↓	36/37/38			INT	1x1	↓
41		3:30		36/38	25 NOSEOS	DS-13	DS	2x4	
42		3:10		38/39/40	INT		INT	1x1	
43		3:05		39/40/41	↓		INT	1x1	
44		10:51		38/39	31 NOSEOS		BO	2x1	
45		2:44		39/41/42	INT		INT	1x1	
46		2:35		39/42	14 NOSEOS	DS-15	DS	2x4	
47		2:40		41/42	11 EOWEOS	DS-14	DS	2x4	
48	↓	2:39	↓	41/42/43	INT		INT	1x1	
49	11/16/23	3:24	VK 5606	41/43	106 NOSEOS		BO	2x1	
50	↓	3:40	↓	41/43	50 NOSEOS	DS-16	DS	2x4	
51	↓	3:47	↓	43/44/45	INT		INT	1x1	
52	11/17/23	7:25	AD 565	44/45/46	↓		INT	1x1	
53	↑	7:32	↓	46/47/48	↓		INT	1x1	
54	↓	7:43	↓	47/48/49	↓		INT	1x1	
55	↓	7:53	↓	47/49/50	↓		INT	1x1	
56	↓	7:58	↓	49/50/51	↓		INT	1x1	
57	11/16/23	3:20	VK 5606	44/46	125 NOSEOS	DS-17	DS	2x4	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
58	11/16/23	3:50	VK / 5606	48/49	75 SONEOS DS-18	DS	2x4	11/17/23
59	11/17/23	8:12	AD/505	51/52/53	INT	INT	1x1	
60		8:20		52/53/54	↓	INT	1x1	
61		8:06		51/52	135 SONEOS DS-19	DS	2x4	
62		8:26		52/54	135 SONEOS DS-20	DS	2x4	
63		8:37	↓	54/56	200 SONEOS DS-21	DS	2x4	
64		7:36	VK / 5606	54/55/56	INT	INT	1x1	
65		7:33		55/56/57		INT	1x1	
66		7:20		55/57/58		INT	1x1	
67		7:22	↓	57/58/59		INT	1x1	
68		9:45	AD/505	59/60/61		INT	1x1	
69		9:48		60/61/62		INT	1x1	
70		9:42	↓	57/59	155 SONEOS DS-23	DS	2x5	
71		8:35	VK/5606	62/63/64	INT	INT	1x1	
72		8:38	↓	63/64/65	↓	INT	1x1	
73		9:53	AD/505	62/64	125 SONEOS DS-24	DS	2x4	
74		10:05	↓	64/65	52 SONEOS DS-25	DS	2x4	
75		8:44	VK/5606	65/67	25 SONEOS DS-26	DS	2x5	
76	↓	8:32	↓	63/65/66	INT	INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location		Description (Repair Type)	Size of Repair	Date Vacuum Tested
77	11/17/23	8:30	AD/565	65/66/67	INT		INT	1x1	11/17/23
78	↓	10:10	↓	67/68/69	↓		INT	2x1	↓
79		10:17		68/69/70			INT	1x1	
80		10:31		70/71/72			INT	3x1	
81		10:36		71/72/73			INT	2x1	
82		10:47		69/70	75 NOSEOS	DS-27	DS	2x4	
83		10:37		70/72	175 NOSEOS	DS-28	DS	2x4	
84		10:52		72/73	175 SONEOS	DS-29	DS	2x5	
85		11:02		74/75/76	INT		INT	1x1	
86	↓	11:07	↓	75/76/77	↓		INT	3x3	
87	11/16/23	2:46	VK 566	1/ex	Top @ A.T		T-Bead	—	
88	↓	2:44	↓	1/15/ex	INT		INT	2x2	
89		2:42		15/16/ex	↓		INT	1x1	
90		2:40		16/ex	11 EOWEOS	DS-30	DS	2x4	
91		2:32		16/17/ex	INT		INT	2x3	
92		2:29		17/19/ex	↓		INT	1x1	
93		2:23		19/20/ex			INT	1x1	
94		2:20		20/22/ex			INT	1x1	
95	↓	2:18	↓	22/23/ex	↓		INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
96	11/16/23	2:14	VK / 566	23/25/ex	INT	INT	1x1	11/17/23
97		2:11		26/27/ex		INT	3x7	
98		2:00		27/28/ex		INT	1x1	
99		1:50		28/30/ex		INT	1x1	
100		1:49		30/31/ex		INT	1x1	
101		1:45		31/34/ex		INT	1x1	
102		1:40		34/35/ex		INT	1x1	
103		1:35		35/ex	6' WDFEOS	BO	1x1	
104		1:19		35/36/ex	INT	INT	1x1	
105		1:12		36/38/ex		INT	1x1	
106		1:04		38/39/ex		INT	2x2	
107		12:58		39/42/ex		INT	1x1	
108		12:55		42/43/ex		INT	1x1	
109		12:56		43/44/ex		INT	1x1	
110		10:14		44/46/ex		INT	7x3	
111		10:10		46/ex	6 EDWEOS	SR	1x1	
112		10:00		46/47/ex	INT	INT	1x1	
113		10:50		ex	6 N of 43/44, 14 W of R.108	PR	15x5	
114		1:14		ex	1 N of P-36, 8 E of R.105	PR	1x2	

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: JMA

Material ID: LLD and HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
115	11/16/23	1:32	VK/566	Ex	6 N of P-35, 10 W of R.102	PR	2x5	11/17/23
116		2:05		27/ex	10 EDWEDS	SR	5x5	
117		8:00		Ex	3 N of P-47, 4 E of R.118	BOOT	8x9	
118		8:25		47/50/ex	INT	INT	6x2	
119		9:40		50/51/Ex	INT / 11 EDWEDS DS-22	DS	2x13	
120		9:30		51/52/ex	INT	INT	1x1	
121		7:25		52/54/ex	↓	INT	1x1	
122		7:20		54/55/ex	↓	INT	1x1	
123		4:07		55/ex	6 EDWEDS	BO	2x1	
124	↓	4:11		55/58/ex	INT	INT	2x3	
125	11/17/23	7:26		58/59/ex	↓	INT	1x1	
126		7:45		59/60/ex	↓	INT	1x1	
127		7:51		60/62/ex	↓	INT	1x1	
128		8:00		62/63/ex	↓	INT	1x1	
129		8:11		63/66/ex	↓	INT	1x1	
130		8:21		66/67/ex	↓	INT	1x1	
131		8:26		67/ex	11 EDWEDS DS-35	DS	2x4	
132		8:48		67/68/ex	INT	INT	2x2	
133	↓	5:00	↓	68/70/ex	↓	INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location		Description (Repair Type)	Size of Repair	Date Vacuum Tested
134	11/17/23	9:05	VK/566	70/71/ex	INT		INT	1x1	11/17/23
135	↓	9:06	↓	71/73/ex	↓		INT	1x1	11/19/23
136		9:28		73/74/ex			INT	1x1	↓
137		9:40		74/75/ex			INT	1x1	
138		9:46		75/77/ex			INT	1x1	
139		9:53		77/78/ex			INT	1x1	
140		10:00		78/80/ex			INT	1x3	
141		10:06		80/81/ex			INT	1x1	
142		10:16		81/82/ex	↓		INT	1x1	
143		10:20		82/ex	6 WOEDS		SR	1x1	
144		10:27		82/84	50 SONEDS	DS-34	DS	2x4	
145		10:45		78/79/80	INT		INT	1x1	
146		10:50	↓	77/78/79	↓		INT	1x1	
147		11:11	AD/565	75/77	175 SONEDS	DS-32	DS	2x5	
148		10 58	↓	74/76	50 SONEDS	DS-31	DS	2x4	
149		10:57	VK/566	81/82	175 SONEDS	DS-33	DS	2x4	
150		11:03		81/82/83	INT		INT	2x1	
151		11:07		82/83/84	↓		INT	1x1	
152	↓	4:35	↓	74/ex	6 WOEDS		SR	2x5	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: JMA

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
153	11/18/23	10:00	KO/802	84/85/86	INT	INT	1x1	11/19/23
154		10:10		85/86/87	↓	INT	1x1	
155		10:15		85/87	25 NOSEOS DS-36	DS	2x4	
156		11:10		87/88/94	INT	INT	1x1	
157		10:40		88/89/90		INT	1x1	
158		10:35		89/90/91		INT	1x1	
159		11:05		88/90/94		INT	1x1	
160		11:00		90/91/94		INT	1x1	
161	↓	10:50		91/92/94		INT	1x1	
162	11/19/23	9:40		96/97/98		INT	1x1	
163	↓	9:50		97/98/99	↓	INT	1x1	
164	11/18/23	1:00		87/88	100 NOSEOS DS-38	DS	2x3	
165	↓	10:30		88/89	50 NOSEOS DS-37	DS	2x3	
166	11/19/23	10:25		97/99	25 EDWEOS DS-39	DS	2x4	
167		10:30		102/103	25 EDWEOS DS-41	DS	2x4	
168		10:20	↓	101/102/105	INT	INT	3x3	
169		10:40	LP/5167	102/103/105		INT	3x3	
170		10:35		104/106/107		INT	1x1	
171	↓	10:32	↓	106/107/108	↓	INT	1x1	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
172	11/19/23	10:25	LP/567	106/108	25 FOWEDS DS-42	DS	2x5	11/19/23
173		10:20		108/109/110	INT	INT	2x1	
174		10:15		109/110/111		INT	1x1	
175		10:10		109/111/112		INT	1x1	
176		10:05	↓	111/112/113		INT	1x1	
177		10:10	KO/802	100/101/ex		INT	8x3	
178		10:05		99/100/ex		INT	1x5	
179		9:20		98/99/ex		INT	6x1	
180		9:15		96/98/ex		INT	6x1	
181		9:00		95/96/ex		INT	7x1	
182		8:50		94/95/ex	↓	INT	7x1	
183		8:45		94	10 SONEOP, 4 FOWEOP	PR	1x1	
184		8:52		93/94/ex	INT	INT	6x1	
185		8:47		93/ex/ex	12 SONEOS	INT	1x1	
186		8:40		93/ex/ex	37 SONEOS	INT	1x1	
187		8:35		92/93/ex	INT	INT	1x1	
188		8:25		92/ex/ex	26 SONEOS	INT	1x1	
189		8:20		92/ex/ex	50 SONEOS	INT	1x1	
190	↓	8:15	↓	91/92/ex	INT	INT	2x4	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
191	11/19/23	8:20	ko/802	91/ex/ex	51 SONFOS	INT	1x1	11/19/23
192		8:15		91/ex/ex	29 SONFOS	INT	1x1	
193		8:10		91/ex	50 NOSEOS DS-43	DS	2x4	
194		7:30		89/91/ex	INT	INT	2x9	
195	↓	7:10		89/ex/ex	↓	INT	2x3	
196	11/8/23	3:35		88/89/ex	↓	INT	1x1	
197		3:30		88	4 SONFOP, 8 EOWFOP	PR	1x1	
198		3:20		87/88/ex	INT	INT	1x1	
199		3:15		85/87/ex	↓	INT	1x1	
200		3:05		84/85/ex	↓	INT	1x1	
201		3:00		Ex	1 N of P84, 5 E of R.200	PR	1x1	
202		1:50		84/ex	6 WOEEOS	BO	1x1	
203		1:40		82/84/ex	INT	INT	1x1	
204		1:35		82/ex	5 EOWEOS	SR	2x1	
205	↓	3:10	↓	85/ex	6 WOEEOS	SR	1x1	
206	11/19/23	10:00	LP/567	110/111	50 EOWEOS DS-44	DS	2x8	
207		9:57		113/114/115	INT	INT	1x1	
208		9:50		114/115	11 NOSEOS DS-45	DS	2x5	
209	↓	9:45	↓	114/115/116	INT	INT	1x2	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
210	11/9/23	9:30	LP/567	114/116	10 EOWEOS DS-46	DS	2x2	11/9/23
211		9:27		116/117/118	INT	INT	1x2	
212		9:25		117/118/119	↓	INT	2x2	
213		9:15		96/97	75 EOWEOS DS-47	DS	2x5	
214		9:12		109/112/ex	INT	INT	2x1	
215		9:10		109/ex/ex	20 WOEEOS	INT	1x1	
216		9:05		109/ex	6 WOEEOS	BO	2x2	
217		9:00		108/109/ex	INT	INT	1x1	
218		8:58		106/108/ex		INT	1x1	
219		8:54		104/106/ex		INT	1x1	
220		8:50		103/104/ex		INT	1x1	
221		8:30		103/105/ex		CAP/INT	8x6	
222		8:10		101/102/ex		INT	1x1	
223		10:15	KO/802	101/ex	4 NOSEOS	SR	1x1	
224		10:00		101/ex	8 NOSEOS	BOOT	6x7	
225		9:20	LP/567	116/118	25 EOWEES DS-48	DS	2x5	
226		8:00		120/121	100 EOWEES DS-49	DS	2x5	
227		7:50		123/124	100 EOWEES DS-50	DS	2x5	
228	↓	7:45	↓	129/130	11 EOWEOS DS-51	DS	2x5	↓

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

Repair Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

QA/QC Monitor: JMA

Project Number: 0086-004-16-22

Material ID: 60 mil HDPE

Repair Number	Date	Time	Oper./Mach.	Seam or Panel	Repair Location	Description (Repair Type)	Size of Repair	Date Vacuum Tested
229	11/19/23	7:40	LP/567	103/ex	19 EDWEDS DS-52	DS	2x4	11/19/23
230	11/20/23	7:48	FP/802	109/112	15 EDWEEG DS-53	DS	2x5	11/20/23
231	11/19/23	8:00	KO/802	89/91	175 NOSEOS DS-40	DS	2x5	11/19/23
232	11/18/23	10:45	↓	92/93/94	INT	INT	2x2	↓
233	11/22/23	8:26	LP/50802	85/87	10' N of DS-36	DS-36A	12x2	11/22/23
234	11/22/23	8:38		85/87	10' S of DS-36	DS-36B	12x2	11/22/23
235	11/22/23	9:45		91/EX	10' SW of DS-43	DS-43B	12x2	
236	11/22/23	10:00		91/EX	10' NE of DS-43	DS-43A	12x2	
237	11/22/23	14:50		102/103	10' E of DS-41	DS-41A	12x2	
238	11/22/23	14:55	↓	102/103	10' W of DS-41	DS-41B	12x2	↓
239	11/24/23	7:39	RH/50802	123/124	10' E of DS-50	DS-50A	12x2	11/24/23
240	11/24/23	7:27	↓	123/124	10' W of DS-50	DS-50B	12x2	11/24/23

Repair Type: C-Cap, BO- Burnout, PR-Panel Repair, SR-Seam Repair, INT-Intersection, FM-Fish Mouth, DS-#-Destructive Sample

APPENDIX G.7

Geomembrane Seam Destructive Sample Test Results

Destructive Sample Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60mil

Destructive Sample Number	Seam Number	Date Seamed	Welder ID	Machine Number	Sample Location	Field Test Results (P/F)	Third Party Results (P/F)	Comments
DS1	2/3	11/14/23	BI	6/60	25' E of WEOS	P	P	
DS2	9/10	11/14/23	AD	5009	25' E of WEOS	P	P	
DS3	15/16	11/14/23	FP	5007	17' S OF NEOS	P	P	
DS4	3/15	11/14/23	LP	5009	11' N of SEOS	P	P	
DS-5	21/22	11/14/23	FP	5007	80' S OF NEOS	P	P	
DS-6	22/24	11/14/23	LP	5009	125 N of SEOS	P	P	
DS-7	26/27	11/14/23	FP	5007	30' N of SEOS	P	P	
DS-8	24/25	11/14/23	BI	6/61	100' N of SEOS	P	P	
DS-9	25/27	11/14/23	FP	5007	200' N of SEOS	P	P	
DS-10	27/28	11/14/23	LP	5009	100' N of SEOS	P	P	
DS-11	28/30	11/14/23	BI	6/61	125' N of SEOS	P	P	
DS-12	35/36	11/15/23	AD	5009	25' N of SEOS	P	P	
DS-13	36/38	11/15/23	BI	6/61	25' N of SEOS	P	P	
DS-14	41/42	11/15/23	FP	5007	11' E of WEOS	P	P	
DS-15	39/42	11/15/23	BI	6/61	14' N of SEOS	P	P	
DS-16	41/43	11/15/23	AD	5009	50' N of SEOS	P	P	
DS-17	44/46	11/15/23	AD	5009	125' N of SEOS	P	P	
DS-18	48/49	11/15/23	BI	6/61	75' S of NEOS	P	P	
DS-19	51/52	11/15/23	PP	5007	125' S OF NEOS	P	P	

Destructive Sample Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Destructive Sample Number	Seam Number	Date Seamed	Welder ID	Machine Number	Sample Location	Field Test Results (P/F)	Third Party Results (P/F)	Comments
DS 20	52/54	11/15/23	AD	5007	135' S of NEOS	P	P	
DS 21	54/56	11/15/23	BI	6161	200 S of NEOS	P	P	
DS 22	51/Ex	11/15/23	FP	5007	11' E of WEOS	P	P	
DS 23	57/58	11/16/23	AD	5009	155' N of SEOS	P	P	
DS 24	62/64	11/16/23	DT	6160	125' S of NEOS	P	P	
DS 25	64/65	11/16/23	BI	6161	52' S of NEOS	P	P	
DS 26	65/67	11/16/23	AD	5009	25' S of NEOS	P	P	
DS 27	69/70	11/16/23	AD	5009	75' S of NEOS	P	P	
DS 28	70/72	11/16/23	DT	6160	25' S of NEOS	P	P	
DS 29	72/73	11/16/23	BI	6161	175' S of NEOS	P	P	
DS 30	16/Ex	11/16/23	FP	5007	11' E of NEOS	P	P	
DS 31	74/76	11/16/23	DT	6160	50' S of NEOS	P	P	
DS 32	75/77	11/16/23	AD	5009	175' S of NEOS	P	P	
DS 33	81/82	11/16/23	AD	5009	175' S of NEOS	P	P	
DS 34	82/84	11/16/23	BI	6161	50' S of NEOS	P	P	
DS 35	67/Ex	11/16/23	FP	5007	11' E of WEOS	P	P	
DS 36	85/87	11/17/23	DT	6160	25' N of SEOS	P	F	
DS 37	88/89	11/17/23	AD	5009	50' N of SEOS	P	P	
DS 38	87/88	11/17/23	FP	5007	100' N of SEOS	P	P	

Destructive Sample Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Destructive Sample Number	Seam Number	Date Seamed	Welder ID	Machine Number	Sample Location	Field Test Results (P/F)	Third Party Results (P/F)	Comments
DS 39	97/99	11/17/23	FP	5007	25' EofWEOS	P	P	
DS 40	89/91	11/17/23	BI	6161	175' NofSEOS	P	P	
DS 41	102/103	11/18/23	AD	6160	15' EofWEOS	P	F	
DS 42	106/108	11/18/23	BI	6161	25' EofWEOS	P	P	
DS 43	91/ex	11/18/23	FP	5007	50' NofSEOS	P	F	
DS 44	110/111	11/18/23	AD	6160	50' EOWEOS	P	P	
DS 45	114/115	11/18/23	BI	6161	11' NOSEOS	P	P	
DS 46	114/116	11/18/23	AD	6160	10' EofWEOS	P	P	
DS 47	96/97	11/17/23	AD	5009	75' EofWEOS	P	P	
DS 48	116/118	11/18/23	BI	6161	25' EofWEOS	P	P	
DS 49	120/121	11/18/23	AD	6160	100' EofWEOS	P	P	
DS 50	123/124	11/18/23	BI	6161	100' EofWEOS	P	F	
DS 51	129/130	11/18/23	AD	6160	11' EofWEOS	P	P	
DS 52	103/ex	11/18/23	FP	5007	19' EOWEOS	P	P	
DS 53	109/112	11/18/23	AD	6160	15' EOWEOS	P	P	
DS 36A	85/87	11/17/23	DT	6160	10' N of DS-36	P	P	
DS 36B	85/87	11/17/23	DT	6160	10' S of DS-36	P	P	
DS 41A	102/103	11/18/23	AD	6160	10' E of DS-41	P	P	
DS 41B	102/103	11/18/23	AD	6160	10' W of DS-41	P	P	

Destructive Sample Summary

Weaver Consultants Group

Project Name: Laraway RDF - Phases 9C and 10B

Project Number: 0086-004-16-22

QA/QC Monitor: GPC

Material ID: 60 mil

Destructive Sample Number	Seam Number	Date Seamed	Welder ID	Machine Number	Sample Location	Field Test Results (P/F)	Third Party Results (P/F)	Comments
DS-43A	91/EX	11/18/23	FP	5007	16' NE of DS-43	P	P	
DS-43B	91/EX	11/18/23	FP	5007	10' SW of DS-43	P	P	
DS-50A	123/124	11/18/23	BI	6161	10' E of DS-50	P	P	
DS-50B	123/124	11/18/23	BI	6161	10' W of DS-50	P	P	

TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2023-11-15

Mail To:
Robert Schumann
Weaver Consultants (seams)

Bill To:

Weaver Consultants (seams)
Project no. 0086-004-16-22

,,

e-mail:rschumann@wcgrp.com

Dear Mr. Schumann,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway RDF East Phases 9C and 10B**
TRI Job Reference Number:	**79738**
Material(s) Tested:	(5) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,
sigfile

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

The testing herein is based upon accepted industry practice as well as the test method listed. Test results reported herein do not apply to samples other than those tested. TRI neither accepts responsibility for nor makes claim as to the final use and purpose of the material. TRI observes and maintains client confidentiality. TRI limits reproduction of this report, except in full, without prior approval of TRI.

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79738

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	153	160	153	148	162	**155**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	102	153	159	165	169	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	195	196	192	195	**195**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-2 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	172	155	170	159	165	**164**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	167	161	158	158	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	197	198	196	195	197	**197**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79738

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-3 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	153	150	164	159	165	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	159	161	164	168	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	203	201	200	201	204	**202**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-4 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	168	176	164	166	169	**169**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	156	159	153	159	165	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	197	199	196	200	208	**200**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79738

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-5 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	157	165	162	159	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	154	163	153	155	159	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	199	197	197	199	197	**198**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

Date: 2023-11-16

Mail To:
Robert Schumann
Weaver Consultants (seams)

,,

e-mail:rschumann@wcgrp.com

Bill To:

Weaver Consultants (seams)
Project no. 0086-004-16-22

Dear Mr. Schumann,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway RDF East Phases 9C and 10B**
TRI Job Reference Number:	**79751**
Material(s) Tested:	(13) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,
sigfile
geolab

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-6 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	157	155	160	159	154	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	144	147	154	150	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	189	194	194	195	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-7 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	167	152	158	150	159	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	150	148	148	141	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	194	194	194	195	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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TESTING, RESEARCH, CONSULTING AND FIELD SERVICES
AUSTIN, TX - USA | ANAHEIM, CA - USA | ANDERSON, SC - USA | GOLD COAST - AUSTRALIA | SUZHOU - CHINA

DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-8 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	156	165	174	160	**163**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	156	151	154	155	**154**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	193	194	192	190	192	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-9 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	170	157	152	161	162	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	178	158	157	165	156	**163**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	190	192	181	190	**189**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-10 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	154	151	156	153	153	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	156	146	155	144	**151**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	204	202	201	203	201	**202**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-11 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	161	155	156	167	155	**159**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	155	150	154	151	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	202	200	200	202	200	**201**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-12 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	147	166	176	151	154	**159**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	159	152	150	152	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	197	194	196	197	196	**196**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-13 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	159	161	150	160	**156**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	144	145	144	143	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	202	200	206	205	204	**203**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-14 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	154	153	172	164	168	**162**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	168	165	161	168	170	**166**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	172	192	198	198	**190**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-15 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	167	166	176	173	165	**169**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	148	146	147	162	**151**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	200	188	198	200	200	**197**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-16 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	174	176	142	176	155	**165**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	147	150	143	143	149	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	202	159	200	201	201	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-17 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	170	166	174	158	**163**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	160	142	156	154	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	202	163	203	203	201	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79751

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-18 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	152	154	142	155	141	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	140	150	140	150	146	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	135	191	190	191	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2023-11-21

Mail To:
Robert Schumann
Weaver Consultants (seams)

, ,

e-mail:rschumann@wcgrp.com

Bill To:

Weaver Consultants (seams)
Project no. 0086-004-16-22

Dear Mr. Schumann,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway RDF East Phases 9C and 10B**
TRI Job Reference Number:	**79780**
Material(s) Tested:	(17) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,
sigfile
geolab

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-19 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	143	143	145	146	143	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	166	158	164	160	150	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	194	196	195	188	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-20 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	143	144	145	147	140	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	140	160	144	142	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	196	194	193	197	193	**195**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-21 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	166	138	140	139	162	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	155	144	141	135	**143**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	193	191	194	192	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-22 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	163	156	146	128	152	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	151	145	156	158	156	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	188	190	189	194	180	**188**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-23 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	170	155	148	171	171	**163**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	161	151	162	162	151	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	193	193	195	196	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-24 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	150	150	146	149	152	**149**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	123	125	132	142	**132**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	191	195	193	191	195	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-25 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	143	150	162	164	**156**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	150	155	150	135	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	191	193	194	192	194	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-26 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	162	140	144	156	137	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	143	150	159	155	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	194	194	191	193	196	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-27 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	154	139	148	138	147	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	133	159	159	160	156	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	193	193	191	192	191	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-28 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	134	137	138	137	153	**140**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	154	158	158	160	157	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	182	191	191	192	**189**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-29 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	164	151	153	169	152	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	142	147	156	137	152	**147**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	189	190	188	191	189	**189**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-30 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	147	176	161	164	156	**161**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	161	165	165	181	147	**164**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	194	204	197	194	200	**198**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-31 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	160	155	164	159	162	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	158	160	156	160	165	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	192	194	194	194	**193**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-32 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	141	159	150	142	140	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	167	156	155	165	164	**161**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	191	190	191	190	191	**191**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-33 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	162	150	149	153	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	148	167	150	158	166	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	199	199	200	199	199	**199**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-34 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	140	140	134	151	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	135	127	124	125	123	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	196	197	190	197	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79780

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-35 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	172	166	166	173	178	**171**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	137	174	167	148	149	**155**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	197	199	197	194	**196**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2023-11-21

Mail To:
Robert Schumann
Weaver Consultants (seams)

,,

Bill To:

Weaver Consultants (seams)
Project no. 0086-004-16-22

e-mail:
rschumann@wcgrp.com janderson@wcgrp.com

Dear Mr. Schumann,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway RDF East Phases 9C and 10B**
TRI Job Reference Number:	**79795**
Material(s) Tested:	(18) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,
sigfile
geolab

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-36 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	154	152	172	155	151	**157**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	130	135	139	133	133	**134**
Peel Incursion (%)	90	90	90	<5	90	
Peel Locus Of Failure Code	AD-BRK	AD-BRK	AD-BRK	SE	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	194	196	194	195	194	**195**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-37 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	157	147	151	145	148	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	145	151	145	141	**147**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	198	198	195	196	196	**197**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-38 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	146	150	149	148	148	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	175	165	169	165	155	**166**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	194	191	192	192	185	**191**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-39 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	144	141	143	147	143	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	132	135	133	135	133	**134**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	184	181	185	184	186	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-40 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	152	168	148	173	163	**161**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	146	147	150	146	151	**148**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	193	189	191	192	193	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-41 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	170	160	163	156	162	**162**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	147	141	142	150	145	**145**
Peel Incursion (%)	90	90	90	90	90	
Peel Locus Of Failure Code	AD-BRK	AD-BRK	AD-BRK	AD-BRK	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	193	195	195	197	**195**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-42 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	138	140	135	138	142	**139**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	144	139	145	149	145	**144**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	185	181	184	187	184	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-43 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	151	145	153	120	**144**
Peel Incursion (%)	<5	90	<5	20	90	
Peel Locus Of Failure Code	SE	AD-BRK	SE	AD-BRK	AD-BRK	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	145	133	154	158	139	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	180	178	180	182	182	**180**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-44 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	131	157	158	158	160	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	138	138	142	133	130	**136**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	185	183	184	186	**184**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-45 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	164	159	156	161	160	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	164	154	166	158	163	**161**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	197	201	196	200	198	**198**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-46 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	149	134	147	131	129	**138**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	119	151	156	147	157	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	193	192	194	192	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-47 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	152	131	150	159	157	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	159	143	137	136	148	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	190	190	191	193	191	**191**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-48 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	150	154	150	155	155	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	150	155	150	155	152	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	195	196	193	194	191	**194**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-49 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	151	144	153	163	150	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	131	130	134	136	145	**135**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	185	189	187	187	184	**186**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-50 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	137	143	140	145	143	**142**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	141	140	139	141	140	**140**
Peel Incursion (%)	80	80	80	<5	<5	
Peel Locus Of Failure Code	AD-BRK	AD-BRK	AD-BRK	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	185	178	184	183	182	**182**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-51 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	162	142	141	141	142	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	120	133	127	126	131	**127**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	191	193	192	191	191	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 60 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79795

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-52 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	160	172	174	177	177	**172**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	169	168	172	170	170	**170**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	196	203	197	206	198	**200**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-53 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	150	154	142	144	142	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	159	162	163	160	167	**162**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	192	192	192	190	193	**192**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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Date: 2023-11-22

Mail To:
Robert Schumann
Weaver Consultants (seams)

Bill To:

Weaver Consultants (seams)
Project no. 0086-004-16-22

, ,

e-mail:
rschumann@wcgrp.com janderson@wcgrp.com

Dear Mr. Schumann,

Thank you for consulting with TRI/Environmental, Inc. (TRI) for your geosynthetics testing needs. TRI is pleased to submit this final report for laboratory testing.

Project:	**Laraway RDF East Phases 9C and 10B**
TRI Job Reference Number:	**79807**
Material(s) Tested:	(8) Heat Fusion Weld Seam(s)
Test(s) Requested:	SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)

Codes:	
AD	Adhesion Failure (100% Peel)
BRK	Break in sheeting away from Seam edge.
SE	Break in sheeting at edge of seam.
AD-BRK	Break in sheeting after some adhesion failure - partial peel.
SIP	Separation in the plane of the sheet (leaving the bond intact).
FTB	Film tearing bond (all non "AD" failures).
NON-FTB	100% peel.

If you have any questions or require any additional information, please call us at 1-800-880-8378.
Sincerely,
sigfile
geolab

Geosynthetic Services Division
http://www.geosyntheticstestinc.com

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 80 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-36A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	155	137	141	139	157	**146**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	155	149	149	147	151	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	184	185	185	187	188	**186**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-36B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	159	154	160	162	113	**150**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	156	154	157	160	164	**158**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	181	188	192	191	188	**188**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 80 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-41A1 | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	143	169	168	146	141	**153**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	158	161	159	163	158	**160**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	198	199	199	200	197	**199**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-41B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	165	166	163	165	173	**166**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	161	165	163	154	173	**163**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	200	199	201	194	200	**199**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 80 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79807

	TEST REPLICATE NUMBER					
PARAMETER.	1	2	3	4	5	MEAN
Sample ID: DS-43A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	173	173	178	184	178	**177**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	169	170	169	176	177	**172**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	184	188	191	187	187	**187**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-43B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	175	161	168	161	170	**167**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	165	168	162	156	160	**162**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	183	197	191	193	190	**191**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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DESTRUCTIVE SEAM QUALITY ASSURANCE TEST RESULTS
TRI Client: Weaver Consultants (seams)
Project: Laraway RDF East Phases 9C and 10B

Material: 80 mil. HDPE
SAME DAY Peel and Shear (ASTM D 6392/GRI GM19/D 4437/NSF 54/882 mod.)
TRI Log#: 79807

	TEST REPLICATE NUMBER					
PARAMETER	1	2	3	4	5	MEAN
Sample ID: DS-50A | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	153	157	153	142	155	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	152	148	151	153	154	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	196	186	197	199	200	**196**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	
Sample ID: DS-50B | Weld: Heat Fusion						
Side: A						**Peel A**
Peel Strength (ppi)	144	147	143	147	143	**145**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Side: B						**Peel B**
Peel Strength (ppi)	156	148	156	150	149	**152**
Peel Incursion (%)	<5	<5	<5	<5	<5	
Peel Locus Of Failure Code	SE	SE	SE	SE	SE	
Peel NSF Failure Code	FTB	FTB	FTB	FTB	FTB	
Shear						**Shear**
Shear Strength (ppi)	189	190	187	182	186	**187**
Shear Elongation @ Break (%)	>50	>50	>50	>50	>50	

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APPENDIX H

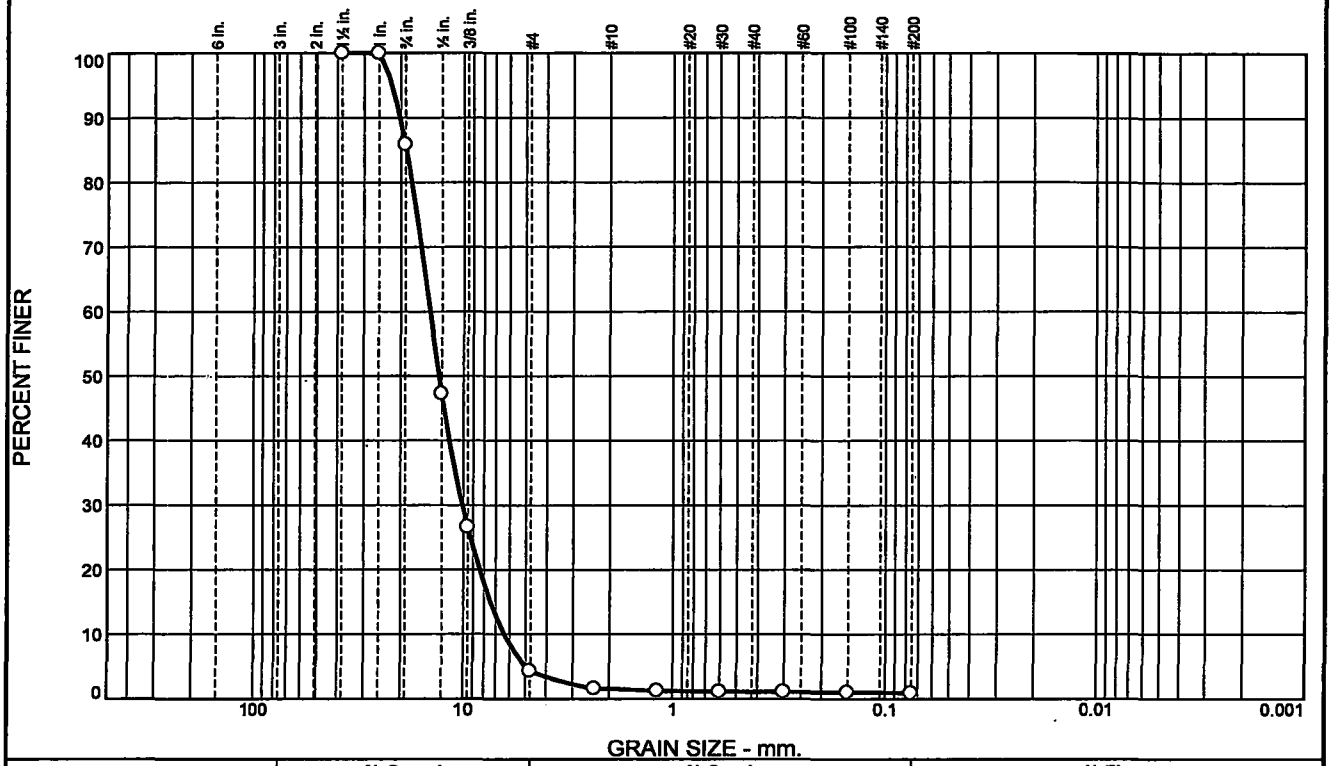
DRAINAGE LAYER LABORATORY TESTING RESULTS

APPENDIX H.1 – Preconstruction – Grain Size Analysis Results
APPENDIX H.2 – Preconstruction – Hydraulic Conductivity Results
APPENDIX H.3 – Construction – Grain Size Analysis Results
APPENDIX H.4 – Construction – Hydraulic Conductivity Results

APPENDIX H.1

Preconstruction – Grain Size Analysis Results

Particle Size Distribution Report ASTM C 117 & ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	14.1	81.6	2.7	0.5	0.2	0.9	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	85.9		
1/2"	47.3		
3/8"	26.6		
#4	4.3		
#8	1.6		
#16	1.3		
#30	1.1		
#50	1.1		
#100	1.0		
#200	0.9		

* (no specification provided)

Soil Description

Poorly Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 20.1937 D_{85}= 18.8426 D_{60}= 14.4855
D_{50}= 13.0815 D_{30}= 10.0898 D_{15}= 7.4306
D_{10}= 6.3555 C_u= 2.28 C_c= 1.11

Classification

USCS= GP AASHTO=

Remarks

Source of Sample: Pre-Construction
Sample Number: PC-DL-1

Date: 2-15-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C and 10B

Project No: 0086-004-10-66 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

2/15/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C and 10B
Project Number: 0086-004-10-66
Location: Pre-Construction
Sample Number: PC-DL-1
Material Description:
Poorly Graded LIMESTONE AGGREGATE
Date: 2-15-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare = 5312.50**
Tare Wt. = 1200.10
Minus #200 from wash = 0.9%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
5349.30	1200.10	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	586.90	0.00	85.9
		1/2"	1600.40	0.00	47.3
		3/8"	859.10	0.00	26.6
		#4	922.40	0.00	4.3
		#8	114.20	0.00	1.6
		#16	14.30	0.00	1.3
		#30	5.10	0.00	1.1
		#50	2.80	0.00	1.1
		#100	2.20	0.00	1.0
		#200	3.40	0.00	0.9

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	14.1	81.6	95.7	2.7	0.5	0.2	3.4			0.9

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
4.9817	6.3555	7.4306	8.3799	10.0898	11.6434	13.0815	14.4855	17.7599	18.8426	20.1937	22.0564

Fineness Modulus	C_u	C_c
6.77	2.28	1.11

APPENDIX H.2

Preconstruction – Hydraulic Conductivity Results

Weaver Consultants Group
7121 Grape Road, Granger, IN 46530 (574) 271-3447 phone
35 E. Wacker Drive, Suite 1250, Chicago, IL 60601 (312) 922-1030 phone

PERMEABILITY TEST
CONSTANT HEAD METHOD
Data Sheet - Gravel
ASTM D 2434 / AASHTO T 215

Project Name: Laraway RDF Landfill - Phases 9C and 10B
Project No: 0086-004-10-66
Job Location:
Date Received: 2/14/2023
Client Information: Waste Managemenet
Report Date: 2/15/2023

Sample I.D.
Soil Description Poorly Graded LIMESTONE AGGREGATE
Sample No. PC-DL-1
USCS Classification GP
AASHTO Classification
Sample Depth
Remarks
Pan No.

Mold Parameters Gravel L, cm = 22.86 Area, cm^2 = 410.43 itial Height from top of mold (H), cm = 33.8

Sample Parameters: Loose; % Moistur 0.10
Wt. Sample + Pan Start, g 26900.0
Wt. Sample + Pan Finish, g 7910.6
Sample Dry Density, pcf 86.7
Initial Height (H_1), cm = 33.8
Final Height (H_2), cm = 0.50

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
1-A	17.4	17.3	0.1	1747	60	18.0	1.0513	0.00	5.13E+01
1-B	17.3	17.2	0.1	1735	60	18.0	1.0513	0.00	5.10E+01
1-C	17.3	17.2	0.1	1721	60	18.0	1.0513	0.00	5.06E+01
1-D	15.5	15.4	0.1	1714	60	18.0	1.0513	0.00	5.04E+01
1-E	15.4	15.3	0.1	1711	60	18.0	1.0513	0.00	5.03E+01
1-F	15.4	15.3	0.1	1706	60	18.0	1.0513	0.00	5.01E+01
							Average Values:	**0.00**	**5.06E+01**
							Average k, ft/day:		**143457.85**

Sample Parameters: Densified; % Moisture
Wt. Sample + Pan Start, g
Wt. Sample + Pan Finish, g
Sample Dry Density, pcf #DIV/0!
Initial Height (H_1), cm =
Final Height (H_2), cm =

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
2-A			0.0				#DIV/0!	0.00	#DIV/0!
2-B			0.0				#DIV/0!	0.00	#DIV/0!
2-C			0.0				#DIV/0!	0.00	#DIV/0!
2-D			0.0				#DIV/0!	0.00	#DIV/0!
2-E			0.0				#DIV/0!	0.00	#DIV/0!
2-F			0.0				#DIV/0!	0.00	#DIV/0!
							Average Values:	**0.00**	**#DIV/0!**
							Average k, ft/day:		**#DIV/0!**

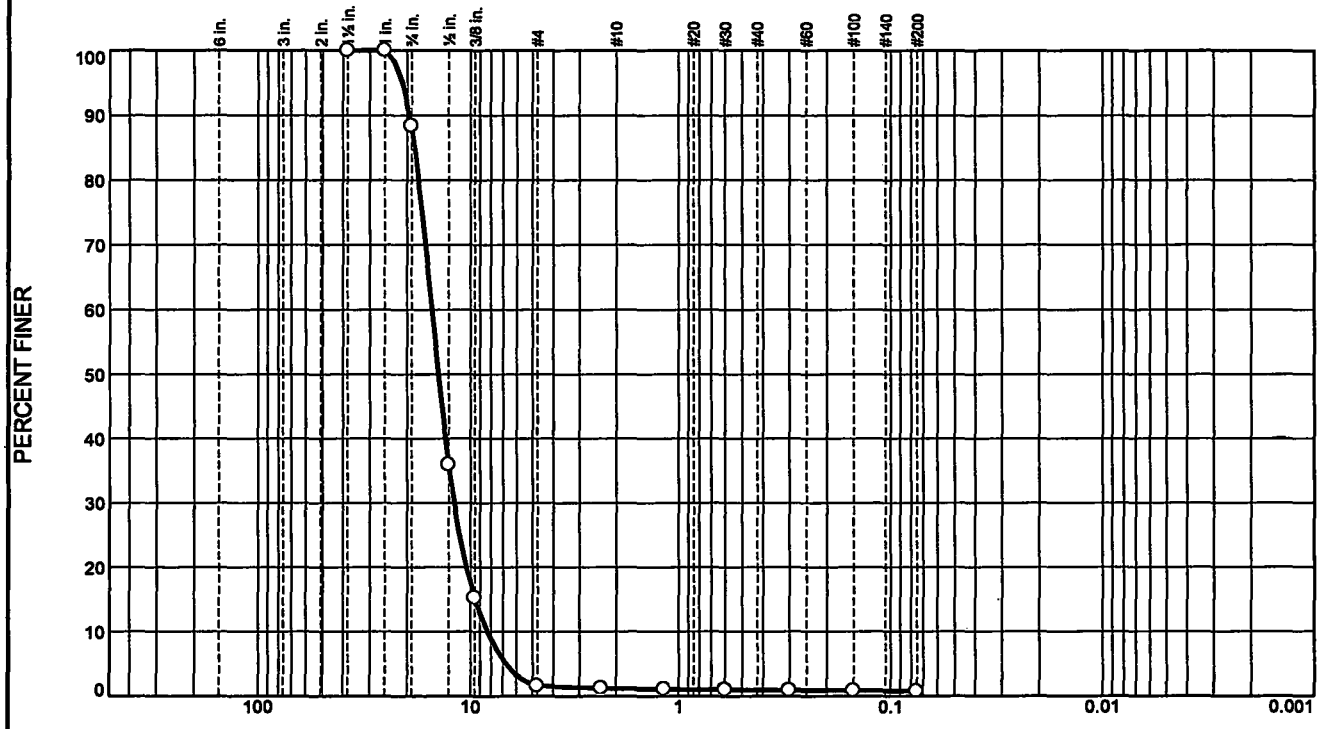
Water Type Used: Tap Water, screened reservoir
Apply vacuum - 50 cm Hg for 15 minutes prior to sample saturation, discontinue when cell filling is complete.
**Distance between h_1 and h_2 in cm.

Date Tested: 2/14/2023
Tested by: J. Bauters
Results Reviewed by: John Warner

APPENDIX H.3

Construction – Grain Size Analysis Results

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	11.6	86.8	0.4	0.3	0.1	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	88.4		
1/2"	36.0		
3/8"	15.3		
#4	1.6		
#8	1.2		
#16	1.1		
#30	1.0		
#50	0.9		
#100	0.8		
#200	0.8		

* (no specification provided)

Soil Description

Poorly Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 19.4145 D_{85}= 18.4007 D_{60}= 15.2028
D_{50}= 14.1748 D_{30}= 11.9779 D_{15}= 9.4673
D_{10}= 8.2991 C_u= 1.83 C_c= 1.14

Classification

USCS= GP AASHTO=

Remarks

Sample Number: DL-1

Date: 12-4-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/4/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: DL-1
Material Description:
Poorly Graded LIMESTONE AGGREGATE
Date: 12-4-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Post #200 Wash Test Weights (grams): **Dry Sample and Tare =** 6598.50
Tare Wt. = 1172.70
Minus #200 from wash = 0.6%

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
6633.10	1172.70	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	634.30	0.00	88.4
		1/2"	2863.00	0.00	36.0
		3/8"	1129.30	0.00	15.3
		#4	746.30	0.00	1.6
		#8	20.50	0.00	1.2
		#16	8.30	0.00	1.1
		#30	5.20	0.00	1.0
		#50	4.00	0.00	0.9
		#100	3.30	0.00	0.8
		#200	5.00	0.00	0.8

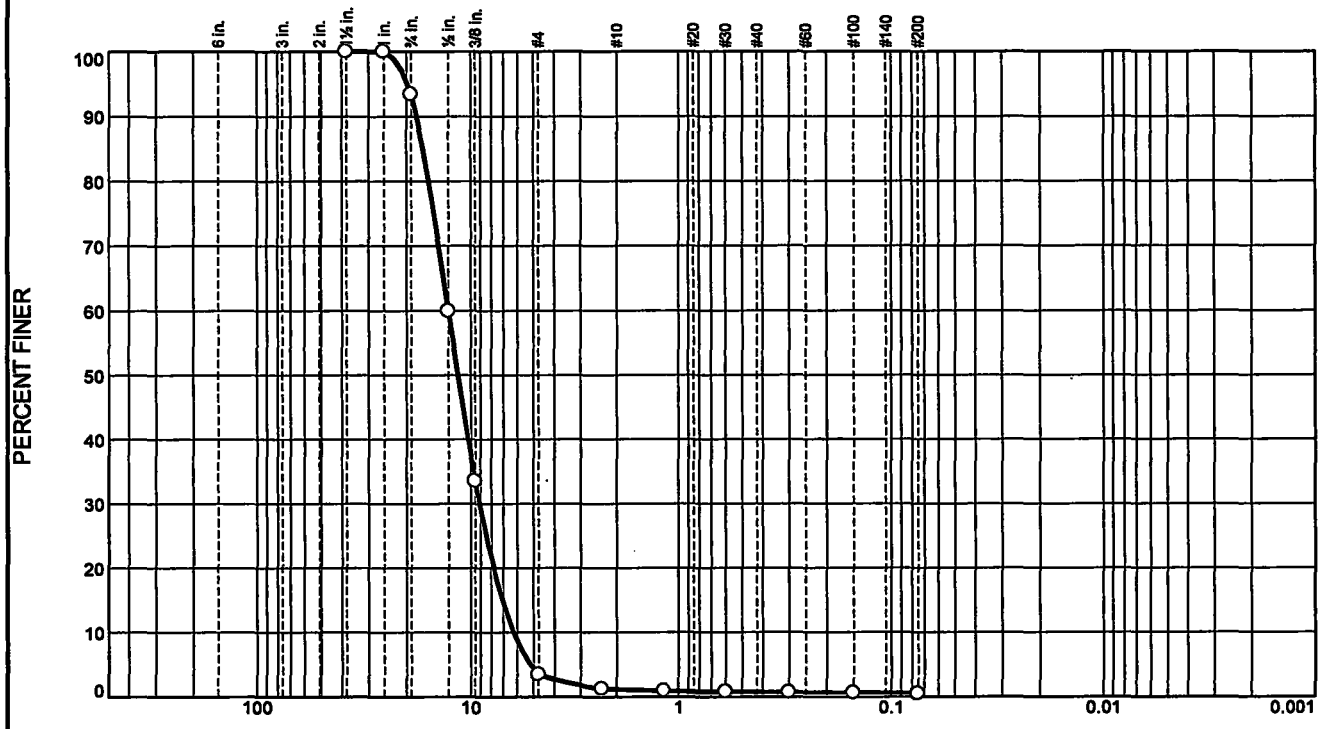
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	11.6	86.8	98.4	0.4	0.3	0.1	0.8			0.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
6.7643	8.2991	9.4673	10.4559	11.9779	13.1441	14.1748	15.2028	17.6059	18.4007	19.4145	20.9670

Fineness Modulus	C_u	C_c
6.90	1.83	1.14

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	6.6	89.9	2.3	0.5	0.2	0.5	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	93.4		
1/2"	60.0		
3/8"	33.5		
#4	3.5		
#8	1.3		
#16	0.9		
#30	0.8		
#50	0.7		
#100	0.6		
#200	0.5		

* (no specification provided)

Soil Description

Poorly Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 17.9309 D_{85}= 16.6965 D_{60}= 12.7052
D_{50}= 11.4678 D_{30}= 9.0978 D_{15}= 7.0589
D_{10}= 6.2270 C_u= 2.04 C_c= 1.05

Classification

USCS= GP AASHTO=

Remarks

Sample Number: DL-2

Date: 12-11-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/11/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: DL-2
Material Description:
Poorly Graded LIMESTONE AGGREGATE
Date: 12-11-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
3648.20	1226.90	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	159.60	0.00	93.4
		1/2"	809.90	0.00	60.0
		3/8"	640.40	0.00	33.5
		#4	727.70	0.00	3.5
		#8	53.40	0.00	1.3
		#16	7.30	0.00	0.9
		#30	4.20	0.00	0.8
		#50	2.40	0.00	0.7
		#100	1.90	0.00	0.6
		#200	2.50	0.00	0.5

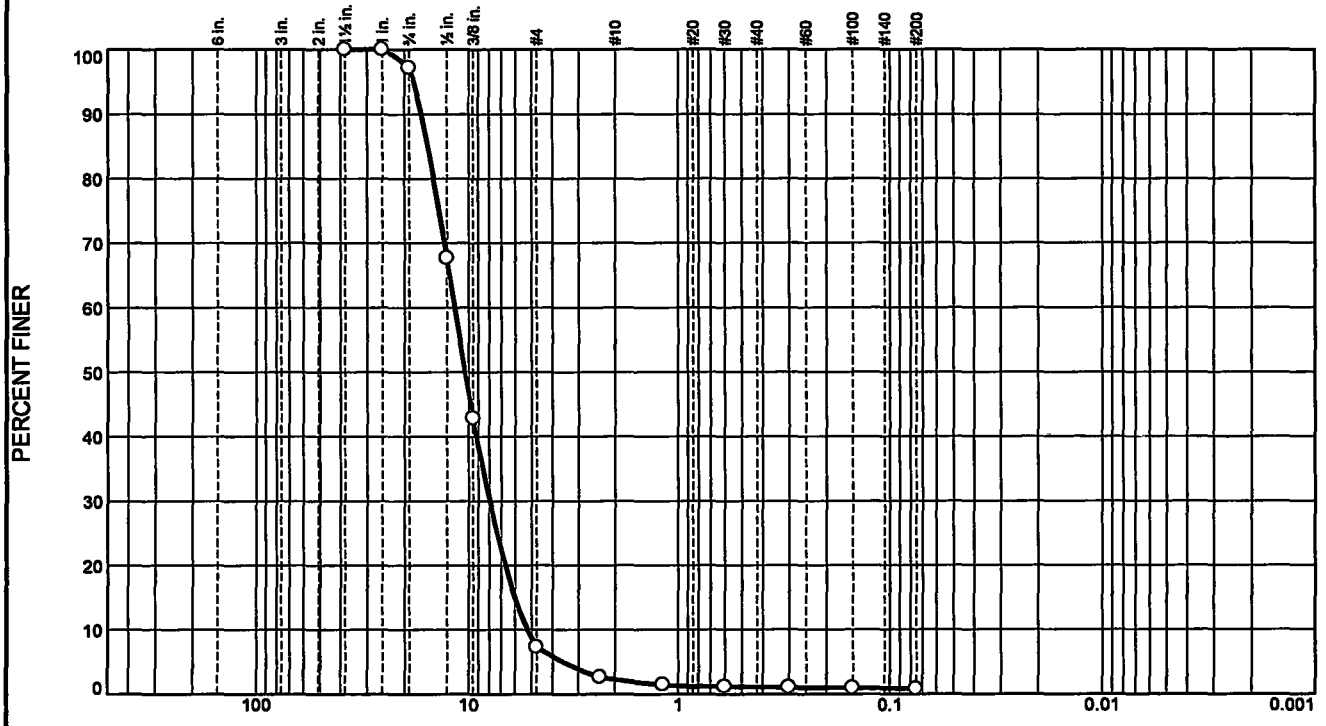
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	6.6	89.9	96.5	2.3	0.5	0.2	3.0			0.5

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
5.1792	6.2270	7.0589	7.7913	9.0978	10.2907	11.4678	12.7052	15.7007	16.6965	17.9309	19.7382

Fineness Modulus	C_u	C_c
6.65	2.04	1.05

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	2.8	89.9	5.0	1.2	0.3	0.8	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	97.2		
1/2"	67.7		
3/8"	42.9		
#4	7.3		
#8	2.6		
#16	1.5		
#30	1.2		
#50	1.0		
#100	0.9		
#200	0.8		

* (no specification provided)

Soil Description

Poolry Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 16.6139 D_{85}= 15.5115 D_{60}= 11.6631
D_{50}= 10.3969 D_{30}= 7.9530 D_{15}= 5.9970
D_{10}= 5.2336 C_u= 2.23 C_c= 1.04

Classification

USCS= GP AASHTO=

Remarks

Sample Number: DL-3

Date: 12-11-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/11/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: DL-3
Material Description:
Poolry Graded LIMESTONE AGGREGATE
Date: 12-11-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
4029.80	1173.80	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	80.40	0.00	97.2
		1/2"	842.90	0.00	67.7
		3/8"	708.60	0.00	42.9
		#4	1014.90	0.00	7.3
		#8	134.10	0.00	2.6
		#16	33.30	0.00	1.5
		#30	8.90	0.00	1.2
		#50	3.80	0.00	1.0
		#100	2.30	0.00	0.9
		#200	4.30	0.00	0.8

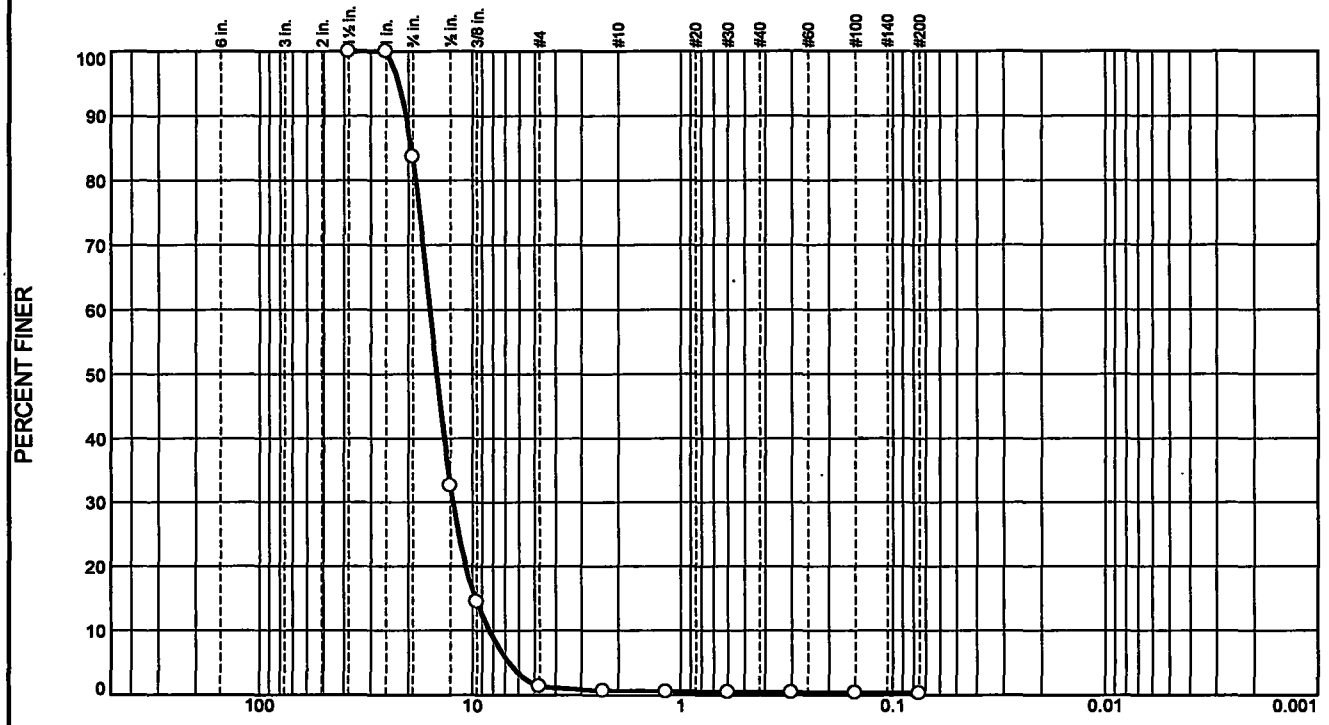
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	2.8	89.9	92.7	5.0	1.2	0.3	6.5			0.8

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
3.5795	5.2336	5.9970	6.6809	7.9530	9.1773	10.3969	11.6631	14.5898	15.5115	16.6139	18.0959

Fineness Modulus	C_u	C_c
6.45	2.23	1.04

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	16.4	82.3	0.7	0.2	0.1	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	83.6		
1/2"	32.6		
3/8"	14.5		
#4	1.3		
#8	0.7		
#16	0.5		
#30	0.4		
#50	0.4		
#100	0.3		
#200	0.3		

* (no specification provided)

Soil Description

Poorly Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 20.4801 D_{85}= 19.3145 D_{60}= 15.7640
D_{50}= 14.6595 D_{30}= 12.3688 D_{15}= 9.6477
D_{10}= 8.3288 C_u= 1.89 C_c= 1.17

Classification

USCS= GP AASHTO=

Remarks

Sample Number: DL-4

Date: 12-11-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/11/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: DL-4
Material Description:
Poorly Graded LIMESTONE AGGREGATE
Date: 12-11-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
4197.20	1225.10	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	486.00	0.00	83.6
		1/2"	1518.50	0.00	32.6
		3/8"	536.50	0.00	14.5
		#4	391.60	0.00	1.3
		#8	20.10	0.00	0.7
		#16	3.70	0.00	0.5
		#30	2.40	0.00	0.4
		#50	1.60	0.00	0.4
		#100	1.40	0.00	0.3
		#200	1.90	0.00	0.3

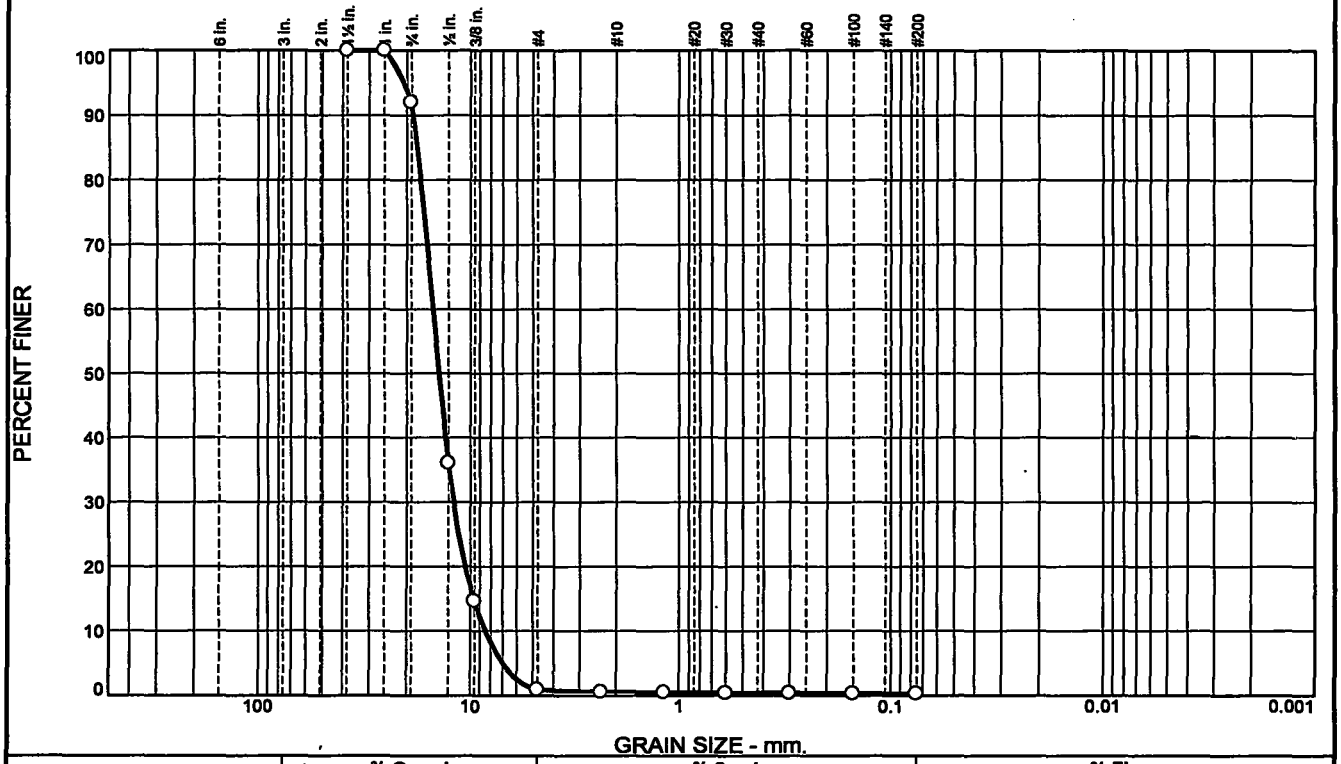
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	16.4	82.3	98.7	0.7	0.2	0.1	1.0			0.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
6.6967	8.3288	9.6477	10.7583	12.3688	13.5703	14.6595	15.7640	18.4091	19.3145	20.4801	22.1537

Fineness Modulus	C_u	C_c
6.98	1.89	1.17

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	8.0	91.1	0.4	0.1	0.1	0.3	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
1-1/2"	100.0		
1"	100.0		
3/4"	92.0		
1/2"	36.1		
3/8"	14.6		
#4	0.9		
#8	0.6		
#16	0.5		
#30	0.4		
#50	0.4		
#100	0.3		
#200	0.3		

* (no specification provided)

Soil Description

Poorly Graded GRAVEL

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 18.6407 D_{85}= 17.8095 D_{60}= 14.9878
D_{50}= 14.0504 D_{30}= 12.0143 D_{15}= 9.6074
D_{10}= 8.4632 C_u= 1.77 C_c= 1.14

Classification

USCS= GP AASHTO=

Remarks

Sample Number: DL-5

Date: 12-12-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/12/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: DL-5
Material Description:
Poorly Graded GRAVEL
Date: 12-12-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
4659.70	1227.10	1-1/2"	0.00	0.00	100.0
		1"	0.00	0.00	100.0
		3/4"	274.80	0.00	92.0
		1/2"	1920.00	0.00	36.1
		3/8"	736.20	0.00	14.6
		#4	472.00	0.00	0.9
		#8	10.50	0.00	0.6
		#16	3.10	0.00	0.5
		#30	2.00	0.00	0.4
		#50	1.40	0.00	0.4
		#100	1.20	0.00	0.3
		#200	2.50	0.00	0.3

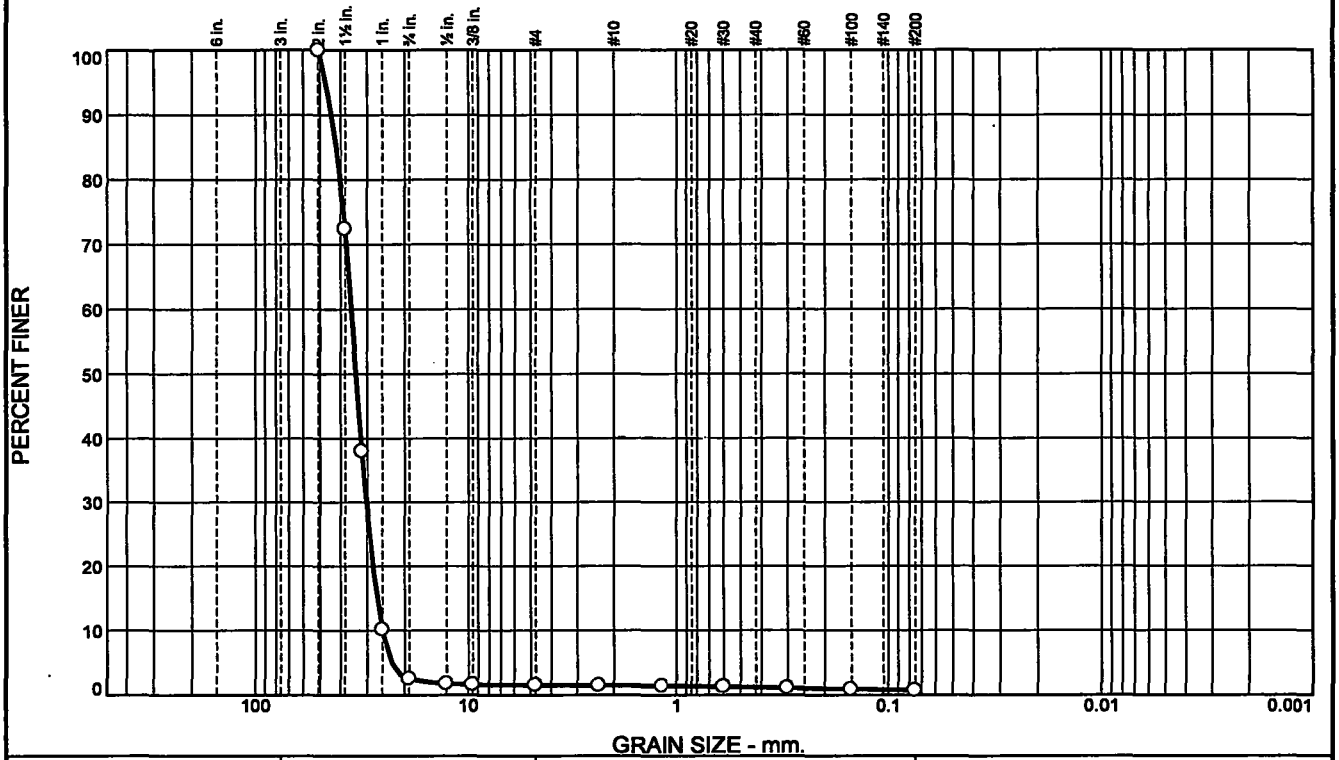
Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	8.0	91.1	99.1	0.4	0.1	0.1	0.6			0.3

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
7.0095	8.4632	9.6074	10.5707	12.0143	13.1008	14.0504	14.9878	17.1278	17.8095	18.6407	20.7074

Fineness Modulus	C_u	C_c
6.90	1.77	1.14

Particle Size Distribution Report ASTM C 136



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	97.5	1.0	0.0	0.3	0.5	0.7	

SIEVE SIZE	PERCENT FINER	SPEC.* PERCENT	PASS? (X=NO)
2"	100.0		
1-1/2"	72.4		
1-1/4"	38.0		
1"	10.2		
3/4"	2.5		
1/2"	1.8		
3/8"	1.6		
#4	1.5		
#8	1.5		
#16	1.4		
#30	1.3		
#50	1.1		
#100	0.9		
#200	0.7		

* (no specification provided)

Soil Description

Poorly Graded LIMESTONE AGGREGATE

Atterberg Limits

PL= LL= PI=

Coefficients

D_{90}= 44.1258 D_{85}= 41.8983 D_{60}= 35.5705
D_{50}= 33.8094 D_{30}= 30.2616 D_{15}= 26.8863
D_{10}= 25.3420 C_u= 1.40 C_c= 1.02

Classification

USCS= GP AASHTO=

Remarks

Sample Number: AG-1

Date: 12-11-2023

Weaver Consultants Group

Granger, Indiana

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B

Project No: 0086-004-16-22-04 **Figure**

Tested By: JB **Checked By:** JJW

GRAIN SIZE DISTRIBUTION TEST DATA

12/11/2023

Client: Waste Management
Project: Laraway RDF - Phases 9C & 10 B
Project Number: 0086-004-16-22-04
Sample Number: AG-1
Material Description:
Poorly Graded LIMESTONE AGGREGATE
Date: 12-11-2023
USCS Classification: GP
Tested by: JB **Checked by:** JJW

Sieve Test Data

Dry Sample and Tare (grams)	Tare (grams)	Sieve Opening Size	Weight Retained (grams)	Sieve Weight (grams)	Percent Finer
11518.70	1620.70	2"	0.00	0.00	100.0
		1-1/2"	2733.60	0.00	72.4
		1-1/4"	3400.00	0.00	38.0
		1"	2758.50	0.00	10.2
		3/4"	754.30	0.00	2.5
		1/2"	75.80	0.00	1.8
		3/8"	14.00	0.00	1.6
		#4	10.50	0.00	1.5
		#8	5.00	0.00	1.5
		#16	7.80	0.00	1.4
		#30	13.50	0.00	1.3
		#50	18.90	0.00	1.1
		#100	18.60	0.00	0.9
		#200	16.60	0.00	0.7

Fractional Components

Cobbles	Gravel			Sand				Fines		
	Coarse	Fine	Total	Coarse	Medium	Fine	Total	Silt	Clay	Total
0.0	97.5	1.0	98.5	0.0	0.3	0.5	0.8			0.7

D_5	D_{10}	D_{15}	D_{20}	D_{30}	D_{40}	D_{50}	D_{60}	D_{80}	D_{85}	D_{90}	D_{95}
22.9389	25.3420	26.8863	28.1439	30.2616	32.0958	33.8094	35.5705	40.1575	41.8983	44.1258	47.0628

Fineness Modulus	C_u	C_c
8.16	1.40	1.02

APPENDIX H.4

Construction – Hydraulic Conductivity Results

Weaver Consultants Group
7121 Grape Road, Granger, IN 46530 (574) 271-3447 phone
35 E. Wacker Drive, Suite 1250, Chicago, IL 60601 (312) 922-1030 phone

PERMEABILITY TEST
CONSTANT HEAD METHOD
Data Sheet - Gravel
ASTM D 2434 / AASHTO T 215

Project Name: Laraway RDF Landfill - Phases 9C and 10B — Project No: 0086-004-16-22-04
Job Location: — Date Received: 11/29/2023
Client Information: Waste Managemenet — Report Date: 12/4/2023

Sample I.D. — Soil Description Poorly Graded LIMESTONE AGGREGATE
Sample No. DL-1 — USCS Classification GP — AASHTO Classification
Sample Depth — Remarks — Pan No.

Mold Parameters Gravel — L, cm = 22.86 — Area, cm^2 = 410.43 — itial Height from top of mold (H), cm = 33.8

Sample Parameters: Loose — % Moistur 2.50
Wt. Sample + Pan Start, g 19370.0
Wt. Sample + Pan Finish, g 707.8
Sample Dry Density, pcf 83.7
Initial Height (H_1), cm = 33.8
Final Height (H_2), cm = 0.70

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
1-A	76.9	76.8	0.1	1050	60	22.0	0.9533	0.00	2.80E+01
1-B	77.0	76.9	0.1	1039	60	22.0	0.9533	0.00	2.77E+01
1-C	77.1	77.0	0.1	1030	60	22.0	0.9533	0.00	2.74E+01
1-D	82.2	82.1	0.1	70	60	22.0	0.9533	0.00	1.87E+00
1-E	82.3	82.2	0.1	735	60	22.0	0.9533	0.00	1.96E+01
1-F	82.3	82.2	0.1	730	60	22.0	0.9533	0.00	1.95E+01
							Average Values:	0.00	2.07E+01
							Average k, ft/day:		58584.50

Sample Parameters: Densified — % Moisture
Wt. Sample + Pan Start, g
Wt. Sample + Pan Finish, g
Sample Dry Density, pcf #DIV/0!
Initial Height (H_1), cm =
Final Height (H_2), cm =

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
2-A			0.0				#DIV/0!	0.00	#DIV/0!
2-B			0.0				#DIV/0!	0.00	#DIV/0!
2-C			0.0				#DIV/0!	0.00	#DIV/0!
2-D			0.0				#DIV/0!	0.00	#DIV/0!
2-E			0.0				#DIV/0!	0.00	#DIV/0!
2-F			0.0				#DIV/0!	0.00	#DIV/0!
							Average Values:	0.00	#DIV/0!
							Average k, ft/day:		#DIV/0!

Water Type Used: Tap Water, screened reservoir
Apply vacuum - 50 cm Hg for 15 minutes prior to sample saturation, discontinue when cell filling is complete.
**Distance between h_1 and h_2 in cm.

Date Tested: 12/4/2023
Tested by: S. Ladyga
Results Reviewed by: John Warner

Weaver Consultants Group
7121 Grape Road, Granger, IN 46530 (574) 271-3447 phone
35 E. Wacker Drive, Suite 1250, Chicago, IL 60601 (312) 922-1030 phone

PERMEABILITY TEST
CONSTANT HEAD METHOD
Data Sheet - Gravel
ASTM D 2434 / AASHTO T 215

Project Name: Laraway RDF Landfill - Phases 9C and 10B
Project No: 0086-004-16-22-04
Job Location:
Date Received: 12/5/2023
Client Information: Waste Managemenet
Report Date: 12/11/2023

Sample I.D.
Soil Description Poorly Graded LIMESTONE AGGREGATE
Sample No. DL-3
USCS Classification GP
AASHTO Classification
Sample Depth
Remarks
Pan No.

Mold Parameters Gravel L, cm = 22.86 Area, cm^2 = 410.43 itial Height from top of mold (H), cm = 33.8

Sample Parameters **Loose** % Moistur 1.80
Wt. Sample + Pan Start, g 20410.0
Wt. Sample + Pan Finish, g 1143.1
Sample Dry Density, pcf **87.0**
Initial Height (H_1), cm = 33.8
Final Height (H_2), cm = 0.70

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
1-A	72.3	72.2	0.1	1259	60	22.0	0.9533	0.00	3.35E+01
1-B	72.4	72.3	0.1	1251	60	22.0	0.9533	0.00	3.33E+01
1-C	72.3	72.2	0.1	1246	60	22.0	0.9533	0.00	3.32E+01
1-D	82.0	81.9	0.1	727	60	22.0	0.9533	0.00	1.94E+01
1-E	81.9	81.8	0.1	715	60	22.0	0.9533	0.00	1.91E+01
1-F	81.8	81.7	0.1	709	60	22.0	0.9533	0.00	1.89E+01
							Average Values:	**0.00**	**2.62E+01**
							Average k, ft/day:		**74371.10**

Sample Parameters **Densified** % Moisture
Wt. Sample + Pan Start, g
Wt. Sample + Pan Finish, g
Sample Dry Density, pcf **#DIV/0!**
Initial Height (H_1), cm =
Final Height (H_2), cm =

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
2-A			0.0				#DIV/0!	0.00	#DIV/0!
2-B			0.0				#DIV/0!	0.00	#DIV/0!
2-C			0.0				#DIV/0!	0.00	#DIV/0!
2-D			0.0				#DIV/0!	0.00	#DIV/0!
2-E			0.0				#DIV/0!	0.00	#DIV/0!
2-F			0.0				#DIV/0!	0.00	#DIV/0!
							Average Values:	**0.00**	**#DIV/0!**
							Average k, ft/day:		**#DIV/0!**

Water Type Used: Tap Water, screened reservoir
Apply vacuum - 50 cm Hg for 15 minutes prior to sample saturation, discontinue when cell filling is complete.
**Distance between h_1 and h_2 in cm.

Date Tested: 12/11/2023
Tested by: S. Ladyga
Results Reviewed by: John Warner

Weaver Consultants Group
7121 Grape Road, Granger, IN 46530 (574) 271-3447 phone
35 E. Wacker Drive, Suite 1250, Chicago, IL 60601 (312) 922-1030 phone

PERMEABILITY TEST
CONSTANT HEAD METHOD
Data Sheet
ASTM D 2434 / AASHTO T 215

Project Name: Laraway RDF Landfill - Phases 9C and 10B
Project No: 0086-004-16-22-04
Job Location:
Date Received: 12/5/2023
Client Information: Waste Managemenet
Report Date: 12/11/2023

Sample I.D.
Soil Description Poorly Graded LIMESTONE AGGREGATE
Sample No. AG-1
USCS Classification GP
AASHTO Classification
Sample Depth
Remarks
Pan No.

Mold Parameters Gravel L, cm = 22.86 Area, cm^2 = 410.43 itial Height from top of mold (H), cm = 33.8

Sample Parameters: Loose; % Moistur 1.30
Wt. Sample + Pan Start, g 23770.0
Wt. Sample + Pan Finish, g 6326.2
Sample Dry Density, pcf 78.4
Initial Height (H_1), cm = 33.8
Final Height (H_2), cm = 0.40

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
1-A	76.6	76.5	0.1	1041	60	22.0	0.9533	0.00	2.77E+01
1-B	76.6	76.5	0.1	1030	60	22.0	0.9533	0.00	2.74E+01
1-C	76.5	76.4	0.1	1021	60	22.0	0.9533	0.00	2.72E+01
1-D	81.9	81.8	0.1	689	60	22.0	0.9533	0.00	1.84E+01
1-E	81.9	81.8	0.1	676	60	22.0	0.9533	0.00	1.80E+01
1-F	81.8	81.7	0.1	674	60	22.0	0.9533	0.00	1.80E+01
							Average Values:	**0.00**	**2.28E+01**
							Average k, ft/day:		**64588.97**

Sample Parameters: Densified; % Moisture
Wt. Sample + Pan Start, g
Wt. Sample + Pan Finish, g
Sample Dry Density, pcf #DIV/0!
Initial Height (H_1), cm =
Final Height (H_2), cm =

Run No.	h_1	h_2	Head h, cm**	Q, cm^3	t, sec	Temp, °C	Visc. Corr. Factor	h/L	k, cm/sec
2-A			0.0				#DIV/0!	0.00	#DIV/0!
2-B			0.0				#DIV/0!	0.00	#DIV/0!
2-C			0.0				#DIV/0!	0.00	#DIV/0!
2-D			0.0				#DIV/0!	0.00	#DIV/0!
2-E			0.0				#DIV/0!	0.00	#DIV/0!
2-F			0.0				#DIV/0!	0.00	#DIV/0!
							Average Values:	**0.00**	**#DIV/0!**
							Average k, ft/day:		**#DIV/0!**

Water Type Used: Tap Water, screened reservoir
Apply vacuum - 50 cm Hg for 15 minutes prior to sample saturation, discontinue when cell filling is complete.
**Distance between h_1 and h_2 in cm.

Date Tested: 12/11/2023
Tested by: S. Ladyga
Results Reviewed by: John Warner

APPENDIX I

Construction Photographs

By: Various Subject: 2023 Cell Construction Sheet No: 1 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #1

Taking standard count.

Date: 10/17/2023

07:36 am

Photograph by:

Robert Schumann



Photograph #2

Compacting structural fill.

Date: 10/17/2023

08:59 am

Photograph by:

Robert Schumann

By:	Various	Subject:	2023 Cell Construction	Sheet No:	2 of 17
Date:	October - December 2023		Laraway RDF	Job No:	0086-004-16-22



Photograph #3

Hauling, spreading, and compacting clay liner.

Date: 10/18/2023

11:13 am

Photograph by:

Dan Davis



Photograph #4

Loading haul trucks with clay liner using an excavator.

Date: 10/23/2023

11:49 am

Photograph by:

Dan Davis

By: **Various** Subject: **2023 Cell Construction** Sheet No: **3 of 17**

Date: **October - December 2023** **Laraway RDF** Job No: **0086-004-16-22**



Photograph #5

Placing and compacting clay liner.

Date: 10/24/2023

09:21 am

Photograph by:

Dan Davis



Photograph #6

Testing soil liner density and moisture content using nuclear gauge.

Date: 10/24/2023

02:24 pm

Photograph by:

Dan Davis

By:	Various	Subject:	2023 Cell Construction	Sheet No:	4 of 17
Date:	October - December 2023		Laraway RDF	Job No:	0086-004-16-22



Photograph #7

Collecting a bucket sample of soil liner for testing.

Date: 11/01/2023

01:40 pm

Photograph by:

Griffin Clake



Photograph #8

Collecting shelby tube samples of soil liner.

Date: 11/01/2023

02:42 pm

Photograph by:

Dan Davis

By: Various Subject: 2023 Cell Construction Sheet No: 5 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #9

Grading the slope of Phase 9C.

Date: 11/10/2023

10:08 am

Photograph by:

Dan Davis



Photograph #10

Exposing the existing rain flap in Phase 10B.

Date: 11/10/2023

10:08 am

Photograph by:

Dan Davis

By: **Various** Subject: **2023 Cell Construction** Sheet No: **6 of 17**

Date: **October - December 2023** **Laraway RDF** Job No: **0086-004-16-22**



Photograph #11

Smooth drum rolling clay liner surface for geomembrane deployment.

Date: 11/13/2023

07:42 am

Photograph by:

Andrew Montavon



Photograph #12

Excavating the anchor trench for Phase 9C.

Date: 11/14/2023

06:38 am

Photograph by:

Andrew Montavon

By: **Various** Subject: **2023 Cell Construction** Sheet No: **7 of 17**

Date: **October - December 2023** **Laraway RDF** Job No: **0086-004-16-22**



Photograph #13

Deploying geomembrane panels.

Date: 11/14/2023

10:09 am

Photograph by:

Griffin Clarke



Photograph #14

Fusion welding geomembrane panels.

Date: 11/15/2023

08:41 am

Photograph by:

Griffin Clarke

By: **Various** Subject: **2023 Cell Construction** Sheet No: **8 of 17**

Date: **October - December 2023** **Laraway RDF** Job No: **0086-004-16-22**



Photograph #15

Performing non-destructive testing on fusion welded seam.

Date: 11/15/2023

09:10 am

Photograph by:

Sean Butler



Photograph #16

Placing GCL panels.

Date: 11/15/2023

11:40 am

Photograph by:

Griffin Clarke

By: Various Subject: 2023 Cell Construction Sheet No: 9 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #17

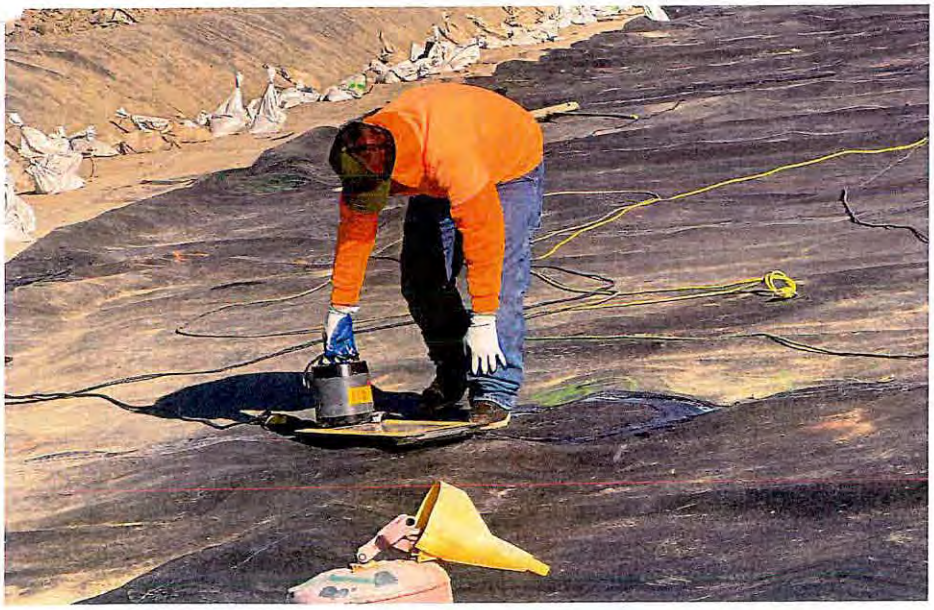
Fusion welding the tie in of phase 9C.

Date: 11/15/2023

04:20 pm

Photograph by:

Griffin Clarke



Photograph #18

Vacuum box testing extrusion weld on repair.

Date: 11/17/2023

07:47 am

Photograph by:

Griffin Clarke

By: Various | Subject: 2023 Cell Construction | Sheet No: 10 of 17

Date: October - December 2023 | Laraway RDF | Job No: 0086-004-16-22



Photograph #19

Deploying and sewing geotextile panels.

Date: 11/22/2023

07:10 am

Photograph by:

Griffin Clarke



Photograph #20

Heat leistering geotextile placed on the floor.

Date: 11/22/2023

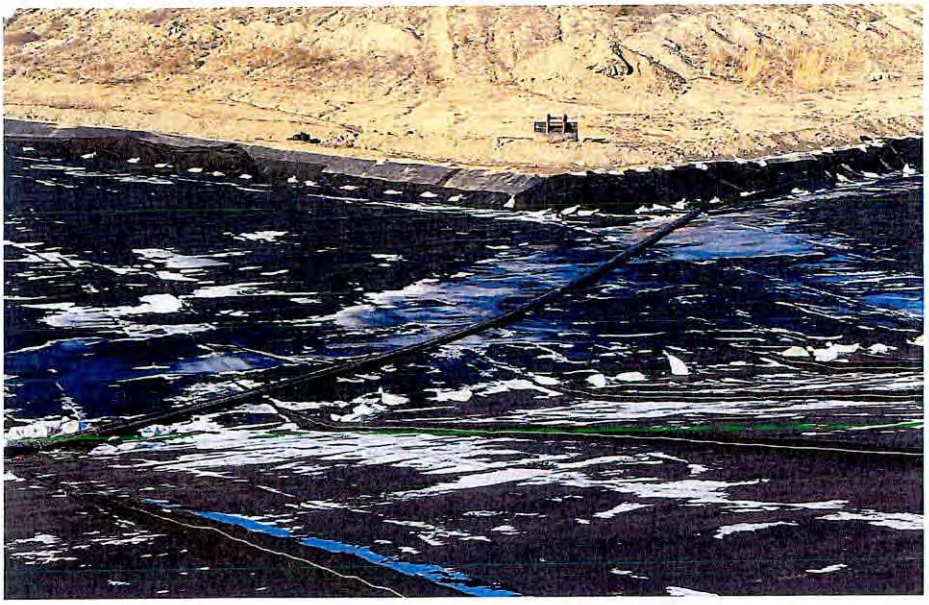
07:13 am

Photograph by:

Griffin Clarke

By: Various Subject: 2023 Cell Construction Sheet No: 11 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #21

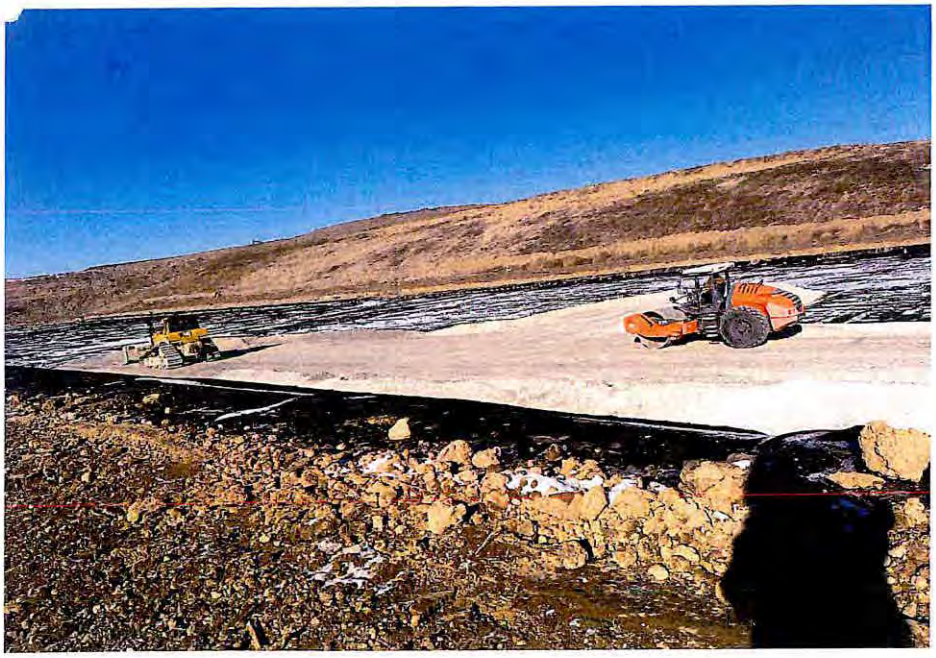
Placement of leachate collection pipe.

Date: 11/29/2023

08:08 am

Photograph by:

Sarah Sukanen



Photograph #22

Spreading the 3ft drainage layer road for truck traffic.

Date: 11/29/2023

08:30 am

Photograph by:

Sarah Sukanen

By: Various Subject: 2023 Cell Construction Sheet No: 12 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #23

Placing 1ft thick leachate pipe aggregate on leachate collection pipe.

Date: 11/30/2023

11:13 am

Photograph by:

Sarah Sukanen



Photograph #24

Spreading 1ft thick drainage layer and building separation berm.

Date: 12/06/2023

12:04 pm

Photograph by:

Sarah Sukanen

By: Various Subject: 2023 Cell Construction Sheet No: 13 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #25

Spreading 1ft thick drainage layer up the slope and on the floor.

Date: 12/08/2023

11:44 am

Photograph by:

Griffin Clarke



Photograph #26

Using a probe to check drainage layer thickness.

Date: 12/12/2023

07:45 am

Photograph by:

Robert Schumann



Photograph #27

Heat leistering 4oz cushion fabric to existing 16oz cushion fabric.

Date: 12/12/2023

08:46 am

Photograph by:

Robert Schumann



Photograph #28

Sewing 4oz cushion fabric panels together.

Date: 12/12/2023

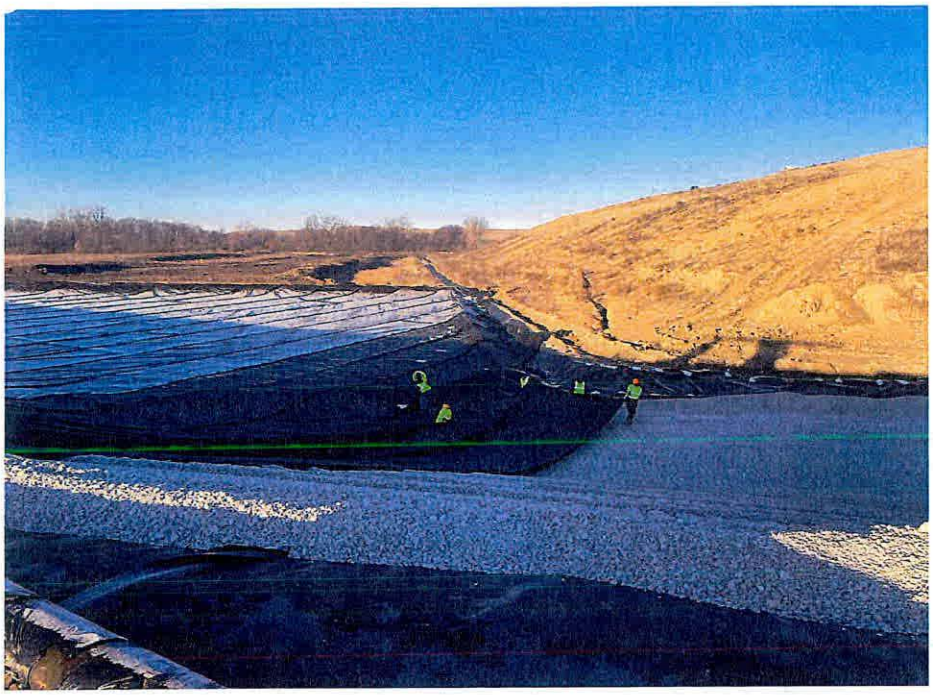
08:46 am

Photograph by:

Robert Schumann

By: Various Subject: 2023 Cell Construction Sheet No: 15 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #29

Deploying 4oz cushion fabric.

Date: 12/13/2023

08:03 am

Photograph by:

Griffin Clarke



Photograph #30

Completed 4oz cushion fabric placement in Phase 10B.

Date: 12/13/2023

11:41 am

Photograph by:

Griffin Clarke

By: Various Subject: 2023 Cell Construction Sheet No: 16 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #31

Completed 4oz cushion fabric in Phase 9C.

Date: 12/15/2023

01:29 pm

Photograph by:

Griffin Clarke



Photograph #32

Installing 60 mil HDPE panels for the rain flap.

Date: 12/15/2023

03:06 pm

Photograph by:

Griffin Clarke

By: Various Subject: 2023 Cell Construction Sheet No: 17 of 17

Date: October - December 2023 Laraway RDF Job No: 0086-004-16-22



Photograph #33

Extrusion welding geomembrane rain flap to 60 mil HDPE base liner geomembrane.

Date: 12/15/2023

03:40 pm

Photograph by:

Griffin Clarke



Photograph #34

Completed installation of Phase 10B rain flap.

Date: 12/18/2023

01:21 pm

Photograph by:

Griffin Clarke

WM

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

February 8, 2024

Ms. Reylin Dimayuga.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
FEB 13 2024
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification Logs B-141R M-178

Dear Ms. Dimayuga:

This letter and its attachment is being submitted as additional information for the pending Class 1* permit modification (M-178) for Laraway RDF.

Clay Liner Recertification
Because the clay liner was subjected to freezing conditions, a shelby tube was obtained from the Phase 9C/10B liner. A hydraulic conductivity test was performed on the clay sample. The results of the attached permeability testing from Weaver Consultants Group, dated 2/6/24, shows that the clay liner still meets the permit requirements.

As required, the original and two copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

Weaver Consultants Group

February 6, 2024
Project No. 0086-004-10-46

Mr. Ian Johnson
Prairie View RDF
29755 South Prairie View Drive
Wilmington, Illinois 60481

Re: Phase 9C & 10B Compacted Clay Liner Recertification
Laraway RDF
Joliet, Illinois
IEPA Site No. 1970450002 – Will County, Illinois
Permit No. B-141R

Dear Ian:

On January 31, 2024, Weaver Consultants Group collected a Shelby tube sample from the Phase 9C & 10B compacted clay liner overbuild area at Laraway RDF located in Joliet, IL. This sample was required to recertify the compacted clay liner after the freeze/thaw cycle took place.

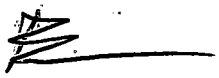
The sample was submitted to Weaver Consultants Group and the hydraulic conductivity was tested. The final result of the hydraulic conductivity test was 6.81×10^{-9} cm/sec, which is less than the maximum value of 1×10^{-7} cm/sec specified in the CQA Plan.

A daily field report is included in Attachment 1, the hydraulic conductivity test results are included in Attachment 2, and a figure showing the approximate testing location is shown in Attachment 3.

1316 Bond Street • Suite 108 • Naperville, Illinois 60563 • 630.717.4848 • wcgrp.com • Offices Nationwide

If you have any questions or needs, please do not hesitate to call.

Sincerely,
Weaver Consultants Group



Robert Schumann, P.E.
Senior Project Manager
State of Illinois, Professional Engineer Registration No. 062-063798
Expires November 30, 2025

cc: Dave Hartke – Will County

Attachments: Attachment 1 – Daily Field Report
Attachment 2 – Hydraulic Conductivity Test Results
Attachment 3 – Phase 9C & 10B Clay Recertification Testing Location Map

Attachment 1
Daily Field Report

Weaver Consultants Group
Daily Field Report

Day/Date: Tuesday February 1, 2024

Project:	Phases 9C & 10B Clay Recertification	Project No.	0086-004-10-68
Location:	Laraway RDF Joliet, Illinois	Weather: AM:	29-38F, Cloudy
Client:	Waste Management, Inc.	PM:	----------
Contractor(s):	Waste Management (WMI)		
Contractor Sub(s):			

Summary of Technical and/or Engineering Services performed, including Field Test Data, Locations, Elevations and Depths are Estimated.

Arrival: WCG onsite 0830hrs

Departure: WCG depart 1115hrs

Testing Performed: Shelby Tube Collection (Clay Recertification A and B)

Summary of Work Performed:

Arrived onsite at 0830hrs. WCG observed and assisted in taking Shelby Tube samples along the compacted clay liner overbuild of the 2023 Cells 9C & 10B Construction. Sample location is at approximately N.1,748,700 and E. 1,041,465. A portion of the geomembrane was pulled back, and the samples were collected in the clay liner overbuild. The Shelby tube sample locations were backfilled with clay and recompacted with the excavator. The Shelby tube samples were sent to the lab for hydraulic conductivity testing.

Name: Ken Kafitz

Title: CQA Field Officer

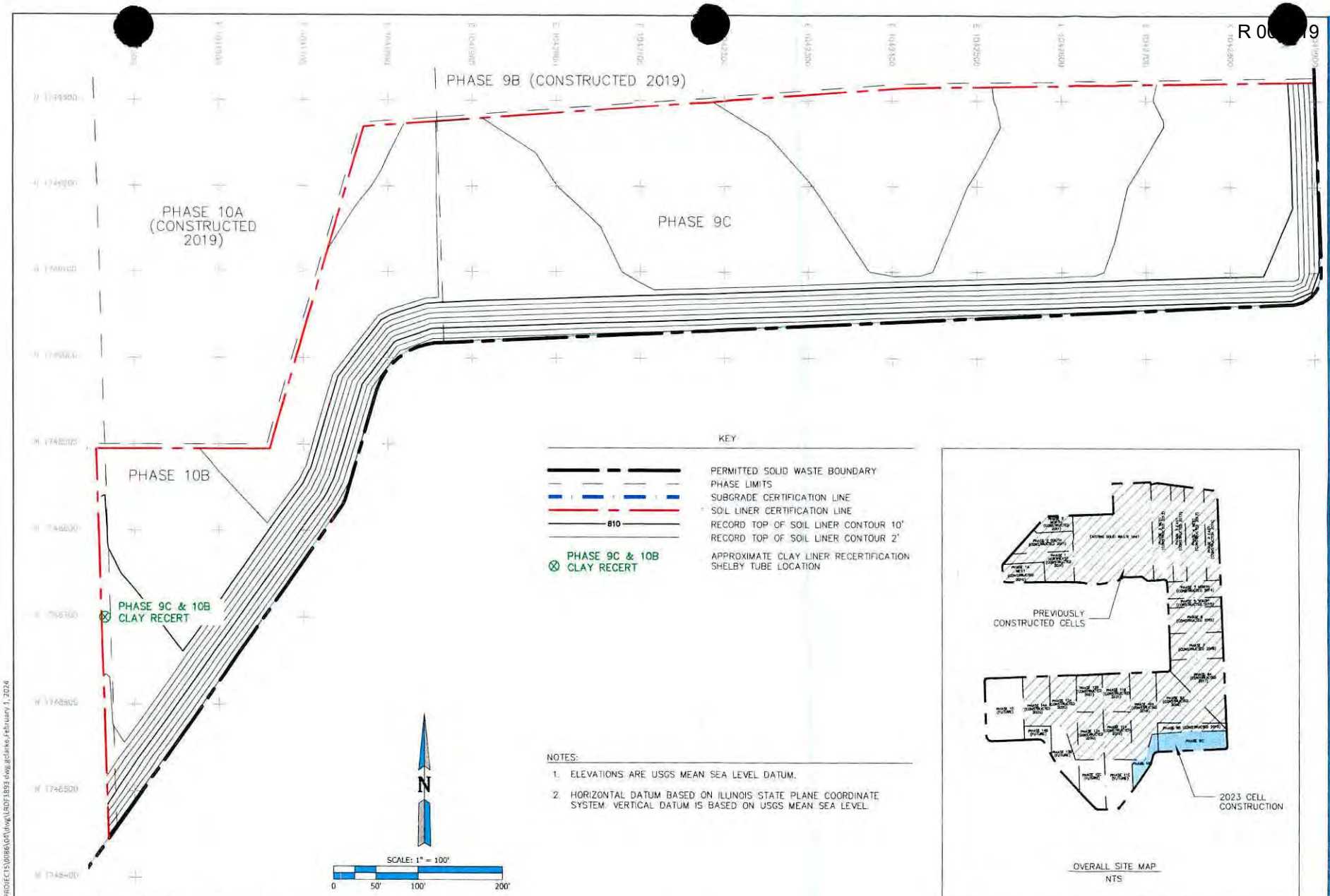
Name: Robert Schumann

Title: CQA Officer

Attachment 2
Hydraulic Conductivity Test Results

Hydraulic Conductivity Test Report (ASTM D 5084)					
Project Name: Laraway RDF Phases 9C & 10B Project No: 0086-004-10-46					
Boring #:		**Sample #**	Phs: 9C and 10B CL Recert	**Depth (ft)**	
Sample Received: 2-2-2024			**Sample Tested: 2-6-2024**		
Tested By:	JJW		**Reviewed By:**	JJW	
Sample Details					
Sample Classification (Visual)			CL		
Test Sample Diameter (in)			2.85		
Test Sample Length (in)			3.18		
Test Sample Wet Weight (gms)			710.89		
Moisture Content of Sample (%)			21.74		
Dry Density of Sample (pcf)			110.0		
Hydraulic Conductivity of Sample (cm/sec) at 20°C			6.81E-09		

Attachment 3
Phase 9C & 10B Clay Recertification Testing Location Map



KEY

- PERMITTED SOLID WASTE BOUNDARY
- PHASE LIMITS
- SUBGRADE CERTIFICATION LINE
- SOIL LINER CERTIFICATION LINE
- 810 — RECORD TOP OF SOIL LINER CONTOUR 10'
- RECORD TOP OF SOIL LINER CONTOUR 2'
- ⊗ PHASE 9C & 10B CLAY RECERT — APPROXIMATE CLAY LINER RECERTIFICATION SHELBY TUBE LOCATION

NOTES:

1. ELEVATIONS ARE USGS MEAN SEA LEVEL DATUM.
2. HORIZONTAL DATUM BASED ON ILLINOIS STATE PLANE COORDINATE SYSTEM. VERTICAL DATUM IS BASED ON USGS MEAN SEA LEVEL.

OVERALL SITE MAP
NTS

PREPARED FOR

PHASE 9C & 10B CLAY RECERTIFICATION
TESTING LOCATION MAP

LARAWAY RECYCLING AND DISPOSAL FACILITY
JOLIET, ILLINOIS

No.	DATE	REVISION DESCRIPTION	BY

Weaver Consultants Group

(855) 493-1710
www.wcgrp.com

REUSE OF DOCUMENTS
This document, and the designs incorporated herein, as an instrument of professional service, is the property of Weaver Consultants Group, and is not to be used in whole or in part, without the written authorization of Weaver Consultants Group.

DRAWN BY: GPC
REVIEWED BY: RJS
DATE: 02/01/2024
FILE: 0086-004-DWG
CAD: LRDF1893.dwg

SHEET 1 OF 1

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F:\PROJECTS\0086\004\dwg\LRDF1893.dwg gclarke, February 1, 2026

B-141R-M-181
R 000820

WM

cc. ERW
Des Plaines

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

May 8, 2024

Ms. Jacki Cooperider, P.E.
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

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IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification

Dear Ms. Cooperider:

This letter and its attachments are being submitted as a Class 1* permit modification to request authorization to 1) update the post-closure cost estimate for the closed RCRA unit, 2) update the closure/post-closure plans and cost estimates for the stack corrective action, 3) update the closure/post-closure plans and cost estimates for the solid waste expansion. This application consists of the following:

1. This letter;
2. LPC-PA23, RCRA Permit Application Form;
3. Attachment 1 – Updated Post-Closure Cost Estimate (Table I-2);
4. Attachment 2 – Updated Corrective Action Closure Plan;
5. Attachment 3 – Updated Corrective Action Post-Closure Plan;
6. Attachment 4 – Updated Solid Waste Expansion Closure/Post-Closure Plan;
7. Section 39(i) Certification.

<u>Updated RCRA Post-Closure Cost Estimate</u>
In accordance with Permit No. B-141R, condition VIII.34, the RCRA unit post-closure costs have been revised to reflect current costs and have been increased by the 2023 CPI of 3.6%. Post-closure costs have been estimated until September 2025. Financial assurance documentation will be submitted within 90 days of Agency approval for the amount outlined on Table I-2 from the post-closure plan. The revised cost estimate is included in Attachment 1 to this submittal. ***If approved, please replace the existing Table I-2 from the RCRA post closure plan contained in the approved Part B permit application binder 1 and replace with the revised Table I-2.***

P.

Updated Corrective Action Closure/Post-Closure Plans

In accordance with Permit No. B-141R, the closure and post-closure plans and associated cost estimates for the stack corrective action have been revised to reflect current costs and have been increased by the 2023 CPI of 3.6 %. The south stack top slope sedimentation basin, 104 acres of geomembrane cap, south stack grading, perimeter toe drain, forcemain, wet well/lift station and a portion of the moat cleaning have been completed to date and are noted in the revised closure plan. Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts outlined on Tables 10-1 and 11-2 of the revised plans contained in Attachments 2 and 3 of this submittal. ***If approved, please replace the existing Sections 10.0 and 11.0 from the North and South Stack Corrective Action Plan permit application binder 1 and replace with the revised Sections 10.0 and 11.0.***

Updated Solid Waste Unit Closure/Post-Closure Plans

In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 3.6%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 10 and portions of Phases 11 through 14 are in place (9.2 acres of Phases 9/10 were constructed in 2023). Financial assurance documentation will be submitted within 90 days of Agency approval in the amounts as outlined on Table 13-3 of the closure/post-closure plan contained in Attachment 4. ***If approved, please replace the existing Section 13.0 from the Solid Waste Expansion permit application binder 1 and replace with the revised Section 13.0.***

In accordance with 35 IAC 703.281, the facility will provide written notification of this permit modification to all persons on the facility's mailing list within 90 days of approval by the Agency. As required, the original and three copies of this application are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

Illinois Environmental Protection Agency 0822

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): 1970450002 USEPA ID Number: ILD074411745

Site Name: Laraway RDF

Physical Site Location (street, road, etc.): 21233 W. Laraway Rd.

City: Joliet Zip Code: 60436 County: Will

Existing RCRA Permit (if applicable): B-141R

II. Owner/Operator Identification

Owner Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.com

Operator Information

Name: Waste Management of Illinois, Inc

Mailing Address:

21233 W. Laraway Rd.
Joliet, IL 60436

Contact Name: Ian Johnson

Phone #: 815-280-6301

Email: ijohnson@wm.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

R 000823

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.)

Provide updated closure/post-closure costs for RCRA unit, corrective actions units, and solid waste unit.

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.

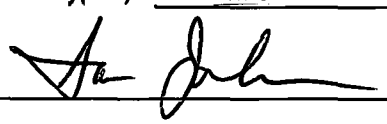
Owner

☒ 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): Ian Johnson

Owner Signature:  Date: 5/8/24

Title: Engineer

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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): Ian Johnson

Operator Signature: Ian Johnson Date: 5/8/24

Title: Engineer

Notary (Required for both owner and operator signatures)

Subscribed and Sworn before me this 8th day of May 2024.

OFFICIAL SEAL
GLORIA WENDEL
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES October 27, 2026

Notary Signature: Gloria Wendel

My commission expires on: October 27, 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.

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Engineer Name (Print or Type): Ian Johnson

Engineer Signature: Ian Johnson

Illinois License No.: 062-048790

Expiration Date of License: Nov 30, 2025

Engineer Phone No. 815-280-6301

Email: ijohnson@wm.com

Engineer Address:

Prairie View RDF
29755 S. Prairie View Dr.
Wilmington, IL 60481

IAN C. JOHNSON
062-048790
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))

DocuSign Envelope ID: AE691776-2AE2-4DC1-9D3D-1C961720311A

SECRETARY'S CERTIFICATE

WASTE MANAGEMENT OF ILLINOIS, INC.

I, Courtney A. Tippy, Secretary of WASTE MANAGEMENT OF ILLINOIS, INC., a(n) Delaware corporation (the "Company"), do hereby certify that the following is a true and complete copy of resolutions adopted by written consent of the Board of Directors of the Company, which resolutions have not been amended, modified or rescinded and are in full force and effect as of the date hereof:

Environmental Compliance Signature Authority

RESOLVED, that the Area Vice President, Area Director of Disposal Operations, Area Director of Collection Operations, District Manager, Director of Safety, Plant Manager, Environmental Protection Manager, Manager Engineering, District Operations Manager, MRF Manager, Facility or Site Engineer and Environmental Protection Specialist, and each of them, for each facility owned or operated by the Company, subject to compliance with applicable corporate policies and procedures and subject to specific regulatory signature requirements, are hereby authorized to prepare, execute and/or submit on behalf of the Company, as a responsible official, authorized signatory or designated representative, any and all reports, affidavits, applications, modifications, instruments, documents or papers, necessary or appropriate with respect to such facility in order to maintain compliance with federal, state and local permits, laws and/or regulations pertaining to protection of the environment, and to take any required or desired action in connection therewith, as such individual shall deem necessary or advisable, and that any such action taken to date is hereby ratified and approved; and

RESOLVED FURTHER, that any environmental compliance signature authority previously granted by the Board of Directors that is in direct conflict with, or more restrictive than, this resolution is hereby superseded; and

RESOLVED FURTHER, that the foregoing authority shall continue in full force and effect until revoked or modified by a subsequent resolution of the Board of Directors; and

RESOLVED FURTHER, that the Secretary or any Assistant Secretary of the Company may certify these resolutions to any party requesting the same to be certified.

Dated: June 13, 2019

DocuSigned by:
Courtney A. Tippy
9E6CD492EB6C4D1...

Courtney A. Tippy
Secretary

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Illinois Environmental Protection Agency

2000826

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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: Laraway RDF IEPA BOL No.: 1970450002

Site Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip Code: 60436

Permit Numbers (if applicable): B-141R

Owner

Owner Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

Operator

Operator Name: Waste Management of Illinois, Inc.

Street Address: 21233 W. Laraway Rd.

City: Joliet State: IL Zip: 60436

II. Officers and Employees with Site Responsibility

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
NA, no active or personal involvement in operation or mgmt	

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
Doug Tomczak	District Manager
Ian Johnson	Engineer
Mike Toufar	Operations Manager

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III. Owner, Operator, Officer, and Employee Information

R 000827

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.

R 000828

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	5/8/24 Date
Ian Johnson Printed Name	Engineer Title

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ATTACHMENT 1

UPDATED RCRA POST-CLOSURE COST ESTIMATES

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	1	$20,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	1	$2,200
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	1	$3,600
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	1	$1,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	1	$2,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Sample	$528	10	1	$5,280
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Sample	$536	27	1	$14,472
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Sample	$431	40	1	$17,240
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	1	$5,400
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	12	$8,400
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	1	$35,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	1	$198,900
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	1	$50,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	1	$15,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$407,492
2010 thru 2023 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%,7%, 3.6%						**$558,409**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2025.
(2) Includes sampling, evaluation, development of contour maps.

ATTACHMENT 2

UPDATED CORRECTIVE ACTION CLOSURE PLAN

10.0 CLOSURE PLAN AND COST ESTIMATE

10.1 INTRODUCTION

The closure plan contained in this section describes the closure activities necessary for closure of the South Stack SWMU. An associated cost estimate has also been prepared.

10.2 CLOSURE PLAN

The closure plan described herein differs slightly from the activities described in Section 8.0 in that it assumes that the original 184 acre stack area and the current areas that have soils placed outside of the original 184 acre area would need final capping. A total of 21.4 acres of final cap have been completed as of 2022. Currently, there are approximately 10 acres that contain soils outside of the original stack footprint, of which all 10 acres have already been final covered as part of the 21.4 acre total. Therefore, 172.6 acres of the south stack would require final capping if closure were to be initiated. This scenario results in a different landform and the surface water management system from that presented in Section 8.0. The closure activities are described as follows and shown conceptually on Figures 10-1 through 10-4.

Phase 1 Closure Activities – Figure 10-1

- Preparation of the South Stack sideslopes and top slope surface, including removal of decant structures and other miscellaneous structures, sealing of shrinkage cracks, and removal and grading of interior compartment berms has been completed. The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. Therefore, no costs are included for this activity.

Phase 2 Closure Activities – Figure 10-2

- Installation of a 60-mil thick geomembrane on the flat top slope of the South Stack and final cover on geomembrane has been completed. Approximately 102 acres of geomembrane was installed in 2010 through 2013. Costs to complete this work have been removed from the estimate.

- Construction of the top slope sedimentation basin to control surface water runoff from the covered top slope. This basin was completed in 2011 and costs to complete this work have been removed from the estimate.

- Installation of the sideslope drain around perimeter of South Stack and installation of wet well/lift station at sideslope drain discharge point along south side of stack has been completed. An additional lift station may need to be installed near the existing pump station.

Phase 3 Closure Activities – Figure 10-3

- Cleanout of moat and return water pond for conversion to perimeter run-off channel and sedimentation basin, respectively. Material removed from the moat will be spread on South Stack benches and slopes. Approximately 9,850' (77%) of the moat have been cleaned out and filled with clean soil through 2022.

- Placement of final cover system on upper slope and midlevel bench.

Phase 4 Closure Activities – Figure 10-4

- Placement of final cover system on portions of the lower slope including seeding and erosion control.
- Installation of downslope channel to replace above ground discharge from the top slope sedimentation basin.

An estimate of the costs for these activities is provided in Table 10-1. Specific closure tasks are discussed in the following sections.

10.2.1 South Stack Preparation and Grading

The South Stack grading has been completed along with the removal of the North gypsum area and consolidation of that material on top of the South Stack. No costs are associated for this task.

10.2.2 North Stack Excavation

The excavation of the North Stack included removal of phosphogypsum and was completed in 2011. Phosphogypsum was placed on the South Stack and graded as shown on Figure 10-1. This activity is not included in the closure cost estimate.

10.2.3 Sideslope Drain

The sideslope drain was installed near the toe of the lower slope around the perimeter of the South Stack. The sideslope drain discharges by gravity to a wet well/ lift station along the south side of the stack as shown on Figure 10-2. The perimeter sideslope drain was completed in 2016. No costs are associated for this task.

10.2.4 Forcemain, Pump and Manholes

A wet well/lift station was installed at the slopeside drain discharge point along the south side of the stack to manage slopeside drain discharge during 2018. From this lift station, liquids will be conveyed to a second pump station as shown on Figure 10-3. Approximately 2870' of forcemain was constructed in 2018. Based upon current flows from the sideslope drain, the existing pumps and overhead piping system may or may not be used to convey the collected seepage off-site to the Olin wastewater treatment plant. Alternatively, storage tanks with direct trucking to the Olin treatment plant may be used.

10.2.5 Final Cover System

The geomembrane has been placed on the South Stack top slope. The soil final cover will be placed over the entire South Stack as shown on Figure 10-3. Approximately 102 acres of geomembrane was installed in 2010 through 2013. The soil cover will consist of a minimum of 2 feet of compacted low-permeability soil and 1 foot of vegetative cover soil. A total of 21.4 acres of final cap have been completed in 2022. Based upon the current south stack soil configuration, approximately 172.6 acres would require final capping if closure were required.

Final cover construction includes excavating, hauling, spreading, and compacting of the 2-foot compacted low-permeability soil layer; and placing the 1-foot vegetative cover soil. Soils will be obtained from the Facility property.

10.2.6 Conversion of Moat and Return Water Pond

The moat and return water pond will be converted to a perimeter run-off channel and sedimentation basin, respectively. This will require the removal of phosphogypsum-contaminated sediment. Sediment removed will be placed on the South Stack slopes and mid-level bench to dry before the final cover system is placed. Concurrent with sediment removal, the moat will be graded for use as a perimeter run-off channel for the surface water management system and the return water pond will be graded for use as a sedimentation basin, as shown on Figure 10-3. Approximately 9,850 feet of the moat were cleaned and backfilled through 2022.

10.2.7 Surface Water Management System

The surface water management system associated with the closure scenario will include four sedimentation basins and a perimeter run-off channel.

During 2010 and 2011, the top slope area on the South Stack was graded to drain to the south and west. In addition, a berm was constructed along the west and south sides of the top slope and is maintained as a sedimentation basin. Discharge from the top slope sedimentation basin is through a perforated riser and discharge barrel which discharges to the southwest sedimentation basin. The return water pond will be converted into a sedimentation basin. This closure sedimentation basin will have a perforated discharge riser and discharge will be to the west to the existing channel that discharges to the Des Plaines River. Discharge from the north end of the stack will flow to the existing North sedimentation basin which was completed in 2011. Discharge from south and eastern portions of the stack will flow to the existing south sedimentation basin, which was partially constructed in 2016.

10.2.8 Establishment of Vegetation

The area receiving final cover will require establishment of vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the requirements of Section 8.3.6.3. Mulching and erosion control matting may be used as necessary to provide erosion control. Seeding and mulching will be required on approximately 200 acres at final closure.

10.2.9 Construction Quality Assurance

Construction oversight will be required during each component of closure. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan.

10.2.10 Monitoring

During closure of the South Stack SWMU, groundwater monitoring will be performed in accordance with Section 9.0. If the Agency determines closure is necessary, it is estimated that closure activities could take up to 2 years. Therefore, sampling, analysis, and reporting for the 12 groundwater monitoring wells will be conducted semi-annually for the anticipated 2 year closure period. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well will be replaced during the closure period.

10.2.11 Certification of Closure

All activities will be conducted in accordance with the approved CQA Plan. Within 60 days after completion of closure of the South Stack SWMU, a certification will be submitted to the IEPA, by registered mail, that the South Stack SWMU has been closed in accordance with the specifications in the approved closure plan. The certification will be signed by the owner or operator and by an independent registered professional engineer. Documentation supporting the independent registered professional engineer's certification will be placed in the operating record and will be available to IEPA upon request until the IEPA releases the owner or operator from the closure financial assurance requirements of 35 IAC Section 724.243(i).

10.2.12 Survey Plat

No later than the submission of the certification of closure of the South Stack SWMU, a survey plat will be prepared which includes the following information:

- The location and dimensions of the South Stack SWMU, surveyed with respect to site coordinates.

- The plat will contain a note, prominently displayed, that states:

    1. This land has been used to manage phosphogypsum.
    2. The obligations of the owner and operator to restrict the disturbance of the South Stack SWMU in accordance with the applicable 35 IAC 724 Subpart G regulations.

The plat will be prepared and certified by a professional land surveyor using the wording in 35 IAC 702.126(d)(1).

The plat will be filed with the Will County zoning authority and the IEPA. In addition, the plat will be recorded with the property deed.

10.3 COST ESTIMATE

The cost estimate is prepared assuming a third party will be contracted to complete all closure activities. In addition, the cost estimate is not reduced by allowance for salvage value of equipment or resale value of the land. The estimated cost for closure is summarized in Table 10-1.

10.4 SCHEDULE

Completion of closure activities will be weather dependent. A timeline schedule for closure activities is presented on Figure 10-5. A time period has been included in each task to account for potential inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 25 weeks to complete. The extensive nature of closure activities requires a closure period beyond 180 days.

10.5 FINANCIAL ASSURANCE

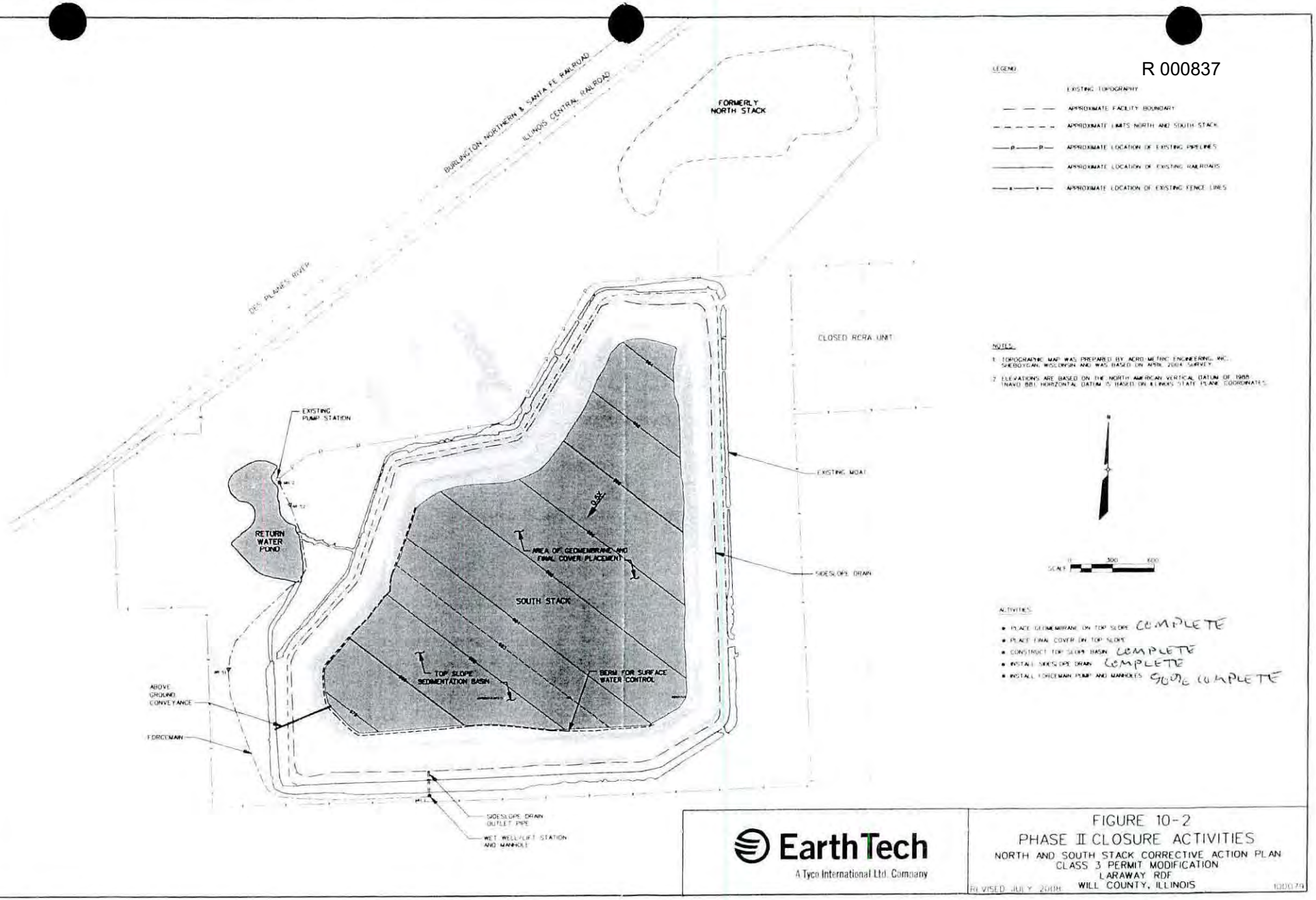
In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.



EarthTech
A Tyco International Ltd. Company

FIGURE 10-1
PHASE I CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2008
100979

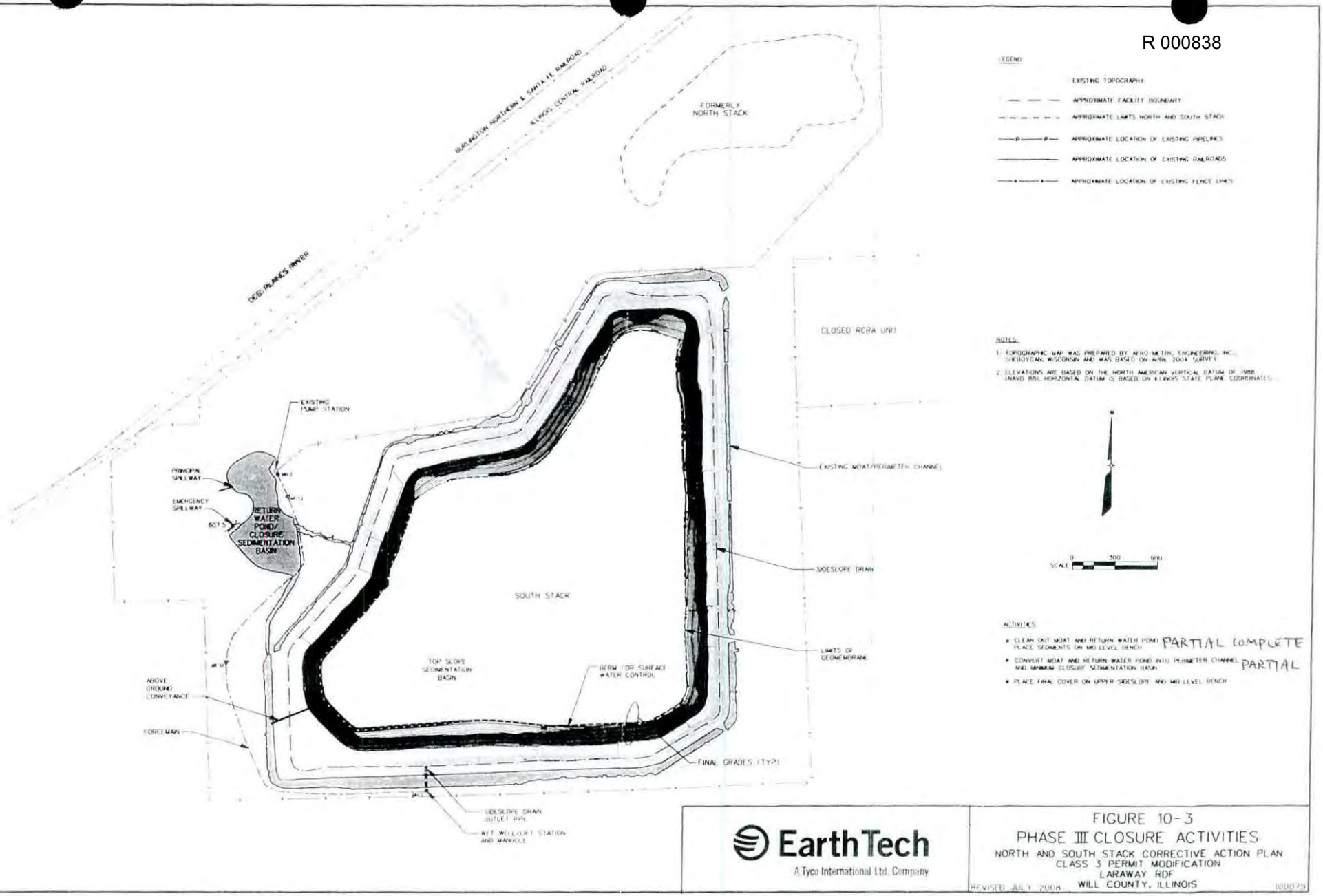
R 000837



EarthTech
A Tyco International Ltd. Company

FIGURE 10-2
PHASE II CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2004
100079

R 000838



EarthTech
A Tyco International Ltd. Company

FIGURE 10-3
PHASE III CLOSURE ACTIVITIES
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS
REVISED JULY 2008 100079

R 000839



LEGEND

EXISTING TOPOGRAPHY

APPROXIMATE FACILITY BOUNDARY

APPROXIMATE LIMITS NORTH AND SOUTH STACK

APPROXIMATE LOCATION OF EXISTING PIPELINES

APPROXIMATE LOCATION OF EXISTING RAILROADS

APPROXIMATE LOCATION OF EXISTING FENCE LINES

SURFACE WATER FLOW LINE

NOTES:

1. TOPOGRAPHIC MAP WAS PREPARED BY AERO-METRIC ENGINEERING, INC., SHEBOYGAN, WISCONSIN AND WAS BASED ON APRIL 2004 SURVEY.
2. ELEVATIONS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD 88). HORIZONTAL DATUM IS BASED ON ILLINOIS STATE PLANE COORDINATES.

N

0 300 600
SCALE

FINAL ACTIVITIES:

- PLACE FINAL COVER ON LOWER SLOPE PARTIAL
- VEGETATE DISTURBED AREA
- CONVEY ABOVE GROUND CONVEYANCE TO DOWNSLOPE CHANNEL

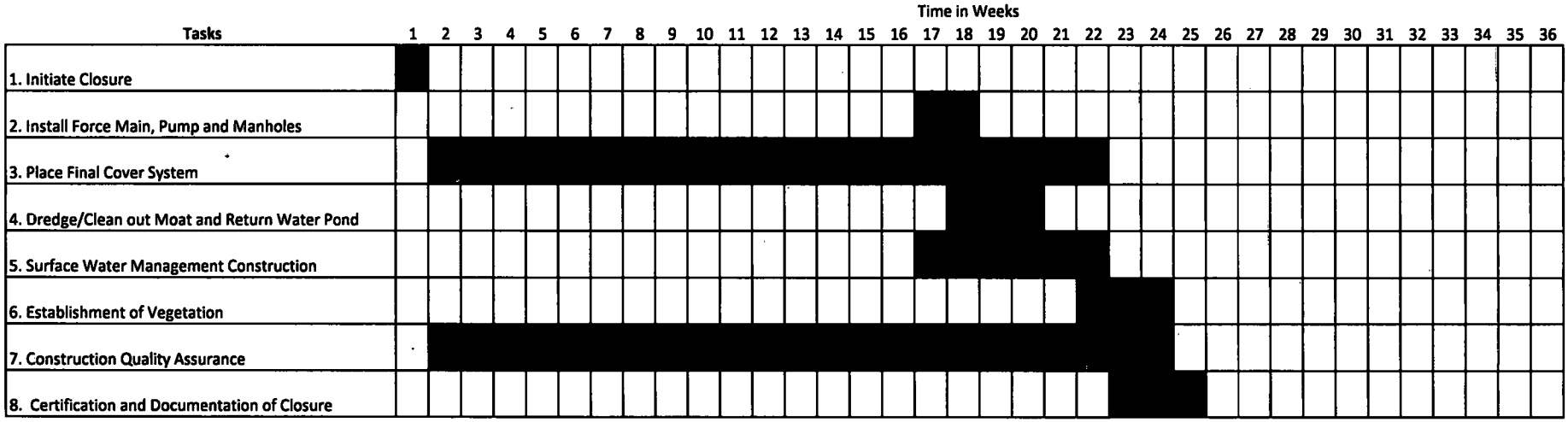
EarthTech
A Tyco International Ltd. Company

FIGURE 10-4
PHASE IV CLOSURE PLAN
NORTH AND SOUTH STACK CORRECTIVE ACTION PLAN
CLASS 3 PERMIT MODIFICATION
LARAWAY RDF
WILL COUNTY, ILLINOIS

REVISED JULY 2008 100079

FIGURE 10-5

SCHEDULE FOR SOUTH STACK CLOSURE



May 2024

Table 10-1

ESTIMATED CLOSURE COSTS - SOUTH STACK SWMU

R 000841

Item	Quantity	Units	Unit Cost	Approximate Cost
1. South Stack Preparation and Grading (Completed)	0	cy	$1.50	$ -
2. Install Sideslope Drain (completed)	0	linear feet	$200.00	$ -
3. Install Force Main and Wet Well/Lift Stations				
a. Forcemain (completed)	0	linear feet	$100.00	$ -
b. Wet Well/Lift Stations[1]	1	each	$250,000	$ 250,000
4. Place Final Cover System				
a. 2-foot Low-Permeability Soil Layer (172.6 ac)	556,923	cy	$4.00	$ 2,227,692
b. 1-foot Vegetative Soil Layer (172.6 ac)	278,462	cy	$4.00	$ 1,113,848
5. Dredge/Clean-out Moat and Return Water Pond				
a. Moat (77% complete)	14,467	cy	$7.00	$ 101,269
b. Return Water Pond	31,500	cy	$10.00	$ 315,000
c. Soil Testing and Documentation	1	lump sum	$150,000	$ 150,000
6. Surface Water Management System Construction				
a. Sedimentation Basin Conversion	1	lump sum	$20,000	$ 20,000
b. Run-off Channel Construction	1	lump sum	$40,000	$ 40,000
7. Establishment of Vegetation: Seed and Mulch	200	acres	$1,850	$ 370,000
8. Construction Quality Assurance:				
a. Inspectors (2 @ 50 hrs/wk x 25 wks)	2,500	hours	$60.00	$ 150,000
b. Engineer (10 hrs/wk x 25 wks)	250	hours	$75.00	$ 18,750
c. Senior Engineer (4 hrs/wk x 25 wks)	100	hours	$90.00	$ 9,000
9. Groundwater Semi-Annual Sampling[2]				
(24 hours/event) x (2 events) x 2 years	96	hours	$100.00	$ 9,600
10. Groundwater Semi-Annual Monitoring List G1				$ -
(12 wells/event) x (2 events) x 2 years	48	samples	$300.00	$ 14,400
11. Semi-Annual Groundwater Data Review and Report				
(12 hours/event) x (2 events) x 2 years	48	hours	$80.00	$ 3,840
12. Groundwater Monitoring Well Replacement (1 well total)	1	lump sum	$12,000	$ 12,000
13. Certification and Documentation of Closure	1	lump sum	$150,000	$ 150,000
14. Preparation and Filing of Plat	1	lump sum	$10,000	$ 10,000
			SUBTOTAL	**$ 4,965,399**
Annual inflation increases of 1.2%, 1.2%, 2.1%, 1.8%, 1.5%, 1.4%,1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%, 7%, 3.6% for 2009 thru 2023			**GRAND TOTAL**	**$ 6,886,012**

Notes:

1. Wet Well/Lift Station costs include pump and appurtenances.

2. Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

May 2024

ATTACHMENT 3

UPDATED CORRECTIVE ACTION POST-CLOSURE PLAN

11.0 POST-CLOSURE CARE PLAN AND COST ESTIMATE

11.1 INTRODUCTION

The post-closure care plan presented herein describes inspection, maintenance and monitoring activities to be performed after implementation of the corrective action activities described in Section 8.0, i.e., after the South Stack SWMU closure has been completed. Implementation of post-closure care activities ensures the integrity and/or operability of environmental systems for the South Stack SWMU. In addition, groundwater monitoring activities are included for the former North Stack program.

Environmental systems for the South Stack SWMU include the following:

- Final cover system;
- Surface water management structures;
- Stack seepage collection system;
- Groundwater monitoring; and
- Security system

The mechanisms for ensuring the integrity and/or operability of these environmental systems will be provided by inspections and maintenance activities. In addition, the groundwater monitoring program described in Section 9.0 will continue to be implemented throughout the post-closure care period.

The post-closure care plan and associated cost estimate have been prepared based on a minimum 30-year post-closure care period. The post-closure care cost estimates have been prepared assuming a third party will be contracted to perform the work. The components of the post-closure care plan are discussed in the following sections. The post-closure care cost estimate is discussed in Section 11.5.

11.2 INSPECTIONS

Inspection of the South Stack SWMU will be conducted on a regular basis during the post-closure care period. Inspection items, along with associated inspection procedures and inspection frequencies, are shown on Table 11-1.

A written record of each inspection will be made and retained at WMII offices. The inspector will assess the condition and need for repair of the final cover and vegetation, surface water management system components, stack seepage collection system components, groundwater monitoring wells and security system. Documentation of all repairs performed or replacements made (excluding minor grading, vegetation replacement or similar minor maintenance activities) will be documented and retained with the inspection records.

11.3 MAINTENANCE ACTIVITIES

During the post-closure care period, maintenance activities will include the following:

11.3.1 Final Cover Maintenance

Repairs to the final cover due to erosion and differential settlement of the underlying phosphogypsum will be performed as required during the post-closure care period. These areas will be repaired in order to maintain the integrity of the final cover. Areas of differential settlement and erosion will be repaired with additional cover soils, as required. Off-site soil material will be utilized to maintain final cover. Final cover repairs will be performed in accordance with the CQA plan.

For purposes of the cost estimate, final cover repair is estimated to average 2 acres per year during the 30-year post-closure care period at an average soil thickness of 1 foot.

11.3.2 Vegetation Repair

Final cover areas repaired as part of final cover maintenance described above will require re-establishment of vegetative cover. In addition, barren areas noted during the inspections will also require re-vegetation. Reworked surfaces and areas of failed or eroded vegetation will be revegetated. It is anticipated this rate will be reduced approximately 5 years after initial seeding as vegetation becomes well established.

Vegetation repair is estimated to average 3.3 acres per year during the 30-year post-closure period. This average is equivalent to 10 acres per year being repaired during the first 5 years of post-closure care, 5 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

11.3.3 Vegetation Maintenance

As discussed in Section 8.0, the vegetation selected for planting on the final landform consists of native species. These species are well adapted to harsh climates and conditions, such as high temperatures and drought. Native species require no fertilization and the preferred management technique for native plant species is prescribed or controlled burning. For the cost estimate, annual controlled burning and mowing is assumed during the first 5 years of post-closure care and every 5 years thereafter.

11.3.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water management system components, and monitoring points. Repairs will be made as warranted. An annual cost is provided for such work.

11.3.5 Stack Seepage Collection System Operation and Maintenance

Seepage collection from the South Stack during the post-closure care period will be performed as described previously in Section 8.0. Seepage collected by the side slope drain will be conveyed by gravity to a wet well/lift station along the south side of the stack. From this lift station liquids may be conveyed to a second lift station adjacent to the former return water pond. From this point, liquids will be conveyed via overhead pipeline to the Olin wastewater treatment plant. Alternatively, a storage tank and tankers may be used to haul seepage to the Olin treatment plant

Maintenance of the seepage collection system during the post-closure care period will include inspection of the system, repairs as warranted, and periodic replacement of pumps. The system

will be inspected quarterly and at other times, as required. Costs to maintain the seepage collection system include cleaning of the side slope drain, replacement of pumps, repair of control panels, and associated labor costs. It is estimated that the pumps will be replaced once every 10 years. These costs have been normalized on an annual basis.

11.4 MONITORING

Groundwater monitoring will be performed in accordance with Section 9.0. Sampling, analysis, and reporting for the 12 groundwater monitoring wells at the South Stack, and the 7 wells at the North Stack will be conducted semi-annually for a minimum of 30 years. A cost for groundwater sampling and analysis is provided in the cost estimate, based on the groundwater monitoring program described in Section 9.0.

A cost for monitoring well replacement is also provided. It is assumed that one well is replaced every 5 years, i.e., six wells during the post-closure care period. This cost has been normalized on an annual basis.

11.5 RECORDKEEPING

During the 30-year post-closure care period, records of inspections, sampling and repair activities will be maintained at WMII offices. All records will indicate date, location, and corrective action taken.

11.6 COST ESTIMATE

A cost estimate for post-closure care is included in Table 11-2. These estimates reflect current costs for third party contractors to complete the post-closure care work.

11.7 FINANCIAL ASSURANCE

In accordance with 35 IAC 724.245, an appropriate form of financial assurance will be provided for the South Stack SWMU post-closure care cost estimate. The cost estimate and the amount of financial assurance will be updated annually in accordance with applicable State of Illinois requirements.

TABLE 11-1

TYPICAL POST-CLOSURE CARE INSPECTIONS SOUTH STACK SWMU

Inspection Item	Inspection Procedure	Frequency
Final Cover System	Check for the presence of: 1. Areas of sparse vegetation; 2. Excessive erosion; 3. Differential settlement; 4. Ponding of water; and 5. Animal burrowing.	Quarterly
Surface Water Management System Components	1. Diversion berms: verify positive drainage and no excessive erosion. 2. Downslope channels: verify erosion control in place and functional; no excessive erosion. 3. Energy dissipators: verify no blockages and no scour around structure. 4. Permit channels: verify positive drainage and no excessive erosion. 5. Culverts: verify no blockages. 6. Sedimentation basins: Verify no excessive erosion at basin inlets and outlets; no blockages at basin inlet and outlet; riser pipe perforations clear with no blockages; sluice gate/valve functional.	Quarterly
Stack Seepage Collection System Components	Check condition and operation of components: wet well/lift stations, control panels, overhead pipeline.	Daily when personnel are onsite, but no less frequent than quarterly
Groundwater Monitoring Wells	Check condition of: 1. Outer protective casing, lock on well and bumper posts, if present. 2. Verify positive drainage around well. 3. Sampling equipment functional.	During each routine groundwater sampling event.
Fencing/Security	Check condition of fencing; verify no holes or gaps in fencing.	Quarterly

TABLE 11-2

COST ESTIMATE FOR POST-CLOSURE CARE SOUTH STACK SWMU

For Post-Closure Care: Annual Cost for Years 1 through 30:				
	Item	Quantity	Unit Cost	Approximate Annual Cost
1.	Site Inspections (20 hours/quarter)	80 hours	$50.00	$4,000
2.	Final Cover Maintenance (2 acres at 1-foot)	3,226 cy	$5.50	$17,750
3.	Vegetation Maintenance[1]- Mowing/Controlled Burn (estimated annualized unit cost)	200 acres	$33.00	$6,600
4.	Vegetation Repair	3.3 acres	$1,850.00	$6,100
5.	Miscellaneous Repairs	Lump Sum	--	$20,000
6.	Stack Seepage Collection System Maintenance			
	a. Labor (10 hours/week) x (52 weeks/year)	520 hours	$45.00	$23,400
	b. Pump replacement (estimated annualized cost)	Lump sum	--	$20,000
	c. Miscellaneous repairs	Lump sum	--	$5,000
7.	Groundwater Semi-Annual Sampling[2] (Both Stacks) (29 hours/event) x (2 events)	58 hours	$100.00	$5,800
8.	Groundwater Semi-Annual Monitoring - South Stack (12 wells/event) x (2 events)	24 samples	$300.00	$7,200
9.	Groundwater Semi-Annual Monitoring - North Stack (7 wells/event) x (2 events)	14 samples	$481.00	$6,734
10.	Semi-Annual Groundwater Data Review and Report (14 hrs/event) x (2 events)	28 hours	$80.00	$2,240
11.	Groundwater Monitoring Well Replacement (annualized lump sum cost)	Lump sum	--	$2,000
12.	Annual Report Preparation	80 hours	$80.00	$6,400
	Total Annual Cost			$133,224
	Updated Annual Cost with 2009 through 2023 Inflation factors of 1.2%,1.2%,2.1%,1.8%,1.5%,1.4%,1%,1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%, 7%, 3.6%			$184,755 x 30 years
	30-YEAR COST			$5,542,650
	13. Decommission 19 groundwater wells at end of PC	each	$584	$11,096
	GRAND TOTAL POST CLOSURE COST			$5,553,746

NOTES:

[1] Vegetation maintenance including mowing and controlled burning will be performed on the entire landform.

[2] Groundwater monitoring performed on a semi-annual basis; cost includes two-man sampling crew.

ATTACHMENT 4

UPDATED SOLID WASTE UNIT CLOSURE/POST-CLOSURE PLAN

13.0 CLOSURE/POST-CLOSURE CARE PLAN AND COST ESTIMATES

13.1 INTRODUCTION

The closure/post-closure care plan and cost estimates presented herein are prepared in accordance with the requirements of 35 IAC 811.110, 811.111, 812.114, 812.115, and 812.116. The regulations require that: 1) a closure/post-closure care plan be developed by the site operator, 2) cost estimates be prepared for the closure/post-closure care plan elements, and 3) the site operator provide financial assurance to guarantee closure and post-closure care of the Expansion. The purpose of these requirements is to assure that closure/post-closure care can be implemented in the event of operator default.

A closure plan has been prepared to address the closure scenario for the Expansion as described as follows:

- Closure for areas for which authorization to operate has been obtained or is being requested;

Additionally, a post-closure care plan which addresses maintenance and monitoring of the Expansion following certification of closure of for areas for which authorization to operate has been obtained or is being requested has been prepared. The following sections also address how the landfill will be developed to allow for contemporaneous closure and stabilization of the Expansion.

All cost estimates are prepared assuming IEPA will contract with a third party to implement the work. Cost estimates are not reduced by allowance for salvage value of equipment or waste, resale value of the land, or sale of landfill gas. Pursuant to 35 IAC 811.705, cost estimates will be revised annually for inflation during the active life and post-closure care period, or whenever a change in the closure plan or post-closure care plan results in an increase in the cost estimate. In accordance with Permit No. B-141R, Condition III.K.5., the cost of financial assurance is determined by the sum of the closure and post-closure care cost estimates for areas for which authorization to operate has been obtained or is being requested.

Fencing and/or natural barriers will remain intact and will act as security to prevent access to the Expansion. Additionally, a sign will be posted at the entrance to the Facility indicating that the Expansion is closed and is no longer accepting waste.

13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS

In accordance with Permit No. B-141R, Condition III.K.5., financial assurance for closure and post-closure care is only required for areas for which authorization to operate has been obtained or is being requested. Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 10 and portions of 11 through 14 in the Expansion would contain waste. A total of 187.5 acres is constructed and this total area includes the Phase 9C/10B liner constructed in the fall of 2023. 19.2 acres, 24,2 acres, and 14.5 acres of final cap were completed in 2017, 2020, and 2022, respectively. Therefore, the total area that would require final cover is approximately 129.64 acres.

Major closure activities include the placement of final cover, establishment of vegetative cover, construction of surface water control features, and inspection and certification activities, as discussed below. A landfill gas management system is not proposed for the Expansion. However, gas monitoring will be performed on a monthly basis pursuant to 35 IAC 811.310(c). In accordance with the gas probe installation schedule approved in permit B-141R, gas probes will be installed

outside the limits of waste and within the waste mass. Closure activities will be conducted in accordance with the approved Construction Quality Assurance Plan. All activities will be documented by a professional engineer.

13.2.1 Equipment Decontamination

Decontamination of equipment used in the operation will not be required, as no hazardous waste will be accepted at the Expansion. Equipment that has been in contact with the waste material will be manually cleaned (e.g., waste removed from tracks and undercarriage). Cleaning residue generated by these activities will be placed in the Expansion at the time of covering. Equipment used in covering activities will not become contaminated.

Cleaned equipment not necessary for post-closure care will be removed and utilized at other WMII facilities. After completion of closure activities, it is anticipated that the ticket/administration building, the scalehouse, and the maintenance facility will remain. All equipment will be removed after certification of closure, except those necessary to perform post-closure activities at the landfill.

13.2.2 Backfilling and Grading

It is further assumed that additional fill will be required over those waste disposal areas that have yet to receive waste so as to provide positive surface water drainage. Therefore, approximately 20,000 yd^3 of additional fill will be required in Phases 12 through 14, and over top portions of the existing unit.

13.2.3 Final Cover Placement

For the purposes of this cost estimate, it is assumed that the existing solid waste unit, Interim Horizontal Overlay area, and Phases 1 through 10 and portions of 11 through 14 will have received waste. 57.9 acres of final capping have been completed in 2017, 2020, and 2022. Therefore, approximately 129.64 acres of final cover would be required. Soil materials necessary to construct the final cover will be obtained from on-site sources.

All closure activities will be conducted in accordance with the approved CQA Plan. Required records and certification of final cover placement will be submitted to IEPA and maintained by the site operator.

Soils used for protective cover will be capable of supporting the final cover vegetation either as they are, or fertilizer will be introduced as needed. Installation of the protective cover layer will occur concurrent with the installation of the geomembrane, geocomposite drainage layer, and grading layer soil.

13.2.4 Vegetation

The area receiving final cover, as well as those areas disturbed, will require establishment of a vegetative cover. A mixture of native grasses and forbs will be used to establish a vegetative cover in accordance with the permit. The mixtures of grasses and forbs will be selected to be amenable to the soil quality/thickness, slopes, and moisture conditions that are proposed for the Expansion, without the need for continued maintenance. Mulch will also be used at rates necessary to provide erosion control. Approximately 129.64 acres will receive seed and mulch at the time of the first permit term closure.

13.2.5 Surface Water Management

Upon backfilling of excavated areas and minor grading work, surface water management features at the Expansion will be constructed. It is anticipated that surface water channels will be required to direct surface water runoff to the existing sedimentation basins. A total of approximately 25,400 lineal feet of surface water diversion berms and surface water channels will be constructed. The surface water control features will be constructed to the same specifications and details shown on the engineering drawings.

13.2.6 Solidification Areas Dismantlement

Solidification will only occur in areas that provide sufficient remaining fill height to allow for abandonment of temporary liner soils in place (i.e., the top elevation of the liner soils would be at or below the permitted waste grades). Therefore, the only remaining dismantlement costs are for the removal and disposal of the in-process waste materials and reagents contained inside the containers. The waste material would be disposed of at Laraway RDF. The mobile equipment and containers would be re-used elsewhere on site or at another Waste Management site and, thus would only require basic washing to facilitate re-use (negligible expense).

The estimated wastes and reagents that would need to be disposed off-site amount to 400 cy of material (10 containers at 40 cy per container – the maximum proposed number of boxes). Excavators and other mobile equipment perform dual duty with other site operations and thus, would be washed (if necessary) on-site and re-used for closure and post-closure operations.

13.2.7 Certification

The operator and an Illinois-registered professional engineer will certify to IEPA that the closure of the landfill is in accordance with the closure plan. Closure documentation drawings depicting closure conditions will accompany the certification. All activities will be conducted in accordance with the approved CQA Plan.

13.2.8 Documentation

A plat of the closed areas will be filed with the Will County Recorder's office. An Illinois-registered land surveyor will be retained for preparation and filing of the plat.

Following closure of the landfill, the operator will record a notation on the deed to the property to notify, in perpetuity, that:

1. The land has been used as a landfill facility.
2. Its use is restricted under 35 IAC 811.111(d).

The operator will also notify IEPA that the notation has been recorded and a copy has been placed in the operating record.

13.2.9 Closure Notice Procedures

If closure is necessary, IEPA will be notified of closure within 30 days after receipt of the final volume of waste, and the operator will treat, remove, or dispose of all wastes and waste residue in accordance with 35 IAC 811.111(a). Closure activities, including placement of the geomembrane, will be initiated within 60 days after receipt of the final volume of waste and in accordance with the closure plan. In accordance with 35 IAC 811.110(f), an extension will have to be approved by the Agency as closure will take longer than 180 days.

13.2.10 Cost Estimate

A cost estimate to perform closure activities for existing and requested operational areas and establish financial assurance in accordance with 35 IAC 811 requirements includes tasks of final cover system installation, construction of surface water control features, landscaping, construction quality assurance, and documentation of closure. Final cover construction includes excavating, hauling, placing, and compacting the 1-foot grading layer soil; placing the geomembrane; placing the geocomposite drainage layer; excavating, hauling, and spreading of the 2.5-foot protective cover layer; and placing a 0.5-foot topsoil layer. Landscaping includes placement of seed and mulch. Construction quality assurance includes soil testing and verification that closure activities were performed in accordance with the closure plan and the CQA Plan. A cost has also been included for surveying of the closed surfaces and filing of the plat map. The estimated closure cost for the existing and requested operational areas is summarized and presented in Table 13-1. The closure cost estimate was prepared under the assumption that an independent third party will complete all activities associated with closure.

13.2.11 Schedule

Completion of the closure activities for the existing and requested operational areas will be weather dependent. A timeline schedule for closure activities is presented in Figure 13-2. A time period has been included in each task to account for inclement weather conditions where earthwork-related construction is not possible. Based on the schedule, it is estimated the activities will take approximately 28 weeks to complete.

13.2.12 Temporary Suspension of Waste Acceptance

Pursuant to 35 IAC 812.114(d), if the solid waste unit chooses to temporarily suspend the acceptance of waste for a period of less than 30 days, no significant operational or regulatory impact will be created. A temporary shutdown of more than 30 days will be accompanied by a permit application and revision of the closure and post-closure care plan to reflect the impact of the temporary shutdown.

13.3 POST-CLOSURE CARE PLAN

In accordance with Permit No. B-141R, Condition III.J.5., the post-closure care plan presented herein addresses post-closure care for areas for which authorization to operate has been obtained or is being requested. Therefore, post-closure activities and costs are for the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 1 through 10 and portions of 11 through 14 in the Expansion, which equates to approximately 187.54 acres. Estimated costs for performing the activities for the 30-year post-closure care period are presented in Section 13.3. These costs will be placed in the operating record.

13.3.1 Post-Closure Monitoring and Maintenance

The post-closure monitoring and maintenance program will include the following:

13.3.1.1 Site Inspections

Inspection of the Expansion will be conducted on a quarterly basis for a minimum period of 30 years after closure. A written record of the inspection(s) will be made and retained at the closed Expansion. The inspector will assess the condition and need for repair of final cover and vegetation, as well as fencing, monitoring points, and surface water control features.

During the 30-year post-closure care period, corrective action, including soil filling and reseeding, will be taken if ponding is observed, cracks greater than 1-inch wide or gullies 6 inches or deeper have formed, gas odor is present, vegetative or vector problems arise, or if leachate seeps are present. Areas that have been identified by the inspector or IEPA as particularly susceptible to erosion will be recontoured and reseeded. All eroded and scoured drainage channels will be repaired, and the lining material replaced if necessary. All vegetated areas, the stormwater basin, and associated inlet and outlet structures will be inspected on a quarterly basis for 5 years after closure. After 5 years, all vegetated areas, the sedimentation basin and structures will be inspected annually until settling has stopped and there are no eroded or scoured areas. The post-closure inspection report(s) will include a statement regarding correction of items previously identified as needing repair.

13.3.1.2 Final Cover Maintenance

Residual settlement and erosion may require minor final cover repairs. Areas where ponding occurs or erosion appears will be repaired in order to maintain the integrity of the final cover. Recently filled and covered areas will require the most maintenance; however, the landfill will stabilize with time so that little, if any, maintenance will ultimately be required during the post-closure period. Generally, a 3- to 5-year stabilization period is anticipated. Residual settlement of the closed landfill is not anticipated. If it occurs at all, it is expected to be minimal and confined to localized areas. Areas of settlement will be repaired with additional cover soils, as required. On-site material will be secured to maintain final cover.

Final cover repair is estimated to average 0.33 acre per year during the 30-year post-closure care period. This average is equivalent to 1 acre per year being repaired during the first 5 years of post-closure care, 0.5 acres per year being repaired in years 6 through 15 and no repairs being made after year 15.

13.3.1.3 Vegetation Repair

Areas repaired as noted above will require re-establishment of vegetative cover. Barren areas noted during the inspection(s) will also require repair. All reworked surfaces, and areas of failed or eroded vegetation in excess of 100 square feet cumulatively, will be revegetated. As with cover repair, it is anticipated this rate will be reduced after 5 years of stabilization.

Vegetation repair is estimated to average 0.66 acres per year during the 30-year post-closure period. This average is equivalent to 2 acres per year being repaired during the first 5 years of post-closure care, 1 acres per year being repaired in years 6 through 15, and no repairs being made after year 15.

13.3.1.4 Miscellaneous Repairs

Minor repairs may be required to ensure the integrity and proper function of fencing, surface water drainage structures, and monitoring points. Repairs will be made as warranted. A cost estimate allowance is made for such work.

13.3.1.5 Drainage Control

Diversion berms, downslope channels, energy dissipators, perimeter channels, culverts, and the sedimentation basin will manage surface water runoff. Surface water run-on is expected to be minimal due to the topography and location of the Expansion. No additional costs are projected during the post-closure care period.

13.3.1.6 Acceptance of Waste During Post-Closure

Waste from off-site sources will not be accepted during the post-closure period. No waste spoil is anticipated to be generated during the post-closure period. No additional costs are associated with this operation.

13.3.2 Leachate Management and Monitoring

Leachate management at the Expansion during the 30-year post-closure care period will be performed in accordance with the approved permit. Leachate will be pumped from the leachate collection sumps into the on-site forcemain (or, alternatively into tanker trucks). The leachate will be transferred to the leachate holding tank(s), tanker truck, or directly off-site to a WWTP for treatment and disposal. A cost estimate for the treatment and disposal of the leachate is provided in Table 13-2.

Maintenance of the leachate management system during the 30-year post-closure care period will include inspection of the system, repair as warranted, and periodic replacement of pumps. The system will be inspected quarterly and at other times, as required. Costs to maintain the leachate management system include cleaning of the leachate collection pipe, replacement of pumps and control panels, and associated labor costs. It is estimated that all leachate collection pipe will be cleaned once every year and that the pumps and control panels will be replaced once every 10 years. WMII may stop managing leachate if it demonstrates, in accordance with 35 IAC 811.309(h), that the leachate no longer poses a threat to human health and the environment. Monitoring of the leachate will be performed in accordance with the approved permit.

13.3.3 Groundwater Monitoring

Sampling and analysis at the Expansion will be conducted in accordance with permit requirements, and the results will be submitted to IEPA. Sampling, analysis, and reporting of the 41 groundwater monitoring wells will be conducted quarterly for a minimum of 30 years. Groundwater monitoring records will be maintained at the facility or at the office of the engineer. The analysis will be reviewed by WMII. The reports will include a statistical data evaluation to verify that the Expansion is not impacting the groundwater. The approved sampling procedures and the groundwater monitoring program will be followed throughout the post-closure care period. If statistically significant exceedances are confirmed, assessment monitoring will be performed pursuant to 35 IAC 811.319(b). If corrective action becomes necessary, a plan will be developed pursuant to 35 IAC 811.324, 811.325, and 811.326.

13.3.4 Gas Monitoring/Sampling

The gas monitoring program at the Expansion will be installed to detect any gas migration at the property line or 100 feet from the limits of waste (whichever is less). Nineteen gas monitoring probes outside the limits of waste and 9 gas monitoring probes within the limits of waste will be monitored quarterly for pressure, methane, oxygen, and carbon dioxide. Four ambient air monitoring locations will be monitored quarterly for methane.

The following items will constitute the need for corrective action:

- A methane concentration exceeding 50 percent of the lower explosive limit in air detected at a gas monitoring probe or an ambient air monitoring location at the property boundary or 100 feet from the edge of the unit (whichever is less); or

- A methane concentration greater than 25 percent of the lower explosive limit in air detected in any building on or near the Expansion; or

- Malodors detected beyond the property boundary.

Monitoring for the presence of methane will occur on an quarterly basis to determine if corrective action is required. Should methane gas levels exceed the limits stated above, the operator will notify the IEPA in writing, within 2 business days, of an observed exceedance and implement the requirements of 35 IAC 811.311 to ensure the protection of human health.

In accordance with 35 IAC 811 requirements, the gas monitoring system will be operated until the waste has stabilized enough to no longer produce methane in quantities that exceed the allowable concentrations. Results of quarterly gas monitoring and ambient air testing during post-closure care will be reviewed and will be the basis for continuing or ceasing the gas monitoring system. The individual conducting the inspections of the closed Expansion will note the presence of any odors. Monitoring of landfill gas will continue throughout the post-closure care period. The gas monitoring plan also contains provisions for reducing the frequency of testing. An annual cost to monitor landfill gas has been included in the cost estimate.

13.3.5 Property Use During the Post-Closure Care Period

The planned use for the property during the 30-year post-closure period is anticipated to be passive recreation. This use will not disturb the integrity of the final cover, liner, or any other component of the containment system, nor will it inhibit the functioning of the monitoring systems.

13.3.6 Recordkeeping

During the 30-year post-closure care period, records of field investigations, quarterly inspections, sampling and corrective action will be maintained at the office of the site operator. All records will indicate date, program, location, and corrective action taken.

13.3.7 Security

Existing fencing, gates, berms, and other required security measures around ancillary structures will be inspected and maintained during the 30-year post-closure care period. The end use for the Expansion will be passive recreation. Therefore, limited access controls similar to that of a park would be in place.

13.3.8 Cost Estimates

A cost estimate for post-closure care is included in Table 13-2. These estimates reflect current third party costs, assuming IEPA will contract for all closure and post-closure care work. Cost items are based on current engineering and laboratory fees, and construction costs.

13.4 FINANCIAL ASSURANCE

35 IAC 811 describes the procedures by which an operator of a waste disposal facility can give "financial assurance" satisfying the requirements of Section 21.1(a) of the Illinois Environmental Protection Act. The regulations require that the operator post with IEPA a performance bond or other security for the purpose of insuring closure of the Expansion and post-closure care. Financial assurance may be given through a combination of a trust agreement, a bond guaranteeing payments or performance, a letter of credit, insurance, or self-insurance. The cost estimates and the amount of financial assurance are to be updated in accordance with 35 IAC 811 requirements.

Cost estimates for closure and post-closure care were developed based on IEPA securing a third party to implement the plans. A summary of the estimated closure and post-closure care costs for which financial assurance is required is summarized in Table 13-3. Financial assurance documents for WMII will be submitted to IEPA as part of the request for authorization to operate.

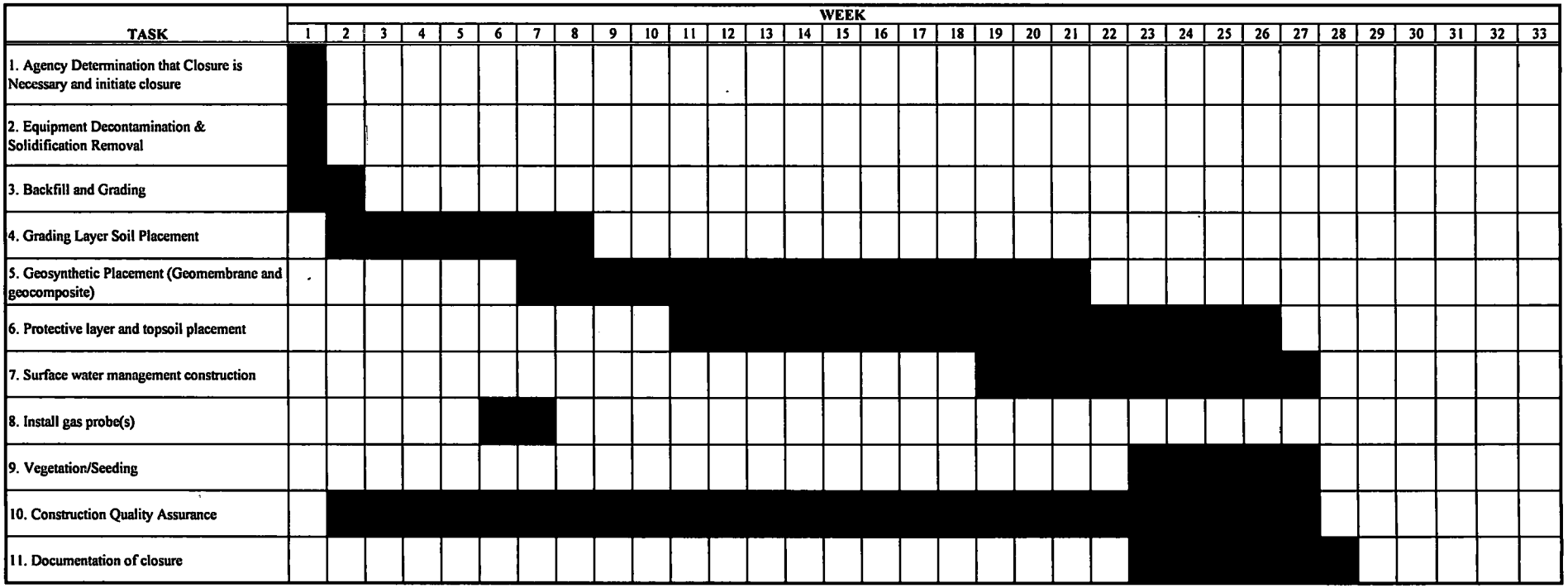
TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2023)	Inflation Factor (%)	Unit Price (2024)	Amount
1. Equipment Cleaning	10	hours	$134.35	3.60	$139.19	$1,392
2. Backfill and Grading	20,000	cubic yards	$3.36	3.60	$3.48	$69,619
3. Solidfication Dismantlement	400	cubic yards	$37.48	3.60	$38.83	$15,532
4. Final Cover (On-Site Material 129.64 acres)						
a. Grading Layer-Soil Placement (1.0 ft)	209,152	cubic yards	$4.02	3.60	$4.16	$871,060
b. Protective Soil Cover (2.5 ft)	522,881	cubic yards	$3.36	3.60	$3.48	$1,820,128
c. Topsoil Cover (0.5 ft)	104,576	cubic yards	$3.36	3.60	$3.48	$364,025
d. Geocomposite Drainage Layer	5,647,118	square feet	$0.501	3.60	$0.519	$2,931,058
e. Geomembrane	5,647,118	square feet	$0.453	3.60	$0.469	$2,650,238
5. Landscaping (Seed and Mulch)	129.64	acres	$2,207	3.60	$2,286	$296,416
6. Construct Surface Water Diversion Ditches	25,400	feet	$4.02	3.60	$4.16	$105,784
7. Install Gas Monitoring Probes[1]	4	each	$6,694	3.60	$6,935	$27,740
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 28 wks)	2800	hours	$90	3.60	$93	$261,072
b. Engineer (8 hrs/wk x 28 wks)	224	hours	$105	3.60	$109	$24,367
c. Senior Engineer (2 hrs/wk x 28 wks)	56	hours	$142	3.60	$147	$8,238
9. Closure Certification	1	lump sum	$66,930	3.60	$69,339	$69,339
10. Plat Preparation and Recording	1	lump sum	$8,031	3.60	$8,320	$8,320
					Total	**$9,524,326**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised May 2024

FIGURE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS CLOSURE SCHEDULE



Revised May 2024

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2023 Unit Price	Inflation (%)	2024 Unit Price	Annual Cost (2023)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$66.94	3.60	$69.35	$833	$24,990
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$7.36	3.60	$7.62	$4,194	$125,820
3. Vegetation Maintenance/Mowing	187.54	acres	-	-	$62.88	3.60	$65.14	$12,218	$366,540
4. Vegetation Repair	0.66	acres	-	-	$2,208.73	3.60	$2,288.24	$1,511	$45,330
5. Miscellaneous Repairs	1	lump sum	-	-	$1,338.62	3.60	$1,386.81	$1,387	$41,610
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	787.00	gallons/day	365	days	$0.134	3.60	$0.139	$39,878	$1,196,340
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$46.86	3.60	$48.55	$10,098	$302,940
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.69	3.60	$0.71	$9,722	$291,660
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$903.44	3.60	$935.96	$9,360	$280,800
List L2: 1 samples/year[2]	1	samples	1	year	$776.38	3.60	$804.33	$805	$24,150
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$181.45	3.60	$187.98	$19,551	$586,530
10. a. Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$143.96	3.60	$149.14	$8,054	$241,620
b. Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$139.13	3.60	$144.14	$7,784	$233,520
11. a. Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$143.96	3.60	$149.14	$8,352	$250,560
b. Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$139.13	3.60	$144.14	$8,072	$242,160
12. Groundwater Data Review	12	hours	4	events	$66.94	3.60	$69.35	$3,329	$99,870
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$46.86	3.60	$48.55	$1,263	$37,890
b. Gas probe analysis	28	samples	4	year	$46.86	3.60	$48.55	$5,438	$163,140
c. Ambient air monitoring	4	samples	4	year	$46.86	3.60	$48.55	$777	$23,310
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$107.10	3.60	$110.96	$3,551	$106,530
15. Decommission Groundwater wells	41	wells	1	one time	$563.78	3.60	$584.08	$23,948	$23,948
								Total	**$4,709,258**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised May 2024

TABLE 13-3

LARAWAY RECYCLING AND DISPOSAL FACILITY
SUMMARY OF COST ESTIMATES FOR WHICH FINANCIAL ASSURANCE IS REQUIRED

1. Current Operating Areas Closure	$9,524,326
2. Current Operating Areas Post-Closure	$4,709,258
Total	**$14,233,584**

Revised May 2024

Johnson, Ian

From: Johnson, Ian
Sent: Friday, May 31, 2024 10:48 AM
To: john.roop@illinois.gov
Subject: Laraway B-141R-M-181 information
Attachments: PC Cost Table I 2 May 31 2024.xls; TRP costs May 2024.xls

John –

Per our discussion this week, please find the attached cost estimate for the approved corrective actions required for the Olin Ponds at Laraway RDF. The cost estimate is labeled as Table 10-2 and can be inserted after Table 10-1 in the current application. In addition, I have increased the RCRA post-closure cost estimate for the groundwater monitoring section to include 4 events. I will be send the hard copies to your attention via UPS. Please contact me if you need anything else. Thanks and have a good weekend.

Ian

RECEIVED
JUN 05 2024
IEPA-BOL
PERMIT SECTION

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	1	$20,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	1	$2,200
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	1	$3,600
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	1	$2,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	1	$1,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	1	$2,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Sample	$528	10	4	$21,120
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Sample	$536	27	4	$57,888
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Sample	$431	40	4	$68,960
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	1	$5,400
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	12	$8,400
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	1	$35,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	1	$198,900
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	1	$50,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	1	$15,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$518,468
2010 thru 2023 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%,7%, 3.6%						**$710,485**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2025.
(2) Includes sampling, evaluation, development of contour maps.

Table 10-2

ESTIMATED CORRECTIVE ACTION COSTS - OLIN PONDS SWMU

R 000863

Item	Quantity	Units	Unit Cost	Approximate Cost
1. Pump and treat liquids in Olin Ponds to on-site treatment plant (east pond already dewatered)	191,261,000	gallons	$0.015	$ 2,868,915
2. Removal of phosphate solids to south stack (estimate 4' thick over 71 acres)	458,186	cy	$7.20	$ 3,298,939
3. Remove one-foot of impacted soils to south stack	114,546	cy	$7.20	$ 824,731
4. Removal of treatment plant piping	1500	feet	$20.00	$ 30,000
5. Sampling and testing of clay soils				
a. Sampling technician (2 days per report. 71 samples per report)	10	days	$1,000.00	$ 10,000
b. Soil analysis (5 samples per acre @ 71 acres)	355	samples	$200.00	$ 71,000
c. Reporting (5 separate reports over 3-4 years)	5	each	$5,000	$ 25,000
6. Corrective Action Observation:				
a. Inspector (1 @ 40 hrs/wk x 104 wks)[1]	4,160	hours	$61.00	$ 253,760
b. Senior Engineer (4 hrs/wk x 104 wks)[1]	416	hours	$150.00	$ 62,400
			GRAND TOTAL	**$ 7,444,745**

Notes:

1. Phosphate solids and impacted soils removal assumed to take place for 26 weeks per year. Corrective action activities estimated to be completed in 3-4 years.)

May 2024

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

June 17, 2024

Mr. John Roop
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification Logs B-141R-M-181
NOD Response

RECEIVED
JUN 20 2024
IEPA-BOL
PERMIT SECTION

Dear Mr. Roop:

This letter and its attachments are being submitted to address the Agency's June 12, 2024 Notice of Deficiency (NOD) received regarding the above-referenced permit modification for Laraway RDF. Each deficiency as outlined in the NOD are addressed below.

NOD Items 1 and 2:
As we had discussed via our Teams call today, the total post-closure care cost must be multiplied by each of the last 14 years inflation factors to obtain the final total cost at the bottom right corner of table I-2. In addition, Table I-2 costs have also been revised to account for 2 years of costs incurred (through the end of 2025). Only the last two items on Table I-2 are one-time costs. Please remove the old Table I-2 and insert the revised Table I-2 into the application.

NOD Items 3 and 4:
The $2 discrepancy in total cost on Table 13-1 is due to rounding error. The total cost as shown of Table 13-1 is to the nearest dollar. The unit costs for grading layer placement, surface water diversion ditches, inspectors, and senior engineer have been updated to the nearest penny and have the inflation factor of 1.036 applied. Please remove the old Table 13-1 and insert the revised Table 13-1 into the application.

NOD Item 5:
The leachate transportation and disposal cost for 2024 should be $0.138824 as noted on the revised Table 13-2. This cost reflects the inflation factor of 1.036. Multiplying $0.138824 by 787 gallons/day times 365 days/year gives an annual cost of $39,877.88. The table rounds up to the nearest dollar or to a cost of $39,878. Table 13-2 has been revised to reflect the 2024 unit price for leachate transportation and disposal. Typically it is not necessary to provide so many decimal places and the simple act of rounding up or down by a tenth or hundredth of a cent can cause a discrepancy of a few hundred dollars if accounting for 30 years of costs. Please remove the old Table 13-2 and insert the revised Table 13-2 into the application.

As required, the original and three copies of this information are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	2	$40,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	2	$4,400
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	2	$7,200
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	2	$2,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	2	$4,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Sample	$528	10	2	$10,560
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Sample	$536	27	2	$28,944
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Sample	$431	40	2	$34,480
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	2	$10,800
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	24	$16,800
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	2	$70,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	2	$397,800
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	2	$100,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	2	$30,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$789,984
2010 thru 2023 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%,7%, 3.6%						**$1,082,559**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2025.
(2) Includes sampling, evaluation, development of contour maps.

TABLE 13-1
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATING AREAS CLOSURE COST ESTIMATE

Service	Quantity	Unit	Unit Price (2023)	Inflation Factor (%)	Unit Price (2024)	Amount
1. Equipment Cleaning	10	hours	$134.35	3.60	$139.19	$1,392
2. Backfill and Grading	20,000	cubic yards	$3.36	3.60	$3.48	$69,619
3. Solidfication Dismantlement	400	cubic yards	$37.48	3.60	$38.83	$15,532
4. Final Cover (On-Site Material 129.64 acres)						
a. Grading Layer Soil Placement (1.0 ft)	209,152	cubic yards	$4.02	3.60	$4.16472	$871,060
b. Protective Soil Cover (2.5 ft)	522,881	cubic yards	$3.36	3.60	$3.481	$1,820,128
c. Topsoil Cover (0.5 ft)	104,576	cubic yards	$3.36	3.60	$3.481	$364,025
d. Geocomposite Drainage Layer	5,647,118	square feet	$0.501	3.60	$0.519	$2,931,058
e. Geomembrane	5,647,118	square feet	$0.453	3.60	$0.469	$2,650,238
5. Landscaping (Seed and Mulch)	129.64	acres	$2,207	3.60	$2,286.45	$296,416
6. Construct Surface Water Diversion Ditches	25,400	feet	$4.02	3.60	$4.16472	$105,784
7. Install Gas Monitoring Probes[1]	4	each	$6,694	3.60	$6,935	$27,740
8. Construction Observation						
a. Inspectors (2 @ 50 hrs/wk x 28 wks)	2800	hours	$90	3.60	$93.24	$261,072
b. Engineer (8 hrs/wk x 28 wks)	224	hours	$105	3.60	$108.78	$24,367
c. Senior Engineer (2 hrs/wk x 28 wks)	56	hours	$142	3.60	$147.112	$8,238
9. Closure Certification	1	lump sum	$66,930	3.60	$69,339	$69,339
10. Plat Preparation and Recording	1	lump sum	$8,031	3.60	$8,320	$8,320
					Total	**$9,524,326**

1. Four additional gas probes would be installed at closure. Two on west end of Phase 14 and two within the waste.

Revised June 2024

TABLE 13-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
CURRENT OPERATIONAL AREAS POST-CLOSURE CARE COST ESTIMATE

Description	Quantity	Unit	Quantity	Unit	2023 Unit Price	Inflation (%)	2024 Unit Price	Annual Cost (2023)	30 Year Cost
1. Site Inspection and Documentation	3	hours	4	quarters	$66.94	3.60	$69.35	$833	$24,990
2. Final Cover Maintenance (0.33 acres @ 1')	550	cubic yards	-	-	$7.36	3.60	$7.62	$4,194	$125,820
3. Vegetation Maintenance/Mowing	187.54	acres	-	-	$62.88	3.60	$65.14	$12,218	$366,540
4. Vegetation Repair	0.66	acres	-	-	$2,208.73	3.60	$2,288.24	$1,511	$45,330
5. Miscellaneous Repairs	1	lump sum	-	-	$1,338.62	3.60	$1,386.81	$1,387	$41,610
6. Leachate Transportation and Disposal (4.2 gal/ac/day)	787.00	gallons/day	365	days	$0.134	3.60	$0.1388	$39,878	$1,196,340
7. Leachate Collection System Maintenance									
a. Labor	4	hours	52	weeks	$46.86	3.60	$48.55	$10,098	$302,940
b. Cleaning of leachate collection pipe	13,600	linear feet	-	-	$0.69	3.60	$0.71	$9,722	$291,660
8. Leachate Monitoring (Analysis and Sampling)[1]									
List L1: 5 samples x 2 events[2]	5	samples	2	events	$903.44	3.60	$935.96	$9,360	$280,800
List L2: 1 samples/year[2]	1	samples	1	year	$776.38	3.60	$804.33	$805	$24,150
9. Groundwater & Leacahate Sampling and Level Measurements	26	hours	4	events	$181.45	3.60	$187.98	$19,551	$586,530
10. a. Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$143.96	3.60	$149.14	$8,054	$241,620
b. Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$139.13	3.60	$144.14	$7,784	$233,520
11. a. Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$143.96	3.60	$149.14	$8,352	$250,560
b. Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$139.13	3.60	$144.14	$8,072	$242,160
12. Groundwater Data Review	12	hours	4	events	$66.94	3.60	$69.35	$3,329	$99,870
13. Gas Monitoring/Sampling									
a. Labor	26	hours	1	year	$46.86	3.60	$48.55	$1,263	$37,890
b. Gas probe analysis	28	samples	4	year	$46.86	3.60	$48.55	$5,438	$163,140
c. Ambient air monitoring	4	samples	4	year	$46.86	3.60	$48.55	$777	$23,310
14. Preparation of Annual Reports/Certification of Completion	8	hours	4	quarters	$107.10	3.60	$110.96	$3,551	$106,530
15. Decommission Groundwater wells	41	wells	1	one time	$563.78	3.60	$584.08	$23,948	$23,948
								Total	**$4,709,258**

Notes

1. Routine leachate monitoring performed on a semi-annual basis.
2. Lists L1 and L2 provided in Permit No. B-141R.

Revised June 2024

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

June 24, 2024

Mr. John Roop
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
JUN 26 2024
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA #1970450002 - Will County, Illinois
ILD074411745
Class 1* Permit Modification Logs B-141R-M-181
Additional Information

Dear Mr. Roop:

This letter and its attachments are being submitted to address the Agency's e-mail from June 21st regarding the above-referenced permit modification for Laraway RDF.

RCRA Post Closure Cost Table I-2:
The groundwater monitoring unit costs noted on the attached Table I-2 are the total for each well per year. Therefore, that annual cost per well has been multiplied by 2 to account for the two years. Sampling and analytical unit costs have also been revised slightly to reflect current 3rd party pricing. Please remove previous versions of Table I-2 and insert the revised Table I-2 into the application.

As required, the original and three copies of this information are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

TABLE I-2
LARAWAY RECYCLING AND DISPOSAL FACILITY
POST-CLOSURE COST ESTIMATE

ITEM DESCRIPTION	ASSUMPTIONS & COMMENTS	UNIT	UNIT RATE	NUMBER OF UNITS PER EVENT	NUMBER OF EVENTS	TOTAL
GENERAL MAINTENANCE & INSPECTIONS						
General maintenance of RCRA Unit (all O&M efforts except for specific line items below)	Utilities, labor, and materials	Per Year	$20,000	1	2	$40,000
Mow & fertilize vegetative cover	fertilize as needed, mow annual	Per Acre	$40	55	2	$4,400
Redress final cover (minor grading & vegetation	Two acres every five years	Per Acre	$1,800	2	2	$7,200
Inspect cover, runon/runoff systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect Gas & Leachate Systems	4 times/year	Per Inspection	$500	4	2	$4,000
Inspect emergency/safety equipment	4 times/year	Per Inspection	$250	4	2	$2,000
Inspect Fence & Gates & Benchmark	4 times/year	Per Inspection	$500	4	2	$4,000
GROUNDWATER SAMPLING & ANALYSIS (2)						
Analytical Costs Observation wells	10 wells Semi-Ann. Lists	Per Well/yr	$660	10	2	$13,200
Analytical Costs GMZ wells	27 wells Semi-Ann. Lists	Per Well/yr	$670	27	2	$36,180
Sampling costs (includes elevation only wells)	40 wells for entire yearly program	Per Well/yr	$440	40	2	$35,200
LEACHATE SAMPLING, ANALYSIS & DISPOSAL						
Sampling & Analysis - every year	Full Appendix I list (4 samples/yr)	Per Event	$1,350	4	2	$10,800
Monthly level monitoring	DTMs and leachate wells(28 points/month)	Per Sample	$25	28	24	$16,800
Leachate Management - O&M	Utilities, labor, and materials	Per Year	$35,000	1	2	$70,000
Transporation & Disposal	260 loads/yr @ 4500 gallons/load	Per Gallon	$0.17	1,170,000	2	$397,800
GROUNDWATER EXTRACTION SYSTEM						
Groundwater Extraction System O&M	Utilities, labor, and materials	Per Year	$50,000	1	2	$100,000
REPORT SUBMITTALS/CERTIFICATIONS						
Misc. reporting	groundwater, RCRA, leachate	Per Year	$15,000	1	2	$30,000
Post-closure certification	at end of post-closure period	One time	$5,000	1	1	$5,000
Decommission Groundwater Wells (40 wells)	at end of post-closure period	One time	$20,000	1	1	$20,000
TOTAL POST-CLOSURE COST						$800,580
2010 thru 2023 CPI increases of 1.2%, 2.1%, 1.8%, 1.5%, 1.4%, 1%, 1.3%, 1.7%, 2.3%, 1.8%, 1.2%, 4.13%,7%, 3.6%						**$1,097,079**

NOTES:
(1) Per Permit Log No. B-141R, post -closure to continue until 9/10/2022, or 34 years. However, costs are provided through end of 2025.
(2) Includes sampling, evaluation, development of contour maps.

LARAWAY RCRA G.W. SAMPLING

R 000871

Exhibit A Addendum to the Master Service Agreement for Professional Consulting Services	WM AFFILIATE NAME WM ADDENDUM #:
Date: December 14, 2023	Cell:
Site Name: Laraway Recycling and Disposal Facility	Infrastructure:
Project Name: 2024 Laraway RDF Routine Monitoring Program	Misc.:

In accordance with the Master Service Agreement for Consulting Services dated May 4th, 2011 between Environmental Monitoring and Technologies, Inc. (EMT) and WASTE MANAGEMENT HOLDINGS, INC., on behalf and for the benefit of its subsidiaries and affiliates ("WM Affiliates") this Addendum describes the Work and/or additional deleted or changed Work to be performed by the Consultant in consideration for payment of the Agreement Price by the WM Affiliate for whom the Work is to be performed (If this is a modification to an existing Addendum, this shall be indicated by using an A, B, or C suffix to the addendum number below).

Ian Johnson
WM Affiliate Representative for this work

Steven Legacki
CONSULTANT'S Project Manager for this work

A detailed SCOPE of WORK and corresponding prices dated 12/13/2023 is attached to this addendum and made a part hereof. "Type" of agreement Price shall be indicated below: "1" for firm lump sum price; "2" for guaranteed not to exceed price.

SCOPE OF WORK AND AGREEMENT PRICE	TYPE	A	B	C	TOTAL
TASK DESCRIPTION					
RCRA Task 1.1 – 2nd Quarter Groundwater	1,2	$7,295.00			$7,295.00
RCRA Task 1.2 – 4th Quarter Groundwater	1,2	$7,295.00			$7,295.00
RCRA Task 2.1 and Task 2.2 – 2Q/4Q RCRA Levels	1,2	$25.00			$50.00

LARAWAY G.W. SAMPLING (RCRA)

R 000872

Period of Performance: This Work and all necessary and required services relating thereto shall be completed by: December 31st, 2024.

Approval and acceptance of the terms and conditions of this Addendum is acknowledged by the signature of the undersigned authorized representatives of the parties to this agreement.

All invoices to be submitted under this Addendum must include the WM Affiliate's Addendum number, be allocated per task as described above and be submitted to: Ian Johnson, Prairie View Recycling and Disposal Facility, 29755 South Prairie View Drive, Wilmington, IL 60481.

Exceeding the agreement price listed above without prior execution of a change order will be at the Consultant's own risk.

This project is governed by the Master Service Agreement referenced above (which is incorporated by reference). Nothing contained on this form will modify the terms and conditions of the Master Service Agreement.

Each Addendum authorizing the Work shall be executed by an authorized representative of the Waste Management, Inc. subsidiary or affiliated company (WM Affiliate) for whom the Work is to be performed.

WM Project Manager — Signature & Date: 1/2/24	Adam Szafran Authorized Representative of Consultant (printed)
WM District Manager (or Corp. Enviro. Director)	Director of Field Services Title
WM Group Engineering Director. (or VP Enviro. Mgt. Group) if required	12/13/2023 Signature & Date

Additional services will be charged at the following rates:

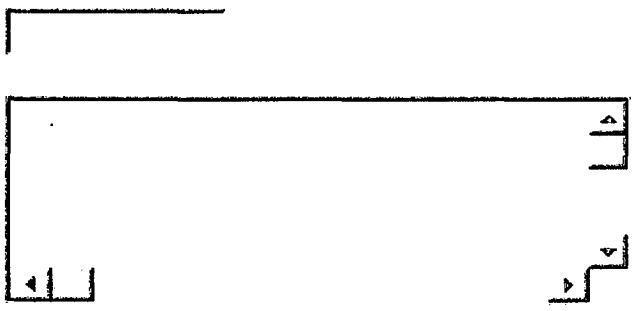
Project Manager	$	100/hour
Team Leader	$	85/hour
Field Technician – Straight time	$	75/hour
Over time	$	85/hour
Equipment	$	25/day
Travel time	$	75/hour
Vehicle	$	70/day
Mileage*	$	.625/mile portal to portal
*mileage is based on current IRS rate		
Additional equipment - itemized		Cost + 15%
Additional materials and supplies - itemized		Cost + 15%

Site/Project Version: Current Lims Configuration		
Calendar Year: 2024	Eurofins Project No: 48002980	Event ID: 1641

Laboratory TAT Standard = 15 Business Days QC Reporting Level: 2	**Laraway RDF**
Site # / Monitoring Code	**ANNUAL RCRA (4) IEPA E3 List**
495 / 200	**Sampled in Months: 4**

Method	Analyte	Sub-Contractor	Units	Reporting Limit		cost
8260C	1,1,1-Trichloroethane		ug/L	1		$77.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Acetone		ug/L	10		-
8260C	Benzene		ug/L	1		-
8260C	Carbon disulfide		ug/L	1		-
8260C	Chlorobenzene		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Ethylbenzene		ug/L	1		-
8260C	Isobutanol		ug/L	40		-
8260C	Methyl Ethyl Ketone		ug/L	10		-
8260C	Methylene Chloride		ug/L	1		-
8260C	o-Dichlorobenzene		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	Toluene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	Xylenes, Total		ug/L	2		-
8260C	1,1,1-Trichloroethane		ug/L	1		$0.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Acetone		ug/L	10		-
8260C	Benzene		ug/L	1		-
8260C	Carbon disulfide		ug/L	1		-
8260C	Chlorobenzene		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-

8260C	cis-1,2-Dichloroethylene		ug/L	1		
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Ethylbenzene		ug/L	1		-
8260C	Isobutanol		ug/L	40		-
8260C	Methyl Ethyl Ketone		ug/L	10		-
8260C	Methylene Chloride		ug/L	1		-
8260C	o-Dichlorobenzene		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	Toluene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	Xylenes, Total		ug/L	2		-
8270D LL	Hexachlorophene	X	ug/L	25		$170.00
8270D LL	Hexachloropropene	X	ug/L	10		-
8270D LL	Kepone	X	ug/L	20		-
8270D LL	Pyridine	X	ug/L	5		-
6010C	Cadmium, Total		ug/L	2		$6.00
6010C	Iron, Total		ug/L	50		$6.00
7470A	Mercury, Total		ug/L	0.2		$10.00
Field Sampling	Field pH	X	SU	n/a		$0.00
Field Sampling	Bottom Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Specific Conductance, Field	X	umhos/cm	n/a		-
Field Sampling	Temperature	X	Degrees F	n/a		-
Field Sampling	Oxidation Reduction Potential	X	millivolts	n/a		-
Field Sampling	Ground Water Elevation	X	ft/msl	n/a		-
Field Sampling	Depth to water from land surface	X	ft	n/a		-
Field Sampling	Field Turbidity	X	NTU	n/a		-
Field Sampling	Measuring Point Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Depth to Water from Top of Casing	X	ft	n/a		-
					total	$269.00



Site/Project Version: Current Lims Configuration

Calendar Year: 2024 Eurofins Project No: 48002980 Event ID: 1643

Laboratory TAT Standard = 15 Business Days

QC Reporting Level: 2

Laraway RDF

Annual RCRA Observation Wells - IEPA E2 list

Sampled in Months: 10

Site #	Monitoring Code
495	200

Method	Analyte	Sub-Contractor	Units	Reporting Limit	Cost
8260C	1,2-Dichloropropane		ug/L	1	$77.00
8260C	Chloroethane		ug/L	1	-
8260C	Chloromethane		ug/L	1	-
8260C	Dichlorodifluoromethane		ug/L	1	-
8260C	trans-1.2-Dichloroethylene		ug/L	1	-
8260C	Trichlorofluoromethane		ug/L	1	-
8260C	1,2-Dichloropropane		ug/L	1	$0.00
8260C	Chloroethane		ug/L	1	-
8260C	Chloromethane		ug/L	1	-
8260C	Dichlorodifluoromethane		ug/L	1	-
8260C	trans-1.2-Dichloroethylene		ug/L	1	-
8260C	Trichlorofluoromethane		ug/L	1	-
8260C SIM	p-Dioxane		ug/L	1.6	$77.00
6010C	Barium, Total		ug/L	2	$6.00
6010C	Chromium, Total		ug/L	4	$6.00
6010C	Arsenic, Dissolved		ug/L	15	$6.00
6010C	Barium, Dissolved		ug/L	2	$6.00
6010C	Chromium, Dissolved		ug/L	4	$6.00
6010C	Lead, Dissolved		ug/L	10	$6.00
6020A	Arsenic, Total		ug/L	1	$8.00
6020A	Lead, Total		ug/L	1	$8.00
Field Sampl	Field pH	X	SU	n/a	$0.00
Field Sampl	Specific Conductance	X	umhos/cm	n/a	-
Field Sampl	Bottom Elevation (ft MSL)	X	ft/msl	n/a	-
Field Sampl	Temperature	X	Degrees F	n/a	-
Field Sampl	Oxidation Reduction Potential	X	millivolts	n/a	-
Field Sampl	Ground Water Elevation	X	ft/msl	n/a	-
Field Sampl	Depth to water from land surface	X	ft	n/a	-
Field Sampl	Field Turbidity	X	NTU	n/a	-
Field Sampl	Measuring Point Elevation (ft MS	X	ft/msl	n/a	-
Field Sampl	Depth to Water from Top of Casin	X	ft	n/a	-
				Total	$206.00

Site/Project Version: Current Lims Configuration

Calendar Year: 2024 | Eurofins Project No: 48002980 | Event ID: 1642

Laboratory TAT Standard = 15 Business Days

QC Reporting Level: 2

Laraway RDF

Site #	Monitoring Code
495	200

Annual RCRA - E1 List

Sampled in Months: 10

Method	Analyte	Sub-Contractor	Units	Reporting Limit		cost
8260C	1,1,1-Trichloroethane		ug/L	1		$77.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	1,1,1-Trichloroethane		ug/L	1		$0.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C SIM	p-Dioxane		ug/L	1.6		$77.00
6010C	Barium, Total		ug/L	2		$6.00
6010C	Chromium, Total		ug/L	4		$6.00
6010C	Arsenic, Dissolved		ug/L	15		$6.00
6010C	Barium, Dissolved		ug/L	2		$6.00
6010C	Chromium, Dissolved		ug/L	4		$6.00
6010C	Lead, Dissolved		ug/L	10		$6.00
6020A	Arsenic, Total		ug/L	1		$8.00

6020A	Lead, Total		ug/L	1		$8.00
SM 4500 Cl- E	Chloride		mg/L	1		$9.00
Field Sampling	pH, Field	X	SU	n/a		$0.00
Field Sampling	Specific Conductance	X	umhos/cm	n/a		-
Field Sampling	Bottom Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Temperature	X	Degrees F	n/a		-
Field Sampling	Oxidation Reduction Potential	X	millivolts	n/a		-
Field Sampling	Ground Water Elevation	X	ft/msl	n/a		-
Field Sampling	Depth to water from land surface	X	ft	n/a		-
Field Sampling	Field Turbidity	X	NTU	n/a		-
Field Sampling	Measuring Point Elevation (ft MSL)	X	ft/msl	n/a		
Field Sampling	Depth to Water from Top of Casing	X	ft	n/a		
					total	$215.00



B-141R-M-181
cc: Des Plaines
R 000878

July 8, 2024

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

Mr. John Roop
IEPA - Bureau of Land
Permit Section
1021 North Grand Ave. East
Springfield, Illinois 62702

RECEIVED
JUL 10 2024
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
IEPA#1970450002 / ILD074411745 - Will County, Illinois
Class 1* Permit Modification Logs B-141R-M-181
NOD Response

Dear Mr. Roop:

This letter and its attachments are being submitted to address the Agency's July 3, 2024 Notice of Deficiency (NOD) received regarding the above-referenced permit modification for Laraway RDF. Each deficiency as outlined in the NOD is addressed below.

NOD Items 1:
As we had discussed via our Teams call today, the groundwater sampling and analysis costs in Table I-2 are much higher than what we are actually paying for today (2024 dollars). I have attached the lab analytical costs for the E1, E2, and E3 groundwater lists. Also attached are the sampling costs for the groundwater and leachate for the year, annual lab analysis costs for the leachate, and a hand calculation showing what we are currently paying in 2024 dollars versus what is listed in Table I-2.

The post-closure care unit costs in Table I-2 must be multiplied by each of the last 14 years inflation factors to obtain the 2024 unit costs. The latest version of Table I-2 previously provided as part of the June 24, 2024 NOD submittal is still valid.

As required, the original and three copies of this information are enclosed. If you have any questions or require additional information, please contact me immediately at 815-280-6301.

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 ensure 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. [35 IAC 702.126(d)]

Sincerely,
WASTE MANAGEMENT OF ILLINOIS, INC.

Ian C. Johnson, P.E.
Environmental Engineer

xc: Dave Hartke

LARAWAY RCRA UNIT POST-CLOSURE COSTS

R 000879

ANALYTICAL COSTS OBSERVATION WELLS (10 WELLS)

2nd QTR – E1 & E3 LISTS = $484/WELL × 10 = $4840

4TH QTR – E2 LIST = $206/WELL × 10 = $2060

$6900/YEAR ÷ 10 = $690/WELL (2024 DOLLARS)

COST IN TABLE I-2 = $904/WELL (2024 DOLLARS)

ANALYTICAL COSTS GMZ WELLS (27 WELLS)

2nd QTR – E1 & E3 LISTS = $484/WELL × 27 = $13,068

4TH QTR – E1 LIST = $215/WELL × 27 = $5805

$18,873/YEAR ÷ 27 = $700/WELL (2024 DOLLARS)

COST IN TABLE I-2 = $917/WELL (2024 DOLLARS)

GROUNDWATER SAMPLING COSTS

2nd QTR = $7295 (ALL WELLS)

4TH QTR = $7295 (ALL WELLS)

WATER LEVELS 2nd & 4TH QTR = $50

TOTAL $14,640/YEAR ÷ 40 = $366/WELL (2024 DOLLARS)

COST IN TABLE I-2 = $602/WELL (2024 DOLLARS)

LEACHATE SAMPLING & ANALYSIS (ANNUAL)

P. I LIST – $4252 FOR 4 POINTS

SAMPLING – $1000 FOR 4 POINTS

$5252/YEAR ÷ 4 = $1313/POINT (2024 DOLLARS)

COST IN TABLE I-2 = $1849/POINT (2024 DOLLARS)

Exhibit A Addendum to the Master Service Agreement for Professional Consulting Services SAMPLING COSTS ONLY	WM AFFILIATE NAME WM ADDENDUM #:
Date: December 14, 2023	Cell:
Site Name: Laraway Recycling and Disposal Facility	Infrastructure:
Project Name: 2024 Laraway RDF Routine Monitoring Program	Misc.:

In accordance with the Master Service Agreement for Consulting Services dated May 4th, 2011 between Environmental Monitoring and Technologies, Inc. (EMT) and WASTE MANAGEMENT HOLDINGS, INC., on behalf and for the benefit of its subsidiaries and affiliates ("WM Affiliates") this Addendum describes the Work and/or additional deleted or changed Work to be performed by the Consultant in consideration for payment of the Agreement Price by the WM Affiliate for whom the Work is to be performed (If this is a modification to an existing Addendum, this shall be indicated by using an A, B, or C suffix to the addendum number below).

Ian Johnson
WM Affiliate Representative for this work

Steven Legacki
CONSULTANT'S Project Manager for this work

A detailed SCOPE of WORK and corresponding prices dated 12/13/2023 is attached to this addendum and made a part hereof. "Type" of agreement Price shall be indicated below: "1" for firm lump sum price; "2" for guaranteed not to exceed price.

SCOPE OF WORK AND AGREEMENT PRICE	TYPE	A	B	C	TOTAL ANNUAL COSTS
TASK DESCRIPTION					
RCRA Task 1.1 – 2nd Quarter Groundwater		$7,295.00			$7,295.00
RCRA Task 1.2 – 4th Quarter Groundwater		$7,295.00			$7,295.00
RCRA Task 2.1 and Task 2.2 – 2Q/4Q RCRA Levels		$25.00			$50.00
RCRA – Monthly Leachate Level Monitoring		$205.00			$2,460.00
RCRA – Monthly Drum Trench Level Monitoring		$210.00			$2,520.00
RCRA 1Q Annual Drum Trench Sampling		$1,000.00			$1,000.00

eurofins | Environment Testing

LARAWAY
RCRA LEACHATE ANALYSIS

R 000881

Invoice No.	4800122946	**Invoice Date**	February 12, 2024
Terms	Net 75 days	**Federal Tax ID**	47-4895193
Remit to	Eurofins Environment Testing Northeast, LLC PO BOX 1465, Carol Stream, IL 60132-1465		
Wire	Citibank ABA: 031100209 Acct# 38996683 SWIFT Code: CITIUS33		
ACH	Citibank ABA: 031100209 Acct# 38996683 SWIFT Code: CITIUS33		

Bill to:

Waste Management - Accounts Payable
Attn: lgrassl@wm.com
PO Box 4745
Portland, OR 97208

Ship to:

Waste Management
Prairie View RDF
29755 Prairie View Dr.
Wilmington, IL 60481

P.O. Number	W.O. Number	Contract Number	Work Ordered by
13269784			Ian Johnson
Job Description	**Site Name**	**SDG Number**	**Invoice Contact**
See below	Laraway RDF		Waste Management Invoices

Job No.	Job Description / Method/Test Description	Receipt Date	Quantity	Unit Price	Amount
	Annual-RCRA Leachate (1)				
J216124-1	**Laraway RDF**	01/03/2024			
	8290A - Appendix 9 List		4.00	477.75	1,911.00
	6010C - Metals ICP		4.00	87.36	349.44
	7470A - Mercury (CVAA)		4.00	9.10	36.40
	8081B - Pesticides		4.00	72.80	291.20
	8082A - PCBs		4.00	50.96	203.84
	8151A - Herbicides		4.00	86.45	345.80
	8260C - VOA - 8260		4.00	70.07	280.28
	8270D - Semi-volatiles		4.00	154.70	618.80
	9012B - Cyanide, Total andor Amenable		4.00	17.29	69.16
	SM 4500 S2 F - Sulfide, Total		4.00	8.19	32.76
	Contracted Discount 7%		1.00	-289.71	(289.71)
	Inflationary Surcharge 9.75%		1.00	403.52	403.52

ANALYTICAL ANNUAL COST

Project Number	Client Number	Project Manager	Subtotal (USD)	$4,252.49
48002980	429373	Katelyn Proulx		
Latest Sample Receipt Date	**Latest Report Date**	**Phone Number**	**Total (USD)**	**$4,252.49**
01/03/2024	02/07/2024	(716) 691-2600		

For proper credit, please include invoice number on all remittance.

Eurofins Buffalo - 10 Hazelwood Drive, Amherst, NY 14228-2298

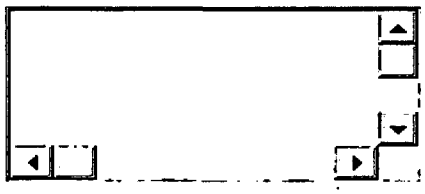
This invoice falls under Eurofins Environment Testing Northeast, LLC Standard T&C's of Net 30 Days unless superseded by another valid contract vehicle in place at the time these services were rendered.

Site/Project Version: Current Lims Configuration		
Calendar Year: 2024	Eurofins Project No: 48002980	Event ID: 1642

Laboratory TAT Standard = 15 Business Days QC Reporting Level: 2	**Laraway RDF**
Site # / Monitoring Code	**Annual RCRA - E1 List**
495 / 200	**Sampled in Months: 10**

Method	Analyte	Sub-Contractor	Units	Reporting Limit		cost
8260C	1,1,1-Trichloroethane		ug/L	1		$77.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	1,1,1-Trichloroethane		ug/L	1		$0.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C SIM	p-Dioxane		ug/L	1.6		$77.00
6010C	Barium, Total		ug/L	2		$6.00
6010C	Chromium, Total		ug/L	4		$6.00
6010C	Arsenic, Dissolved		ug/L	15		$6.00
6010C	Barium, Dissolved		ug/L	2		$6.00
6010C	Chromium, Dissolved		ug/L	4		$6.00
6010C	Lead, Dissolved		ug/L	10		$6.00
6020A	Arsenic, Total		ug/L	1		$8.00

6020A	Lead, Total		ug/L	1		$8.00
SM 4500 Cl- E	Chloride		mg/L	1		$9.00
Field Sampling	pH, Field	X	SU	n/a		$0.00
Field Sampling	Specific Conductance	X	umhos/cm	n/a		-
Field Sampling	Bottom Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Temperature	X	Degrees F	n/a		-
Field Sampling	Oxidation Reduction Potential	X	millivolts	n/a		-
Field Sampling	Ground Water Elevation	X	ft/msl	n/a		-
Field Sampling	Depth to water from land surface	X	ft	n/a		-
Field Sampling	Field Turbidity	X	NTU	n/a		-
Field Sampling	Measuring Point Elevation (ft MSL)	X	ft/msl	n/a		
Field Sampling	Depth to Water from Top of Casing	X	ft	n/a		
					total	$215.00



E1 LIST

Site/Project Version: Current Lims Configuration

Calendar Year: 2024 | Eurofins Project No: 48002980 | Event ID: 1643

Laboratory TAT Standard = 15 Business Days

QC Reporting Level: 2

Laraway RDF

Site #	Monitoring Code
495	200

Annual RCRA Observation Wells - IEPA E2 list

Sampled in Months: 10

Method	Analyte	Sub-Contractor	Units	Reporting Limit		Cost		
8260C	1,2-Dichloropropane		ug/L	1		$77.00		
8260C	Chloroethane		ug/L	1		-		
8260C	Chloromethane		ug/L	1		-		
8260C	Dichlorodifluoromethane		ug/L	1		-		
8260C	trans-1,2-Dichloroethylene		ug/L	1		-		
8260C	Trichlorofluoromethane		ug/L	1		-		
8260C	1,2-Dichloropropane		ug/L	1		$0.00		
8260C	Chloroethane		ug/L	1		-		
8260C	Chloromethane		ug/L	1		-		
8260C	Dichlorodifluoromethane		ug/L	1		-		
8260C	trans-1,2-Dichloroethylene		ug/L	1		-		
8260C	Trichlorofluoromethane		ug/L	1		-		
8260C SIM	p-Dioxane		ug/L	1.6		$77.00		
6010C	Barium, Total		ug/L	2		$6.00		
6010C	Chromium, Total		ug/L	4		$6.00		
6010C	Arsenic, Dissolved		ug/L	15		$6.00		
6010C	Barium, Dissolved		ug/L	2		$6.00		
6010C	Chromium, Dissolved		ug/L	4		$6.00		
6010C	Lead, Dissolved		ug/L	10		$6.00		
6020A	Arsenic, Total		ug/L	1		$8.00		
6020A	Lead, Total		ug/L	1		$8.00		
Field Sampl	Field pH	X	SU	n/a		$0.00		
Field Sampl	Specific Conductance	X	umhos/cm	n/a		-		
Field Sampl	Bottom Elevation (ft MSL)	X	ft/msl	n/a		-		
Field Sampl	Temperature	X	Degrees F	n/a		-		
Field Sampl	Oxidation Reduction Potential	X	millivolts	n/a		-		
Field Sampl	Ground Water Elevation	X	ft/msl	n/a		-		
Field Sampl	Depth to water from land surface	X	ft	n/a		-		
Field Sampl	Field Turbidity	X	NTU	n/a		-		
Field Sampl	Measuring Point Elevation (ft MS	X	ft/msl	n/a		-		
Field Sampl	Depth to Water from Top of Casin	X	ft	n/a		-		
					Total	$206.00		

Site/Project Version: Current Lims Configuration

Calendar Year: 2024 | Eurofins Project No: 48002980 | Event ID: 1641

Laboratory TAT Standard = 15 Business Days

QC Reporting Level: 2

Laraway RDF

Site #	Monitoring Code
495	200

ANNUAL RCRA (4) IEPA E3 List

Sampled in Months: 4

Method	Analyte	Sub-Contractor	Units	Reporting Limit		cost
8260C	1,1,1-Trichloroethane		ug/L	1		$77.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Acetone		ug/L	10		-
8260C	Benzene		ug/L	1		-
8260C	Carbon disulfide		ug/L	1		-
8260C	Chlorobenzene		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-
8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Ethylbenzene		ug/L	1		-
8260C	Isobutanol		ug/L	40		-
8260C	Methyl Ethyl Ketone		ug/L	10		-
8260C	Methylene Chloride		ug/L	1		-
8260C	o-Dichlorobenzene		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	Toluene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	Xylenes, Total		ug/L	2		-
8260C	1,1,1-Trichloroethane		ug/L	1		$0.00
8260C	1,1,2-Trichloroethane		ug/L	1		-
8260C	1,1-Dichloroethane		ug/L	1		-
8260C	1,1-Dichloroethylene		ug/L	1		-
8260C	1,2-Dichloroethane		ug/L	1		-
8260C	1,2-Dichloropropane		ug/L	1		-
8260C	Acetone		ug/L	10		-
8260C	Benzene		ug/L	1		-
8260C	Carbon disulfide		ug/L	1		-
8260C	Chlorobenzene		ug/L	1		-
8260C	Chloroethane		ug/L	1		-
8260C	Chloromethane		ug/L	1		-

8260C	cis-1,2-Dichloroethylene		ug/L	1		-
8260C	Dichlorodifluoromethane		ug/L	1		-
8260C	Ethylbenzene		ug/L	1		-
8260C	Isobutanol		ug/L	40		-
8260C	Methyl Ethyl Ketone		ug/L	10		-
8260C	Methylene Chloride		ug/L	1		-
8260C	o-Dichlorobenzene		ug/L	1		-
8260C	Tetrachloroethylene		ug/L	1		-
8260C	Toluene		ug/L	1		-
8260C	trans-1,2-Dichloroethylene		ug/L	1		-
8260C	Trichloroethylene		ug/L	1		-
8260C	Trichlorofluoromethane		ug/L	1		-
8260C	Vinyl chloride		ug/L	1		-
8260C	Xylenes, Total		ug/L	2		-
8270D LL	Hexachlorophene	X	ug/L	25		$170.00
8270D LL	Hexachloropropene	X	ug/L	10		-
8270D LL	Kepone	X	ug/L	20		-
8270D LL	Pyridine	X	ug/L	5		-
6010C	Cadmium, Total		ug/L	2		$6.00
6010C	Iron, Total		ug/L	50		$6.00
7470A	Mercury, Total		ug/L	0.2		$10.00
Field Sampling	Field pH	X	SU	n/a		$0.00
Field Sampling	Bottom Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Specific Conductance, Field	X	umhos/cm	n/a		-
Field Sampling	Temperature	X	Degrees F	n/a		-
Field Sampling	Oxidation Reduction Potential	X	millivolts	n/a		-
Field Sampling	Ground Water Elevation	X	ft/msl	n/a		-
Field Sampling	Depth to water from land surface	X	ft	n/a		-
Field Sampling	Field Turbidity	X	NTU	n/a		-
Field Sampling	Measuring Point Elevation (ft MSL)	X	ft/msl	n/a		-
Field Sampling	Depth to Water from Top of Casing	X	ft	n/a		-
					total	$269.00

E3 LIST

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***6/10/2022***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-167***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			
Active	Class 1* Mod	RCRA Part B	MLC			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Update closure/post-closure costs for solid waste unit, corrective action units, and RCRA unit. Also correct typographical error in permit	1st Submittal	Technical	

Date Received 05/11/2022 **Date Due** 08/09/2022 **Date Mailed**

Submittal Comment:

Final Action Data

For Log No: **B-141R-M-167**

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/2/2023***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-167***

Review Status	PermitClass	AppType	Reviewers: RCRA	CAU	DAU	RCRA GAU
Active	Class 1* Mod	RCRA Part B	~~MEG~~ KC			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Unit Closure/Post-Closure Plans	Additional Info	Technical	

Date Received 06/02/2023 Date Due 08/31/2023 Date Mailed

Submittal Comment:

Update closure/post-closure costs for solid waste unit, corrective action units, and RCRA unit. Also correct typographical error in permit	1st Submittal	Technical	

Date Received 05/11/2022 Date Due 08/09/2022 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-167

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/27/2023***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-167***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA
Active	Class 1* Mod	RCRA Part B	KL			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Closure/Post Closure Plan	Additional Info	Technical	

Date Received 07/28/2023 Date Due 10/26/2023 Date Mailed

Submittal Comment:

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Unit Closure/Post-Closure Plans	Additional Info	Technical	

Date Received 06/02/2023 Date Due 08/31/2023 Date Mailed

Submittal Comment:

DocTitle_Description	Submittal Type	Review Type	Agency Response
Update closure/post-closure costs for solid waste unit, corrective action units, and RCRA unit. Also correct typographical error in permit	1st Submittal	Technical	

Date Received 05/11/2022 Date Due 08/09/2022 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-167

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/28/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-167***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA GAU
Inactive	Class 1* Mod	RCRA Part B	JJR			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Closure/Post Closure Plan	Additional Info	Technical	

Date Received 07/28/2023 Date Due 10/26/2023 Date Mailed

Submittal Comment:

Revised Solid Waste Unit Closure/Post-Closure Plans	Additional Info	Technical	

Date Received 06/02/2023 Date Due 08/31/2023 Date Mailed

Submittal Comment:

Update closure/post-closure costs for solid waste unit, corrective action units, and RCRA unit. Also correct typographical error in permit	1st Submittal	Technical	

Date Received 05/11/2022 Date Due 08/09/2022 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-167

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
	Approved	07/29/2024			0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***6/17/2023***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-174***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, RCRA GAU			
Active	Class 1* Mod	RCRA Part B	KL			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Updated closure/post-closure costs for RCRA unit, corrective action units, and solid wast unit.	1st Submittal	Technical	

Date Received 05/18/2023 **Date Due** 08/16/2023 **Date Mailed**

Submittal Comment:

Final Action Data

For Log No: **B-141R-M-174**

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/27/2023***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-174***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA GAU
Active	Class 1* Mod	RCRA Part B	KL			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Closure Plan	Additional Info	Technical	

Date Received 07/28/2023 Date Due 10/26/2023 Date Mailed

Submittal Comment:

Updated closure/post-closure costs for RCRA unit, corrective action units, and solid wast unit.	1st Submittal	Technical	

Date Received 05/18/2023 Date Due 08/16/2023 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-174

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/28/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-174***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA
Inactive	Class 1* Mod	RCRA Part B	JJR			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Revised Solid Waste Closure Plan	Additional Info	Technical	

Date Received 07/28/2023 Date Due 10/26/2023 Date Mailed

Submittal Comment:

Updated closure/post-closure costs for RCRA unit, corrective action units, and solid wast unit.	1st Submittal	Technical	

Date Received 05/18/2023 Date Due 08/16/2023 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-174

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
	Approved	07/29/2024			0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***2/23/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

no gw p/ERW
gw chkd.

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-178***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU
Active	Class 1* Mod	RCRA Part B	RD KL ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Application to provide construction report for Phases 9C/10B disposal cells	1st Submittal	Technical	

Date Received 01/23/2024 Date Due 04/22/2024 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-178

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***3/15/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-178***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU RCRA
Active	Class 1* Mod	RCRA Part B	RD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Phase 9C & 10B Compacted Clay Liner Recertification	Additional Info	Technical	

Date Received 02/13/2024 Date Due 05/13/2024 Date Mailed

Submittal Comment:

Application to provide construction report for Phases 9C/10B disposal cells	1st Submittal	Technical	

Date Received 01/23/2024 Date Due 04/22/2024 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-178

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:
	☐			

IEPA - Division of Records Management
Releasable
OCT 17 2024
Reviewer: SAB

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/28/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-178***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU
Inactive	Class 1* Mod	RCRA Part B	JJR

DocTitle_Description	Submittal Type	Review Type	Agency Response
Phase 9C & 10B Compacted Clay Liner Recertification	Additional Info	Technical	

Date Received 02/13/2024 Date Due 05/13/2024 Date Mailed

Submittal Comment:

Application to provide construction report for Phases 9C/10B disposal cells	1st Submittal	Technical	

Date Received 01/23/2024 Date Due 04/22/2024 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-178

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
	Approved	07/29/2024			0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

BOL Permit Section RCRA Tracking Sheet

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***6/13/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, ~~CAU~~,	DAU,	RCRA GAU
Active	Class 1* Mod	RCRA Part B	KL		ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	

Date Received 05/10/2024 **Date Due** 08/08/2024 **Date Mailed**

Submittal Comment:

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/6/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA	CAU	DAU	RCRA GAU
Active	Class 1* Mod	RCRA Part B	JJR			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed

Submittal Comment:

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/12/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA GAU
Active	Class 1* Mod	RCRA Part B	JJR			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed 06/12/2024

Submittal Comment:

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/21/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU,	DAU,	RCRA GAU
Active	Class 1* Mod	RCRA Part B	JJR		ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
Response to NOD	Resp-Technical NOD	Technical	

Date Received 06/20/2024 Date Due 09/18/2024 Date Mailed

Submittal Comment:

Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed 06/12/2024

Submittal Comment:

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/26/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU			RCRA GAU
Active	Class 1* Mod	RCRA Part B	JJR			ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
AI - RCRA Post Closure Cost Table I-2	Additional Info	Technical	

Date Received 06/26/2024 Date Due 09/24/2024 Date Mailed

Submittal Comment:

Response to NOD	Resp-Technical NOD	Technical	

Date Received 06/20/2024 Date Due 09/18/2024 Date Mailed

Submittal Comment:

Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed 06/12/2024

Submittal Comment:

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***7/26/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/2/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU,	DAU,	GAU
Active	Class 1* Mod	RCRA Part B	JJR		ERW

DocTitle_Description	Submittal Type	Review Type	Agency Response
AI - RCRA Post Closure Cost Table I-2	Additional Info	Technical	Technical NOD

Date Received 06/26/2024 Date Due 09/24/2024 Date Mailed 07/03/2024

Submittal Comment:

Response to NOD	Resp-Technical NOD	Technical	

Date Received 06/20/2024 Date Due 09/18/2024 Date Mailed

Submittal Comment:

Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed 06/12/2024

Submittal Comment:

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/2/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/10/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA	CAU	DAU	RCRA GAU
Active	Class 1* Mod	RCRA Part B	JJR			SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Response to NOD	Resp-Technical NOD	Technical	

Date Received 07/10/2024 Date Due 10/08/2024 Date Mailed

Submittal Comment:

AI - RCRA Post Closure Cost Table I-2	Additional Info	Technical	Technical NOD

Date Received 06/26/2024 Date Due 09/24/2024 Date Mailed 07/03/2024

Submittal Comment:

Response to NOD	Resp-Technical NOD	Technical	

Date Received 06/20/2024 Date Due 09/18/2024 Date Mailed

Submittal Comment:

Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received 06/05/2024 Date Due 09/03/2024 Date Mailed

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received 05/10/2024 Date Due 08/08/2024 Date Mailed 06/12/2024

Submittal Comment:

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/10/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Final Action Data

For Log No: B-141R-M-181

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 ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/28/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Review Status	PermitClass	AppType	Reviewers: RCRA, CAU, DAU, GAU
Inactive	Class 1* Mod	RCRA Part B	JJR / / / SDD

DocTitle_Description	Submittal Type	Review Type	Agency Response
Response to NOD	Resp-Technical NOD	Technical	

Date Received: 07/10/2024 Date Due: 10/08/2024 Date Mailed:

Submittal Comment:

AI - RCRA Post Closure Cost Table I-2	Additional Info	Technical	Technical NOD

Date Received: 06/26/2024 Date Due: 09/24/2024 Date Mailed: 07/03/2024

Submittal Comment:

Response to NOD	Resp-Technical NOD	Technical	

Date Received: 06/20/2024 Date Due: 09/18/2024 Date Mailed:

Submittal Comment:

Cost estimate for the approved corrective actions required for the Olin Ponds	Additional Info	Technical	

Date Received: 06/05/2024 Date Due: 09/03/2024 Date Mailed:

Submittal Comment:

Provide updated closure/post-closre costs for RCRA unit, corrective action units and sold waste unit	1st Submittal	Technical	Technical NOD

Date Received: 05/10/2024 Date Due: 08/08/2024 Date Mailed: 06/12/2024

Submittal Comment:

BOLSiteCode ***1970450002*** *Federal ID(s)* ***ILD074411745*** *Respond by:* ***8/28/2024***

Site: ***Laraway RDF*** *Region:* ***Des Plaines***

City: Joliet *County:* Will

Data Regarding Logged Submittal(s) per Log # ***B-141R-M-181***

Final Action Data

For Log No: B-141R-M-181

Units Addressed	Final Action Status	Date FA Issued	Date NFA	Date Closure Cert Accepted	Acres Remediated
	Approved	07/29/2024			0

Closure Type:	Institutional Control	Clean Closed:	1 Institutional Control:	2 Institutional Control:
	☐			

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: June 30, 2022

TO: Kevin Lesko, RCRA Unit

FROM: Shawntay Dial, Groundwater Unit
SDD

SUBJECT: Post-Closure Care Cost Estimates

RE: 1970450002 -- Will County
Laraway Recycling and Disposal Facility
ILD074411745
Log No. B-141R-M-167
RCRA Permit

A technical review has been completed on the groundwater portions of a document entitled, "Update closure & post-closure costs for solid waste unit, corrective action units, and RCRA unit. Also correct typographical error in permit", dated and received by the Illinois EPA on May 11, 2022. The cost estimate was submitted by Mr. Ian Johnson of Waste Management of Illinois, Inc. on behalf of Laraway Recycling and Disposal facility (Laraway) in Joliet, Illinois. The document was submitted to meet the requirements for Section V.I, Financial assurance for corrective action and Section VIII, Cost estimate for facility post-closure. The subject submittal was reviewed as a Class 1* modification request to the RCRA Permit (Permit).

EJ, 39(i), FOS, CROPA, RTK

A search of the SWAP tool and Environmental Justice (EJ) Database and 39(i) form status will be conducted by the project manager.

Anthony Guido FOS was contacted on May 12, 2022, and there are no comments regarding groundwater.

The subject submittal does not require a CROPA with any other Bureau.

A Right to Know (RTK) checklist evaluation has been performed and filled out. In this instance, RTK is not applicable and there are no concerns at this time.

FACILITY BACKGROUND

The permit contains requirements for groundwater corrective action at two (2) closed hazardous waste management units (HWMU) (referred to as "Areas 1" and "Area 2"), groundwater monitoring for a non-hazardous waste portion of the facility, and two (2) phosphogypsum piles (referred to as the "North Stack" and the "South Stack") that are addressed as solid waste management units (SWMU).

SUBJECT SUBMITTAL

This submittal contains an updated RCRA post-closure cost estimate, an updated corrective action closure/post-closure plan, and an updated solid waste unit closure/post-closure plan for the Laraway Recycling and Disposal Facility. Only the closure/post-closure care cost estimates that pertain to groundwater monitoring costs were reviewed.

The facility states that the proposed updated post-closure cost estimates for RCRA corrective action groundwater monitoring, from Table I-2, are as follows (annual inflation costs from 2010 through 2021 calculated in the estimated grand total.):

- Groundwater analytical costs for 10 observation wells, at $528 per sample for 2 remaining events - $10,560
- Groundwater analytical costs for 27 GMZ wells, at $536 per sample for 2 remaining events - $28,944
- Groundwater sampling cost (includes elevation only wells) for 40 wells, at $431 per sample for 2 remaining events - $34,480
- Decommissioning groundwater wells for 40 wells, at $20,000, for one-time event
- The proposed updated post-closure cost estimate provides groundwater monitoring for 2 years, as that is what is remaining in the post-closure care period. However, if the facility continues to exceed the Class I Groundwater Quality Standards, then groundwater monitoring must continue beyond that time.
- Total post-closure costs with a CPI of 4.13%- $972,130

The proposed updated closure care cost estimates for the South Stack SWMU, from Table 10-1, are as follows (annual inflation costs from 2009 through 2021 calculated in the estimated grand total):

- Groundwater semi-annual sampling for 96 total hours (2 years) at $100.00 per hour - $9,600
- Groundwater semi-annual sampling of List G1 for 48 samples (2 years) at $300.00 per sample - $14,400
- Semi-annual groundwater data review and report for 48 total hours (2 years) at $80.00 per hour - $3,840
- Groundwater monitoring well replacement of 1 well at $12,000 - $12,000

- Total estimated closure costs for the south stack SWMU with a 2021 inflation increase of 4.13%- 6,211,897

The proposed updated post-closure cost estimates for the South Stack SWMU, from Table 11-2, are as follows (annual inflation costs from 2009 through 2021 calculated in the estimated grand total):

- Groundwater semi-annual sampling of both stacks for 58 total hours at $100.00 per hour - $5,800
- Groundwater semi-annual monitoring of South Stack for 24 samples (12 wells x 2 events) at $300.00 - $7,200
- Groundwater semi-annual monitoring of North Stack for 14 samples (7 wells x 2 events) at $481.00 - $6,734
- Semi-annual groundwater data review and report at 28 hours (14 hrs. x 2 events) at $80.00 - $2,240
- Groundwater monitoring well replacement (lump sum) - $2,000
- Decommissioning of 19 groundwater wells at end of post-closure at $527 each- $10,013
- Total post-closure costs including annual cost inflation of 4.13%-$5,010,053

It should be noted that the above proposed post-closure costs are annual costs. Each of these proposed costs has been multiplied by 30 and added to the other non-groundwater related costs to produce a final cost for 30 years.

ILLINOIS EPA COMMENTS

1. The groundwater portions of the cost estimates associated with the closed RCRA, South and North Stack closure and post-closure care have been reviewed and can be approved. The estimates include groundwater costs associated with: (1) sampling and analysis, (2) data review, (3) groundwater extraction system maintenance and replacement, and (4) preparation of groundwater monitoring reports. These costs have been totaled and then adjusted based on the annual Consumer Price Index (CPI).

2. Daniel Britton, of financial assurance, was contacted on July 7, 2022 to verify the use of the terms "CPI" and "inflation rate". Also, the inflation rate was verified to be 4.1%

ILLINOIS EPA RECOMMENDATIONS

The Illinois EPA has determined that the groundwater portions of the subject submittal are appropriate and can be approved.

The revised pages will be incorporated by the RCRA Unit Project Manager

Bureau of Land Right-to-Know (RTK) Evaluation Form (Updated January 2021)

1970450002/ Will County
Joliet /LARAWAY RDF
Groundwater Unit/Permit Section

R 000912

The Agency **must** evaluate releases of contaminants whenever it determines that the extent of soil, soil gas, or groundwater contamination may extend beyond the boundary of the site where the release occurred. The Agency's determination must be based on the credible, scientific information available to it. **Please check all criteria that apply:**

Criteria

☐ Measured or modeled groundwater contamination from the site where the release occurred (including the impact from soil contamination in concentrations exceeding the applicable remediation objectives for the soil component of the groundwater ingestion exposure route) exceeds Class I groundwater quality standards specified in 35 Ill. Adm. Code Part 620 or Tier 1, Class I groundwater remediation objectives specified in 35 Ill. Adm. Code Part 742 ("TACO") within the setback zone or regulated recharge area of a community water system (CWS) well, or within the setback zone of a private, semi-private, or non-CWS well;
☐ **Five or fewer properties/potable supply wells** ☐ **More than five properties/potable supply wells**

☐ Measured off-site groundwater or soil gas contamination from *volatile chemicals* (as defined in 35 Ill. Adm. Code Part 1600.110) from the site where the release occurred poses a threat of indoor inhalation exposure above the appropriate TACO Tier 1 remediation objectives for the current use of the off-site property;
☐ **Five or fewer properties** ☐ **More than five properties**

☐ Off-site soil contamination from the site where the release occurred poses a threat of exposure above the appropriate TACO Tier 1 remediation objectives based on the current use of the off-site property;
☐ **Five or fewer properties** ☐ **More than five properties**

☐ The Agency refers a matter for enforcement under Section 43(a) of the Act: In circumstances of substantial danger to the environment or public health, the State's Attorney or Attorney General, upon request of the Agency or on his own motion, may institute a civil action for an immediate injunction to halt any discharge or other activity causing or contributing to the danger or to require such other action as may be necessary;

☐ The Agency issues a seal order under Section 34 of the Act: Upon a finding that episode or emergency conditions specified in Board regulations exist, the Agency shall declare such alerts or emergencies as provided by those regulations. While such an alert or emergency is in effect, the Agency may seal any equipment, vehicle, vessel, aircraft, or other facility operated in violation of such regulations; or

☐ The Agency, the USEPA, or a third party under Agency or USEPA oversight performs an immediate/emergency removal under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

Summary

☒ None of the above criteria are met and the above-identified site does not warrant further evaluation.

☐ At least one of the above criteria is met and the subject site must be further evaluated: Please submit a Contaminant Evaluation Group (CEG) Referral Memorandum to the RTK Coordinator in the Office of Community Relations along with this RTK Evaluation Form. Since community relations activities must fully inform communities and individuals in a timely manner about off-site impacts, we appreciate your prompt attention in this matter. If you have questions or need assistance, please contact the RTK Coordinator at (217) 785-8724.

Project Manager Signature: Shawntay Dial Date: 6/30/2022

Dial, Shawntay D.

From: Britton, Daniel
Sent: Thursday, July 7, 2022 1:05 PM
To: Huser, Kelly; Dial, Shawntay D.
Subject: RE: Laraway RDF Cost Estimate (BOL 1970450002)

You are correct, I apologize. I mixed up the CPI and the GNP numbers. I was looking for that document that you just sent but couldn't find it. I don't know where they got there numbers but the inflation rate is higher on what the submitted than the actual rate.

I again apologize

Thanks,
Daniel

From: Huser, Kelly <Kelly.Huser@Illinois.gov>
Sent: Thursday, July 7, 2022 1:02 PM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>; Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Subject: RE: Laraway RDF Cost Estimate (BOL 1970450002)

Shawntay and I are under the impression the CPI is different from how the inflation factor is calculated. It appeared to used the GNP. I will send you the information Victoria gave us.
Kelly

From: Britton, Daniel <Daniel.Britton@Illinois.gov>
Sent: Thursday, July 7, 2022 12:13 PM
To: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Cc: Huser, Kelly <Kelly.Huser@Illinois.gov>
Subject: RE: Laraway RDF Cost Estimate (BOL 1970450002)

Hello,

The consumer price index is what is used to calculate the inflation.

The 2021 inflation rate (to get the value into 2022 dollars), is 4.10%. If you have any additional questions feel free to reach out.

Thanks,
Daniel

From: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Sent: Wednesday, July 6, 2022 4:51 PM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>
Cc: Huser, Kelly <Kelly.Huser@Illinois.gov>
Subject: Laraway RDF Cost Estimate (BOL 1970450002)

Daniel,

Hello. I have a quick question I am hoping you can help me with. I am writing a cost estimate memo for Laraway RDF. While evaluating the numbers in the submittal, I noticed that the words consumer priced index and inflation % were used interchangeably. For each comment they used the 2022 value of 4.13%. Is that the correct inflation factor and can CPI and Inflation % be used interchangeably?

Thank you for your help!

Shawntay Dial
Environmental Protection Geologist
Bureau of Land, Permit Section
217/558-0177
Shawntay.Dial@illinois.gov

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Dial, Shawntay D.

From: Rawe, Kimberly
Sent: Monday, July 18, 2022 3:00 PM
To: Dial, Shawntay D.
Subject: RE: MEMO REVIEW-1970450002-B141RM167-MEMO.doc

Hi, Shawntay – your memo looks good! Thanks!

Kim

From: Dial, Shawntay D. <Shawntay.Dial@Illinois.gov>
Sent: Monday, July 18, 2022 2:49 PM
To: Rawe, Kimberly <Kimberly.Rawe@Illinois.gov>
Subject: MEMO REVIEW-1970450002-B141RM167-MEMO.doc

Kim,

I figured out how to attach a copy instead of sending you the link. In this instance, this may be more straight forward.

Please see the attached memo for Laraway Cost Estimate B-141-M-167. Please let me know if there are any questions.

Thank you,

Shawntay Dial
Environmental Protection Geologist
Bureau of Land, Permit Section
217/558-0177
Shawntay.Dial@illinois.gov

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REVIEW NOTES

Laraway RDF

BOL Site Code: 1970450002

ILD074411745

Class 1* Permit Modification

Log No. B-141R-M-167

Reviewer: Reylin Dimayuga (RD) *RD*

NATURE OF APPLICATION

Application to update closure/post-closure plans cost estimates for Solid Waste Unit, RCRA unit and Corrective Action unit.

CORRESPONDENCE

June 2, 2023. Received additional information dated May 31, 2023.
July 13, 2023. Emailed Mr. Johnson. See attached email.
July 28, 2023. Received additional information dated July 26, 2023.

DISCUSSION

- The closure and post-closure plans have been revised and increased for inflation by 4.13% - OK
- The closure plan has been prepared with assumption that the existing Solid Waste Unit, Interim Horizontal Overlay Liner, and Phases 3-8 and portions 10 through 14 would require final capping
    - Based on the attached update, the total area that would require final cover is approx. 134.94 acres – 19.2 acres of final cap completed in 2017; 24 acres of final capping completed in Spring 2020
- Emailed Mr. Johnson regarding a few questions/comments about the additional info received, and received response via additional information dated July 26, 2023:
    1. **On the post-closure care table, there are 39 groundwater wells for decommissioning; on the post-closure plan, there are only 38 wells as stated in 13.3.3 Groundwater Monitoring. Can you verify/explain about the difference?**
    Response: modified the closure plan to reflect 41 wells as listed in Permit Condition IV.9; modified the post-closure cost table and the well decommissioning item to reflect this number of wells. – OK
    2. **On the closure table, there are 134.84 acres for Landscaping. Please change it to 134.94 acres for consistency.**
    Response: modified closure table to reflect this number. – OK
    3. **[on M-167 additional info], in 13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS, it states:**

"Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 3 through 8 and portions of 10 through 14 in the Expansion would require final capping."
Why are Phases 1 and 2 not included?
Response: it was clarified that Phases 1 and 2 are already capped and the remaining phases would need final capping. – OK

- Updated cost estimates as follow:

Closure costs	$8,927,574
Post-closure care costs	$4,181,853
TOTAL	**$13,109,427**

DECISION
The Solid Waste Unit approves the updated cost estimates for Laraway RDF consisting of closure cost of $8,927,574 and post-closure care cost of $4,181,853 totaling to $13,109,427.

CHANGES TO PERMIT (with respect to B-141R-M-167)

1. Attachment D.II – revised as follows:

   (Note: - The closure and post-closure cost estimates have been revised to account for those areas for which operating authorization has been obtained or will be requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, Phases 1 through portions of 10 and 14 are in place ~~(The site anticipates submitting the Phase 11B/12B liner certification reports later this year, therefore, the costs as presented are conservative for the existing conditions.).~~

A.	Closure:	$8,927,574
B.	Post-Closure Care:)	$4,181,853
	Total for Closure and Post-Closure Care:	$13,109,427

Roop, John J.

From: Johnson, Ian <ijohnson@wm.com>
Sent: Friday, July 14, 2023 3:24 PM
To: Dimayuga, Reylin
Subject: [External] RE: Laraway RDF cost estimates application - M-167 and M-174

Reylin – I am leaving on vacation for week tomorrow and will get to these application issues when I return. I thought I would have time to do it today, but I'm swamped with other deadlines. Thanks for understanding.

Ian

From: Johnson, Ian
Sent: Thursday, July 13, 2023 12:02 PM
To: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Subject: RE: Laraway RDF cost estimates application - M-167 and M-174

Another error. I will fix that too.

Ian

From: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Sent: Thursday, July 13, 2023 11:58 AM
To: Johnson, Ian <ijohnson@wm.com>
Subject: [EXTERNAL] RE: Laraway RDF cost estimates application - M-167 and M-174

I missed putting this one on the previous email – on M-167 additional info, in 13.2 CLOSURE PLAN FOR CURRENT & REQUESTED OPERATIONAL AREAS, it states:
"Therefore, a closure plan has been prepared which assumes that the existing solid waste unit, Interim Horizontal Overlay liner, and Phases 3 through 8 and portions of 10 through 14 in the Expansion would require final capping."

I was just wondering why Phases 1 and 2 are not included.

Thanks,
Reylin

From: Dimayuga, Reylin
Sent: Thursday, July 13, 2023 11:50 AM
To: ijohnson@WM.com
Subject: Laraway RDF cost estimates application - M-167 and M-174

Good morning, Ian. I just have a couple of questions/comments regarding the M-167 additional info we received after reviewing it.

1. On the post-closure care table, there are 39 groundwater wells for decommissioning; on the post-closure plan, there are only 38 wells as stated in 13.3.3 Groundwater Monitoring. Can you verify/explain about the difference?
2. On the closure table, there are 134.84 acres for Landscaping. Please change it to 134.94 acres for consistency.

For M-174, can you verify the calculation for the 129.64 acres that needs to be capped OR for the 187.54 acres (areas with operating authorization)? Just also want to have it for reference.

Thanks as always,

Reylin Dimayuga

Environmental Protection Engineer
Bureau of Land || Solid Waste Unit
Illinois Environmental Protection Agency
1021 North Grand Ave. East, PO Box 19276
Springfield, IL 62794-9276
217/524-7947



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REVIEW NOTES

Laraway RDF

BOL Site Code: 1970450002

ILD074411745

Class 1* Permit Modification

Log No. B-141R-M-174

Reviewer: Reylin Dimayuga (RD) *RD*

NATURE OF APPLICATION

Application to update closure/post-closure plans cost estimates for Solid Waste Unit, RCRA unit and Corrective Action unit.

CORRESPONDENCE

July 13, 2023. Emailed Mr. Johnson. See attached email.
July 28, 2023. Received additional information dated July 26, 2023.

DISCUSSION

- The closure and post-closure plans have been revised and increased for inflation by 7.0% - OK
- The update on the cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1-9 and portions of Phases 10-14 are in place (9.2 acres of Phases 9/10 to be constructed in 2023).
- Based on the attached update, the total area that would require final cover is approx. 129.64 – 19.2 acres of final cap completed in 2017; 24 acres of final capping completed in 2020, and 14.5 acres completed in 2022
- Emailed Mr. Johnson for comments, received response as additional information dated July 26, 2023:
  1. **[For M-174], can you verify the calculation for the 129.64 acres that needs to be capped OR for the 187.54 acres (areas with operating authorization)?**
     Response: it was indicated that Phases 1-9 and portions of Phases 10-14 as areas that contained waste and not areas requiring capping. Currently, all areas that contain waste in the solid waste unit is **187.54 acres**. Final cap was completed for three increments of 19.2, 24.2 and 14.5 acres in 2017, 2020, and 2022, respectively. Therefore, total area that would require final cover is approx. **129.64 acres**. – OK
     - This is correctly reflected on the closure table.
- Groundwater wells, as revised in M-167, was also revised as part of the additional information. – OK

- Updated cost estimates as follow:

Closure costs	$9,190,132
Post-closure costs	$4,547,686
TOTAL	**$13,737,818**

∴ OK to approve

DECISION

Log No. B-141R-M-174 approves the update of the Solid Waste Unit cost estimates consisting of the closure cost of $9,190,132 and post-closure cost of $4,547,686 totaling to $13,737,818.

CHANGES TO PERMIT

1. Attachment D.II – revised as follows:

   (Note: - The closure and post-closure cost estimates have been revised to account for those areas for which operating authorization has been obtained or will be requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, Phases 1 through portions of 10 and 14 are in place (The site anticipates submitting the Phase 9C/10B liner certification reports later this year, therefore, the costs as presented are conservative for the existing conditions.).

A.	Closure:	$9,190,132
B.	Post-Closure Care:	$4,547,686
	Total for Closure and Post-Closure Care:	$13,737,818

Attached email snapshot:

[External] RE: Laraway M-158 (cost estimates)

JI Johnson, Ian <ijohnson@wm.com>
To Dimayuga, Reylin

Reply | Reply All | Forward | ...
Tue 7/6/2021 09:40

The old CPC plan from M-150 had costs for an interim sed basin to handle runoff from areas by Phase 9 until the southeast basin was constructed. Since that application was done in 2020, southeast permanent sed basin has been constructed this summer and is in place. The southeast basin was approved in M-100 on 8/10/15.

From: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Sent: Friday, July 2, 2021 4:01 PM
To: Johnson, Ian <ijohnson@wm.com>
Subject: [EXTERNAL] Laraway M-158 (cost estimates)

Hello Ian,

I'm currently reviewing the cost estimates of SWU for Laraway (M-158). Based from M-150, an item *Construct Sedimentation Basin* (20,000 cy) in the closure plan was included, but with M-158 it is not present. Just want to ask for additional information with this one.

Thanks!

Reylin Dimayuga

REVIEW NOTES
Laraway RDF
BOL Site Code: 1970450002
ILD074411745
Class 1* Permit Modification – Phase 9C/10B Liner CQA Report
Log No. B-141R-M-178

Reviewer: Reylin Dimayuga (RD) RD

CORRESPONDENCE

January 25, 2024. Sent pre-op request to Des Plaines Region FOS and Will County.
January 26, 2024. Sent email to Daniel Britton about this site's financial assurance. Received response on the same day.
January 30, 2024. Sent email to Ian Johnson.
February 1, 2024. Received pre-op memo response.
February 13, 2024. Received additional information dated February 8, 2024.

DISCUSSION

Laraway Recycling and Disposal Facility constructed an additional phase of the waste disposal footprint (Phase 9C and 10B) in 2023. the 2023 Cell Construction is approximately 9.13 acres, including areas constructed for overbuild into the next cell, and is located south of the existing solid waste unit. In accordance to Permit No. B-141R, the 2023 cell construction liner system consists of the following components (in ascending order):

- Prepared subgrade foundation
- Minimum 3-ft thick compacted clay layer having a maximum hydraulic conductivity of $1x10^{-7}$ cm/sec
- A geosynthetic clay liner (GCL) (below leachate collection pipe only and within sump)
- 60-mil thick high density polyethylene (HDPE) textured geomembrane
- 16-ounce cushion geotextile
- 12-in thick leachate drainage layer with collection pipe and sump riser
- Minimum 4-ounce filter geotextile

Major development activities associated with the construction documented in the report include:

- Excavation, grading and preparation of the subgrade foundation to design parameters
- Placement of the compacted low permeability soil liner
- Placement of the geomembrane and the GCL components
- Installation of the geotextile cushion
- Placement of the leachate drainage material
- Installation of leachate collection pipe
- Installation of filter fabric geotextile
- Installation of surface water management system

Weaver Consultants Group provided CQA monitoring, testing, and surveying services to verify that the components of the landfill were constructed in compliance with permit requirements.

Project CQA Officer: Robert Schumann, P.E.
CQA Officer-in-Absentia: Dan Davis, Andrew Montavon, Griffin Clarke, Jordan Anderson, Sean Butler, and Sara Sukanen
Engineering statement provided with stamp and signature by the CQA officer – satisfies 35 IAC 811.505(d), OK

PRE-CONSTRUCTION MATERIAL TESTING

Compacted Clay Liner Materials. Borrow source testing consisted of moisture/density relationship, Atterberg Limits, hydraulic conductivity, grain size analysis and development of an acceptable zone. The results of tests are summarized in Appendix B, Table 1; for laboratory hydraulic conductivity testing, three (3) tests for brown/gray clay material were performed. Results conformed to CQA plan's specifications. OK

Geosynthetic Materials. This includes 60-mil textured, HDPE geomembrane manufactured by SKAPS, a geosynthetic clay liner manufactured by CETCO, a 16 oz/yd^2 non-woven polyester geotextile cushion fabric and a 4 oz/yd^2 non-woven polyester geotextile filter fabric, both supplied by Solmax.

Geomembrane – Solmax rolls were delivered in 23-ft wide by approx. 480-ft long rolls. CQAP requires testing be performed on the 60-mil thick textured geomembrane which includes: density, thickness, tensile yield strength, elongation at yield, break strength, carbon content, tear resistance and puncture resistance. Testing performed by TRI/Environmental, Inc. and based from the results, the textured geomembrane meets the CQAP requirements.

Geosynthetic clay liner (GCL) – delivered in 15-ft wide by approximately 150-ft long rolls. GCL manufacturing quality control (MQC) certificates provided in Appendix E. CQAP requires testing which includes bentonite – mass/unit area, bentonite – fluid loss, bentonite – swell index, and index flux. Test results are in Appendix E; GCL meets the CQAP requirements.

Geotextile materials – cushion geotextile was delivered to the site in 15-ft wide by 300-ft long rolls; filter geotextile in 15-ft wide by 360-ft long. MQC certificates were provided. CQAP requires testing which includes weight, grab strength, trapezoidal tear, puncture resistance for geotextile cushion; the same tests with 4 oz/yd^2 geotextile filter were performed in addition to permittivity and apparent opening size. Testing was performed by TRI/Environmental, Inc. and based upon the results in Appendix D, both geotextiles meet the CQAP requirements.

SITE PREPARATION

Existing soil materials within 2023 Cell Construction were excavated to achieve subgrade elevations. The excavated soil materials used as compacted clay liner, structural fill, daily/intermediate cover for landfill operations or stockpiled for future use.

The liner subgrade surface was prepared for liner placement. Preparation activities included grading and proof-rolling the subgrade after excavation was complete. Subgrade elevations were surveyed to verify compliance with design elevations. Subgrade survey data in Table 2 & Figure 2.

Clay Liner Placement

- Clay liner for Phases 9C and 10Brequired approximately 44,200 cubic yards of material to be placed. The clay materials were compacted to achieve a maximum hydraulic conductivity of $1x10^{-7}$ cm/sec. Materials used to construct a clay liner were obtained from the on-site borrow area. Clay was excavated from the Phase 9C and 10B footprint, hauled to the work area, and spread with a bulldozer.
- The clay liner materials were placed in 6-in thick compacted lifts throughout the cell area; clay material was then moisture conditioned and compacted until testing indicated that it met the requirements of the "Acceptable Zone". Compaction was performed using a sheepsfoot "padfoot" type compactor. Any exposed soils that were dry and exhibited desiccation cracking were wetted and recompacted. The final lift of the clay liner was rolled with a smooth drum roller to provide a smooth surface for geomembrane installation. Upon completion of the compaction, top of clay liner grades was surveyed; liner thicknesses confirm that a minimum 3-ft thick clay liner was constructed (Table 2).
- During the construction, the following has been performed for CQA:
  - Field compaction testing. Testing was performed using a field nuclear density gauge. A total of 314 tests were performed on the 44,200 cubic yards; this equates to 5.7 tests per acre/lift or 140.7 cubic yards per test, which exceeds the CQAP requirement. Results conform to the CQA (OK). In addition to the in-situ density testing performed, drive tube samples were also collected at a frequency of one test per week of construction. Samples were compared to the results of the nuclear density gauge and results indicate that the gauge was operating properly.
  - Moisture content testing. Performed every field compaction test using field nuclear density gauge. Results – OK
  - Moisture content/density relationship testing. Random samples of liner material were collected as construction progressed. A total of five (5) tests were performed; this equates to one (1) test per 8,835 cubic yards, which exceeds the CQAP requirement. Based on the results, the compaction characteristics of clay material remained consistent throughout the project.
  - Hydraulic conductivity testing for construction evaluation. Performed on undisturbed samples obtained from the soil liner. A total of six (6) samples, including 1 test per lift, were tested. This equates to one (1) test per 7,363 cubic yards, which exceeds the CQAP requirement. Samples were obtained by hydraulically pushing a 3-in diameter Shelby tube into the clay liner with the blade of a bulldozer or compactor. The resulting hole and surrounding areas were backfilled with a soil liner material. The samples were extruded in the laboratory and tested for hydraulic conductivity using the flex wall permeameter method. Testing of these samples yielded an average value of $6.46x10^{-9}$ cm/sec. (Appendix F) OK

GCL Placement

- CQA activities included: (1) documenting and observing the clay liner prior to GCL deployment; (2) monitoring, observing and documenting deployment procedures for the GCL and; (3) identifying defects and observing repairs.

GCL Deployment Monitoring

- Global Containment Solutions, LLC (GCS) performed the GCL installation wherein each roll of GCL was carefully moved from the storage area with a loader. The finished surface of the clay liner was inspected for the presence of sharp objects or debris, irregular surface features and excessively soft areas before the deployment of the GCL panels.
- The GCL was not installed when there was rain or standing water present in the cell. Each roll of GCL was carefully moved from the storage area to the area to be lined with a front-end loader. As each roll was moved, its label was checked by CQA personnel to verify and document the roll number. Each GCL roll was then placed over the prepared surface. After each panel has been deployed, adjoining panels were deployed with a 12-in overlap on end seams. Each seam overlap on the bottom was placed so that the direction of flow is from the top sheet to the bottom sheet to form a shingle effect.

Geomembrane Placement

CQA activities performed:

- Documenting and observing the clay liner surface prior to HDPE geomembrane deployment
- Monitoring, observing and documenting deployment procedures for the geomembrane
- Monitoring, observing and documenting trial seam procedures (trial welds) and evaluation of test results
- Observing and documenting field seams and seaming operations
- Observing, monitoring and documenting non-destructive seam continuity testing
- Selecting destructive seam strength test sampling locations and observing field and laboratory testing
- Identifying and documenting defects, and observing and documenting repairs

Geomembrane Deployment Monitoring

- Each roll of geomembrane was carefully moved from the storage area with a loader. As part of the 2021 Cell Construction earthwork, an anchor trench was excavated along the top of the North Slope of Phase 11B and Phase 12B. the trench was excavated to dimensions of approx. 3ft in width by 3ft in depth.
- Prior to deployment of the geomembrane panels, the finished surface of the clay liner and grading layer was inspected for the presence of sharp objects or debris, irregular surface features and excessively soft areas. Those areas that were noted were either removed and/or repaired by the earthwork contractor. GCS executed a Subgrade Surface Acceptance certificate (Appendix G)

- Geomembrane panels were individually monitored during deployment from the rolls. This process included observation of geomembrane panel alignment, panel overlap with adjacent panels, panel surface quality, and panel identification. Deployment of the geomembrane was accomplished with the use of low ground pressure equipment and manual labor. Rolls of geomembrane were loaded onto the spreader bar attached to the low ground pressure equipment and deployed across the cell floor and side slopes. At the top of the slope, the geomembrane panels were cut from the roll and the ends were extended down, into and across the bottom of the anchor trench. Sandbags were used to secure the geomembrane in the anchor trench. In general, the geomembrane was installed in a loose, relaxed condition directly on the clay liner. After each panel of geomembrane has been deployed, adjoining panels were deployed with a 4-in minimum overlap for hot wedge fusion welding. Seams were oriented parallel to the line of maximum slope.
- Geomembrane panels were not deployed when there was rain or standing water present; isolated defects resulting from manufacturing, shipping, or deployment were noted and repaired in accordance with CQAP. Following deployment, sandbags were used to temporarily anchor the geomembrane panels until they were permanently joined.

Geomembrane Trial Seam Monitoring

- Each trial seam was sampled and tested for peel adhesion (peel) and bonded seam (shear) failure modes. Weaver Consultants personnel observed and documented the trial seaming. Summaries of the trial seam results in Appendix G.

Geomembrane Seam Monitoring

- The principal seaming method used for joining of the geomembrane panels was the automated double wedge fusion process. The extrusion method was primarily utilized for patches and repairs.
- Monitoring of the seam methods consisted of frequent visual observation of the seaming procedures, visual examination of the completed seam, and verification that the seam was welded for its entire length. Seaming imperfections were marked and subsequently repaired in accordance with CQAP. Summary of the fusion seam monitoring observations in Appendix G

Non-destructive Seam Continuity and Repair Monitoring

- All seams, seam repairs, and patches were non-destructively tested for continuity using the air pressure method for double wedge fusion and the vacuum box method for extrusion seams.
- Weaver Consultants observed the testing procedures and documented the non-destructive continuity testing. At locations were the continuity testing indicated an imperfection, repairs were made and retested in accordance with the project specifications. Monitoring and documentation of defects and associated testing of repairs are in Appendix G.

Destructive Seam Strength Testing

- Destructive seam strength testing was conducted in accordance with the CQAP with an average frequency of one (1) test per 500 linear feet of completed seam.
- A total of 53 destructive samples were obtained from approximately 22,100 linear feet of completed fusion seams, resulting in a sampling frequency of one (1) test per 417 linear feet of welding. A total of 1 destructive sample was obtained from approx. 48 linear feet of completed extrusion seams, resulting in a sampling frequency of one (1) test per 48 linear ft of welding.
- For each destructive sample, a section of the sample was removed and tested by TRI Environmental, Inc. WMII also retained one section as an archive sample.
- The destructive samples were divided into 10 specimens: 5 for shear testing and 5 for peel testing. For the double track fusion samples, each trach was tested as a separate destructive test resulting in 5 shear tests and 10 peel tests. The specified acceptance criteria for shear tests were that the specimens must have yield strengths greater than or equal to 120 pounds per inch of specimen width. The criteria for peel tests were that, for each track, the fusion welded specimens should have minimum yield strengths of at least 91 pounds per inch, and 78 pounds per inch for extrusion welds. All samples met or exceeded the CQA criteria, and GRI specification GM13 for a passing seam. (GM13 – Standard Specification for "Test Methods, Test Properties and Testing Frequency for High Density Polyethylene (HDPE) Smooth and Textured Geomembranes")
- For DS-36, two (2) additional samples were taken – DS36A and DS36B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore bound DS-36 and the capped seam and repair of the failing destruct was complete.
- For DS-41, two (2) additional samples were taken – DS41A1 and DS41B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore bound DS-41 and the capped seam and repair of the failing destruct was complete.
- For DS-43, two (2) additional samples were taken – DS43A and DS43B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore bound DS-43 and the capped seam and repair of the failing destruct was complete.
- For DS-50, two (2) additional samples were taken – DS50A and DS50B, and the seams between the new samples were capped and non-destructively tested. The additional samples passed and therefore bound DS-50 and the capped seam and repair of the failing destruct was complete.

Leachate Collection System

- Geotextile Installation
    - Each roll of cushion geotextile was carefully moved from the storage area to the area to be lined with a front-end loader. Each cushion geotextile roll was placed over the geomembrane as a cushioning fabric. After placement of the drainage layer was complete, a filter geotextile was installed as a filter fabric. Adjoining panels were sewn together, or fusion welded together.

- Leachate Collection Pipe
  - A 6-in diameter, HDPE SDR 11 pipe was used. Pipe was inspected, and found to be free of any visible cracks, holes, foreign inclusions, and any defects.
  - Pipe perforations were inspected and cleaned as necessary to allow the free flow of landfill leachate into the piping system. Solid piping was extended up the sideslope in Phase 9C and Phase 10B to allow cleaning of the collection pipe. – Figure 4
- Drainage Layer Installation
  - A 12-in granular drainage layer material was placed directly on top of the cushion geotextile. The drainage layer required approx. 14,725 cubic yards of granular material.
  - Upon completion of the drainage layer, top of drainage layer grades was surveyed. Top of drainage layer grades are provided with a calculated layer thickness which confirm that a minimum 1-ft thick layer was constructed.
- Pre-construction testing.
  - CQA requires one grain size analysis and hydraulic conductivity test per source. One (1) test was performed and the results indicate that material conforms with the CQA.
- Drainage Layer Quality Evaluation testing
  - Grain size analysis –
    - CQA plan requires that one (1) test be taken for every 3000 cubic yards of material placed for the drainage layer material, five (5) tests were required and performed on the material. The project specifications state that each sample should contain no more than 5% finer than the No. 200 sieve, and based on the results, the samples met this requirement. (Appendix H, Table 6)
  - CQA plan requires that one (1) test be taken for every 3000 cubic yards of material placed for coarse aggregate material surrounding the leachate collection pipes, one (1) test was required and performed on the material. (Results in Appendix H, Table 6) Hydraulic conductivity testing –
    - requires for every 10,000 cubic yards of drainage layer material placed; two (2) tests were required and performed. The samples resulted in an average hydraulic conductivity of 23.5 cm/sec that exceeds the required minimum of $1x10^{-1}$ cm/sec for the granular drainage layer. Furthermore, this material also exceeds the requirements for the coarse aggregate surrounding the leachate collection pipe of 1.0 cm/sec. (Appendix H, Table 6)
    - one (1) test was performed for testing the coarse aggregate material surrounding the leachate collection pipe; the sample resulted in an average hydraulic conductivity of 22.8 cm/sec, exceeding the required minimum of 1.0 cm/sec. (Appendix, H, Table 6)

Berms – installed temporarily from north to south along the west edge of Phase 10B, between Phase 10B and Phase 11C.

Surface Water Management Systems

- The perimeter surface water channel on the north side of the 2023 Cell Construction was constructed; final survey of the constructed surface water features was performed to verify that the structures were completed in accordance with the permit requirements – Figure 6
- Surveying. Both horizontal and vertical surveying were performed – record elevations and locations on Tables 2 and 5. On July 25, 2023, four (4) Site Survey Concrete Monuments were verified at the landfill and surveyed based upon the Illinois State Plane East coordinates and NAVD 88 elevations. .
- Checked Drawing 17 (*Leachate Management System)* of the original application (and also Drawing LM-1 of the same description from the approved M-125 expansion permit) and compared with Figure 4 (*Top of Drainage Layer Record Drawing*) of current application; top of the drainage layer elevations appears to be within design – OK
- Pre-op inspection report received on February 1, 2024 via email. It was noted that there were no violations observed during the inspection and that the Construction Acceptance Report for the 2023 Phases 9C and 10B Cell Construction appeared to be true and accurate.
- Received on February 13, 2024 a recertification of the clay liner for Phases 9C/10B. The final result of the hydraulic conductivity test was 6.81×10^{-9} cm/s – OK
- Groundwater and gas Monitoring Wells/Devices for Phases 9 and 10 have been previously installed on previous reports in M-144. From its review notes:
    - Groundwater Monitoring Wells/Devices. Wells G255 (G1A1), G256 (G1A2), G257 (G1A3) and G266 (G1B2) are to be installed for Phases 9, 10, 11. Wells G255 and G266 were installed in 2013. Wells G256 and G257 were installed in 2019.
    - Gas Probe Installations. Per Mod#94 (approved April 20, 2015), Table 10-13, the installation of gas probes GP-15, GP-06, GP-12, GP-16, GP-10, and GP-13 for Phases 9, 10, and 11 was required. Installation information on these gas probes is attached to this submittal. GP-6 and GP-15 were installed through October 15-17, 2018 while GP-10, GP-12, GP-13, GP-16 were installed through October 1-November 7, 2019 as stated on the attached information.
- Leachate Storage Capacity Phases 9 and 10 have already been considered and the site has enough leachate storage capacity for it.
- Sent an email to Daniel Britton on January 26, 2024 to check the current financial assurance amount. GEM advised to contact Ian Johnson if the current FA includes the costs to operate the new cells, and should provide documentation of an updated cost estimates showing so. Confirmed with Ian Johnson and checked M-174 that Phases 9C and 10B are included on the in-house cost estimate application.
- The in-house cost estimate application Log No. B-141R-M-174 for closure and post-closure care of the solid waste unit – the closure/post-closure care plans and cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through portions of 10 and 14 are in place. The cost estimates for closure and post-closure care of the solid waste unit are $9,190,132 and $4,547,686, respectively. The total cost estimate for the solid waste unit is **$14,800,726**.

DECISION

Log No. B-141R-M-178 approves the Construction Acceptance Report for the 2023 Phase 9C / 10B construction covering approximately 9.13 acres.

CHANGES TO PERMIT

1. Section III.B – added Phases Phase 9C and 10B as part of the Constructed Area.

REQUEST MEMORANDUM

DATE: January 25, 2024

TO: Thomas Rivera, Manager of Des Plaines Region FOS

FROM: Reylin Dimayuga

SUBJECT: 1970450002 – Will County
Laraway RDF
Permit File

PURPOSE: **To Request a Site Inspection to Verify Claims Made in Log No. B-141R-M-178**

1. APPLICATION TYPE: Phases 9C/10B Liner Construction CQA Report

2. SPECIFIC STRUCTURES/SYSTEMS INVOLVED: subgrade, clay liner, GCL liner, geomembrane installation, leachate collection and drainage layer, filter layer for phases 9C/10B

3. APPLICATION(S) CONTAINING SUBJECT DESIGNS/PLANS & ASSOCIATED PERMIT(S): Permit No. B-141R

4. DATES:
   Application Received by Illinois EPA: January 23, 2024
   Current Due Date for Final Action: April 22, 2024
   Requested Date for Response Memo: March 1, 2024

5. ADDITIONAL COMMENTS BY PERMIT REVIEWER: trying for a 45-day review

cc: Charlene Thigpen
Donna Czech

RESPONSE MEMORANDUM

DATE: **February 1, 2024**

TO: Reylin Dimayuga

FROM: Tim Anderson Will County Land Use Department

PURPOSE: **To Respond to Permit Section's Request for a Site Inspection**

1. DATE OF INSPECTION: January 31, 2024

2. DO THE CLAIMS MADE IN APPLICATION APPEAR TO BE ACCURATE? Yes

3. ADDITIONAL COMMENTS BY INSPECTOR:
Subgrade, clayliner, GCL liner gemembrane installation, leachate collection, and drainage layer filter layer layer all ok during inspection (Photos attached)

cc: *** INSPECTOR ***
*** PERMIT'S LOG-IN CLERK ***

Photo 1 Taken By: Tim Anderson Date: January 31, 2024 Location: Laraway Landfill Expansion 9c/10b Comments: Facing west photo shows geomembrane liner on covering 18 inches of rock of cell.	
Photo 2 Taken By: Tim Anderson Date: January 31, 2024 Location: Laraway Landfill Expansion 9c/10b Comments: Facing south, photo shows detention pond to the south of expansion.	

Photo 3 Taken By: Tim Anderson Date: January 31, 2024 Location: Laraway Landfill Expansion 9c/10b Comments: Facing northwest photo shows Laraway Landfill to north cells 9a and 9b 10a.	
Photo 4 Taken By: Tim Anderson Date: January 31, 2024 Location: Laraway Landfill Expansion 9c/10b Comments: Facing southwest, photo shows west side of expansion. All geomembrane liner was observed and appeared to be all stitched.	

Roop, John J.

From: Johnson, Ian <ijohnson@wm.com>
Sent: Tuesday, January 30, 2024 9:21 AM
To: Dimayuga, Reylin
Subject: [External] RE: Laraway RDF M-178 (CQA report for Phase 9C/10B)

Reylin – The costs estimate submitted in May 2023 C/PC update included Phases 9C/10B. That application had total closure/post-closure costs of $13,923,500. We have $14,800,726 in FA for the solid waste unit so we are good. I will get the liner recertified.

From: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Sent: Tuesday, January 30, 2024 8:16 AM
To: Johnson, Ian <ijohnson@wm.com>
Subject: [EXTERNAL] Laraway RDF M-178 (CQA report for Phase 9C/10B)

Good morning, Ian. See conversation below; does this current financial assurance amount includes the new cell 9C/10B? We would also need a cost estimate update that reflects the addition of these new cells (I believe M-174 did not reflect it, correct me if I'm wrong.)
Also, the liner would need to be recertified due to freezing.

Thanks,

Reylin Dimayuga

Environmental Protection Engineer
Bureau of Land || Solid Waste Unit
Illinois Environmental Protection Agency
1021 North Grand Ave. East, PO Box 19276
Springfield, IL 62794-9276
217/524-7947

From: Britton, Daniel <Daniel.Britton@Illinois.gov>
Sent: Friday, January 26, 2024 10:48 AM
To: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Subject: RE: Laraway RDF - financial assurance

Good Morning Reylin,

The site has three mechanism to cover the various cost valued at $1,039,879; $14,800,726; and $12,300,193 respectively for a total of $28,140,798. Let me know if you have any additional questions.

Thanks,
Daniel

From: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Sent: Friday, January 26, 2024 10:31 AM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>
Subject: Laraway RDF - financial assurance

Good morning, Daniel. I would like to know the most current financial assurance amount for Laraway RDF (Site No. 1970450002)?

Thanks,

Reylin Dimayuga

Environmental Protection Engineer
Bureau of Land || Solid Waste Unit
Illinois Environmental Protection Agency
1021 North Grand Ave. East, PO Box 19276
Springfield, IL 62794-9276
217/524-7947

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Recycling is a good thing. Please recycle any printed emails.

Roop, John J.

From: Britton, Daniel
Sent: Friday, January 26, 2024 10:48 AM
To: Dimayuga, Reylin
Subject: RE: Laraway RDF - financial assurance

Good Morning Reylin,

The site has three mechanism to cover the various cost valued at $1,039,879; $14,800,726; and $12,300,193 respectively for a total of $28,140,798. Let me know if you have any additional questions.

Thanks,
Daniel

From: Dimayuga, Reylin <Reylin.Dimayuga@Illinois.gov>
Sent: Friday, January 26, 2024 10:31 AM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>
Subject: Laraway RDF - financial assurance

Good morning, Daniel. I would like to know the most current financial assurance amount for Laraway RDF (Site No. 1970450002)?

Thanks,

Reylin Dimayuga

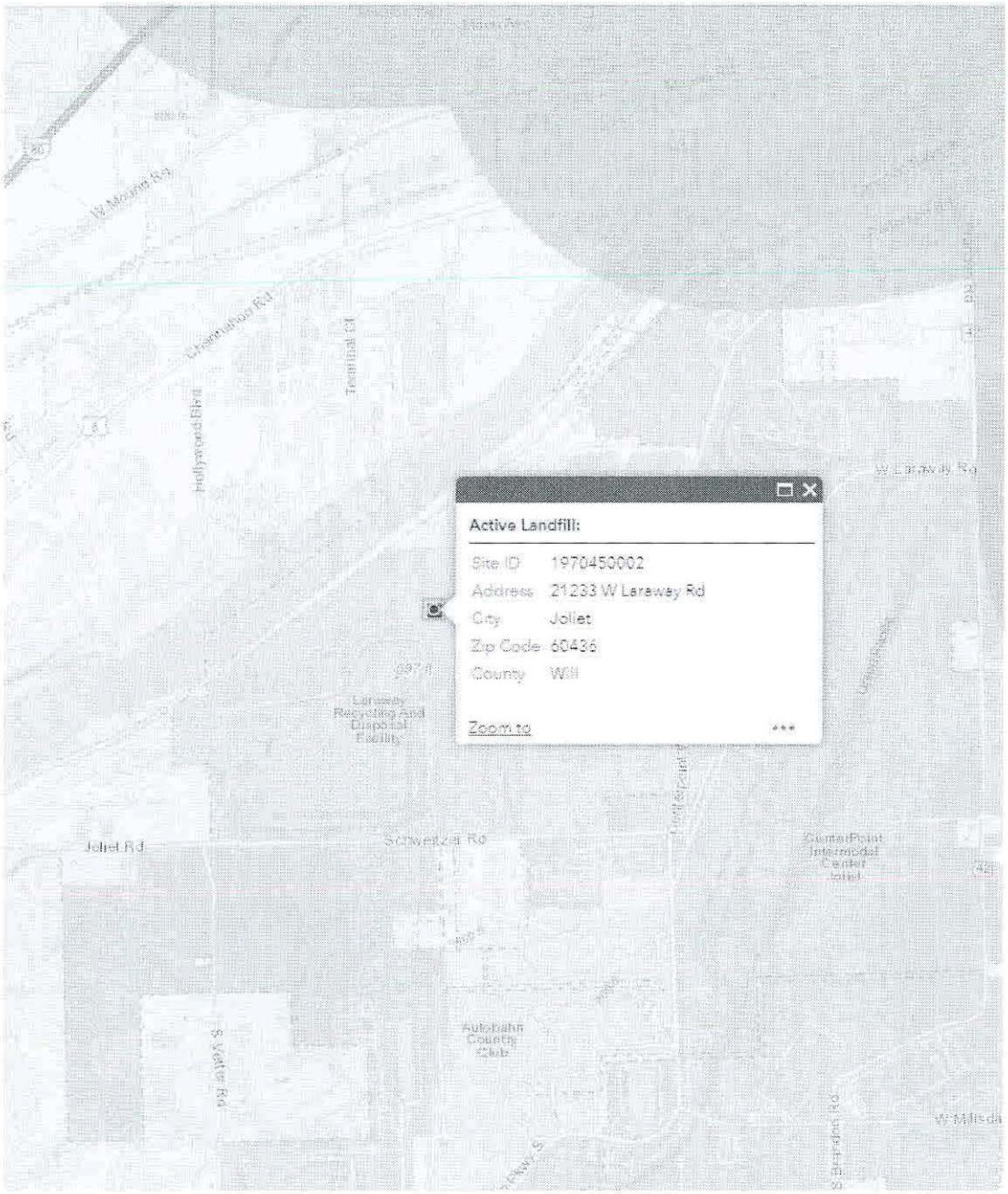
Environmental Protection Engineer
Bureau of Land || Solid Waste Unit
Illinois Environmental Protection Agency
1021 North Grand Ave. East, PO Box 19276
Springfield, IL 62794-9276
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Site Detail

Site ID: 170000162776
EJ Status: **0 - Not an EJ area**

1970450002 – Will County
Laraway RDF
ILD074411745
Not an Environmental Justice Area per EJ Database and SWAP Map.
Checked on May 1, 2024.



Roop, John J.

From: Britton, Daniel
Sent: Thursday, May 2, 2024 10:11 AM
To: Roop, John J.
Subject: RE: Laraway RDF - 1970450002

Hi John,

Laraway currently has 3 different mechanism totaling $28,140,798

Let me know if there is anything else that you need.

Thanks,
Daniel

From: Roop, John J. <John.Roop@Illinois.gov>
Sent: Thursday, May 2, 2024 9:33 AM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>
Subject: Laraway RDF - 1970450002

Hi Daniel,

Could you tell me what the current value of the Financial Assurance policy for Laraway RDF (1970450002) is?

Thank You,

John Roop

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Roop, John J.

From: Britton, Daniel
Sent: Friday, July 19, 2024 10:04 AM
To: Roop, John J.
Subject: RE: Laraway RDF - 1970450002

Hi John,

I have not received anything from them.

Thank you,
Daniel

From: Roop, John J. <John.Roop@Illinois.gov>
Sent: Friday, July 19, 2024 9:41 AM
To: Britton, Daniel <Daniel.Britton@Illinois.gov>
Subject: Laraway RDF - 1970450002

Hi Daniel,

When we last spoke on 5/02/24, you stated that Laraway RDF (1970450002) had a FA mechanism totaling **$28,140,498**. Have there been any revisions to the policy since we last spoke?

Thank You,

John Roop

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REVIEW NOTE CHECKLIST
General Information

1970450002 – Will County
Laraway Recycling and Disposal Facility
ILD074411745
Log #: B-141R-M-181

Start of Review (Date)	5/10/24 7/29/24 JJR
Project Manager	John Roop, P.E. (JJR)
Groundwater Unit Reviewer	Shawntay Dial (SDD) for RCRA / Ed Wagner (ERW) for SW
Corr. Action Reviewer	Bill Sinnott (WTS)
Brief Description of Project	2022 Cost Estimate, 2023 Cost Estimate, and 2024 Cost Estimate
Site Name/Location	Laraway Recycling and Disposal Facility 21233 West Laraway Road Joliet, IL 60436-9525
Facility Contact ☒ - Operator ☒ - Owner	Ian Johnson 21233 West Laraway Road Joliet, IL 60436-9525 Phone #: (815)-280-6301 Email: ijohnson@wm.com
Facility Contact ☒ - Operator ☒ - Owner	James Wilson 21233 West Laraway Road Joliet, IL 60436-9525 Phone #: (815)-280-6301 Email: jwilson@wm.com
Consultant	NA Phone #: Email:
Siting (Sec. 3.330 of Act) Cert. of Siting (LPC-PA8)	☐-Yes ☐-No ☒-NA
Environmental Justice Area Chrome SWAP (See Procedure I.28) 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

[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.

Review Notes
Laraway RDF
JJR

	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 – No Outreach • ☐-Complete – With Outreach • ☐-Outreach in Progress Document Community Relations response by attaching a copy of the email response to the 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, 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.

Review Notes
Laraway RDF
JJR

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: Des Plaines 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 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

Reviewer Information
Reviewer: John Roop, P.E. (JJR)
Submission Dated: May 8, 2024
Submission Received: May 10, 2024
Cover letter: Ian C. Johnson, P.E.
Signed and Sealed: Ian C. Johnson, P.E. on 5/08/24
Site No. 1970450002 – Will County
Site Name: Laraway RDF
USEPA ID: ILD074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-178, and B-141R-M-181

Site Background
Operations first started in 1926 with the manufacturing of trisodium phosphate, the first synthetic cleaning agent to replace soap, and continued until 1985. The waste byproduct of the manufacturing process, phosphogypsum, was placed in four areas for disposal. Waste Management of Illinois has been consolidating the phosphogypsum at the South Stack solid waste management unit (SWMU). Once all phosphogypsum is placed on the South Stace, a final cover system will be constructed. This unit is regulated under RCRA. Also located within the facility boundary, is a municipal solid waste landfill (MSWLF). The landfill is actively accepting non-hazardous and non-hazardous special waste.

Description of the Subject Submittal
The subject submittals are revisions to the facility's cost estimate. The cost estimates for the RCRA Post-Closure Cost Estimates, Corrective Action Post-Closure Plan, Solid Waste Closure Plan, and Solid Waste Post-Closure Care Plan are being revised. The primary change is adjusting each unit price by the inflation factor.

Note: Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-176, and B-141R-M-181 are being combined for issuance. The cost estimate in Log No. B-141R-M-181 will supersede the cost estimates in Log Nos. B-141R-M-167 and B-141R-M-174. Log No. B-141R-M-176 is a Construction Acceptance Report that requires a revision to the cost estimate before approval.

Review Notes
Laraway RDF
JJR

Submittals

- B-141R-167
  - 2022 Cost Estimate
  - Inflation Rate of 4.13% applied
- B-141R-174
  - 2023 Cost Estimate
  - Inflation Rate of 7.00% applied
- B-141R-176
  - Construction Acceptance Report
  - Disposal Cell Phases 9C / 10B
- B-141R-M-181
  - 2024 Cost Estimate
  - Inflation Rate of 3.60% applied

Correspondence

May 2, 2024.	Requested and received Financial Assurance update from Daniel Britton.
June 5, 2024.	Received Additional Information One dated May 31, 2024.
June 12, 2024.	Issued Notice of Deficiency One to Mr. Ian Johnson, P.E.
June 20, 2024.	Received Additional Information Two dated June 17, 2024.
June 26, 2024.	Received Additional Information Three dated June 24, 2024.
July 3, 2024.	Issued Notice of Deficiency Two to Mr. Ian Johnson, P.E.
July 10, 2024.	Received Additional Information Four dated July 8, 2024.

HWMU PCC

- HWMUs PCC (from Table I-2) = $1,097,079

Solid Waste

- Closure Cost (from Table 13-1) = $9,524,326
- Post-Closure Care Cost (from Table 13-2) = $4,709,258
- Total MSWLF Cost Estimate = $14,233,584

South Stack

- Closure Cost (from Table 10-1) = $6,886,012
- Post-Closure Care Cost (from Table 11-2) = $5,553,746
- Corrective Action (from Table 10-2) = $7,444,745
- Total South Stack Cost Estimate = $19,884,503

Summary of Costs

- HWMU PCC = $1,097,079
- Solid Waste = $14,233,584
- South Stack = $19,884,503
- Grand Total = $35,215,166

Review Notes
Laraway RDF
JJR

Table	WMI Value	Inequality	IEPA Minimum	Acceptable?
I-2	$1,097,079	=	$1,097,079	OK*
10-1	$6,886,012	>	$6,804,360	OK
10-2	$7,444,745	=	$7,444,745	OK
11-2	$5,553,746	>	$5,487,940	OK
13-1	$9,524,326	=	$9,524,326	OK
13-2	$4,709,258	>	$4,708,107	OK
Total	$35,215,166	>	$35,066,557	OK

*Inflation adjustment OK, see PCC Extension section for more information

Inflation Rate

- Non-negotiated costs were adjusted by at least 3.6%
- Quotes were provided for negotiated cost, such as sampling and analysis.

Groundwater

- Per Ed Wagner (ERW), the non-hazardous waste / solid waste portion of the application is acceptable.
- Per Shawntay Dial (SDD), the hazardous waste / RCRA portion of the application is acceptable.

Corrective Action

- Per Bill Sinnott (WTS), the corrective action portion of the permit application is acceptable.
- Table 10-2 is a new addition to the cost estimate submittal and also includes the Olin Ponds.
- The Permit only requires that a cost estimate be provided for Areas 1 and 2, which includes the HWMUs, MSWLF, and South Stack. Laraway is currently not obligated to submit a cost estimate for the Olin Ponds.
- Pending approval of a corrective action Work Plan, Log No. B-141R-CA-23, the Permit will be revised to also require the Olin Ponds.

RCRA Engineering

- Cost were adjusted accordingly for the HWMUs and provide two years of Financial Assurance.

Solid Waste Engineering

- Closure includes the existing MSW Unit, Interim Horizontal Overlay liner, Phases 1 through 10, and portions of Phases 11 through 14 in the Expansion.
- A total of 187.5 acres has been constructed.
- 129.64 acres would require placement of final cover.
- Post-Closure Care was planned for the required 30 years.

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Financial Assurance

- Per Daniel Britton, Laraway RDF has multiple Financial Assurance policies that total at $28,140,498.
- Per permit condition No. III.K.7, "The operator shall increase the total amount of financial assurance so as to equal the current cost estimate within 90 days of an increase in the current cost estimate in accordance with 35 IAC 811.701(b)."
- Per permit condition No. V.K.2, "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 estimate required under Condition V.K.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 60 days after the approval of the initial or revised cost estimates required under Condition V.K.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."
- The Permittee does not have to have their Financial Assurance updated to the latest value of the cost estimate before the Permit is issued, as long as it is revised within 60 days of issuance.

Post-Closure Care (PCC) Extension

A. Purpose

This section provides this reviewer's rational and reasoning for the extension of the post-closure care period of the RCRA landfill hazardous waste management units (HWMUs) at Laraway RDF. Condition I.F.1 (Post-Closure Care for HWMUs / Financial Assurance) has required Laraway RDF to provide financial assurance for post-closure care of Areas 1 and 2 of at least the amount shown in Attachment D, Section I. Financial Assurance shall be provided in accordance with 35 IAC Part 724 Subpart H.

B. Illinois EPA's Evaluation of Post-Closure Requirements of HHWUMs.

As many hazardous waste management facilities are nearing the 30-year mark from the date their post-closure care began, Illinois EPA, other States, and USEPA began to examine and evaluate the applicable requirements in the regulations to determine whether and how the completion of the required post-closure can be met.

The afore-mentioned permit conditions and requirements regarding post-closure care of a hazardous waste landfill were developed based on the following applicable regulations and reference materials:

a. 35 IAC Part 724 Section 724.131, Subpart G Sections 724.210 through 724.220, Section 724.410 and 35 IAC Part 724 Subpart H;

b. 35 IAC 703 Section 241(a)(2) and 35 IAC 703 Appendix A.E.2;

c. Sections 12(a), 21(n) and 39(g) of the Environmental Protection Act (Act);

d. USEPA's Guideline for Evaluating Post-Closure Care Period, dated December 15, 2016;

e. ASTSWMO Position Paper, dated July 20. 2022 "Post-Closure Care Beyond 30 Years at RCRA Subtitle C Facilities"; and

f. Illinois EPA's recent decisions regarding extending post-closure care at other RCRA facilities in Illinois.

1. Post-Closure Care Requirements under 35 IAC 724

35 IAC 724 is applicable to all RCRA permitted facilities. Section 724.131, Subpart G has specific requirements regarding the post-closure care, the property use and extending the post-closure care period.

Maintenance of Facility
In accordance with Section 724.131, facilities must be designed, constructed, maintained, and operated to minimize the possibility of any release of hazardous waste or hazardous waste constituents to air, soil, or surface water that *could* threaten human health or the environment.

Post-Closure Care Period
In accordance with Section 724.217 (Post-Closure Care and Use of Property), under Subsection 724.217(a)(1), post-closure of a hazardous waste management unit must begin after completion of closure of the unit and continue for 30 years after that date.

Post-Closure Use of Property
Subsection 724.217(c)(1) prohibits any disturbance of the integrity of the final cover, liner, or any other components of the containment system or the function of the monitoring system unless it is necessary to protect and reduce the threat to human health and the environment.

Extending the Post-Closure Care Period under Section 724.217

[redacted]

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- [redacted]

Notes: It has been advised by the Illinois EPA DLC [redacted]

Land Disposal Unit Specific Requirements for Closure/Post-Closure under Section 724.410
Section 724.410 lists specific closure/post-closure requirements for landfills. Subsection 724.410(a) specifies the minimum standards for construction of the final closure of a landfill, which includes, among other things, long-term minimization of liquid through the closed landfill and maintenance of the cover integrity be maintained.

Subsection 724.410 (b) requires the facility to maintain the integrity and maintenance of the final cover and requirement to continue operation of leachate collection and removal. It also requires monitoring of Leachate Detection System (LDS) and groundwater monitoring.

Required Financial Assurance

- Under 35 IAC Part 724 Subpart H, Sections 724.244 and 724.245, the post-closure cost estimate is calculated by multiplying the annual post-closure cost estimate by the number of years of post-closure care required under Section 724.217. Also under Section 724.244(b), the cost estimate must be adjusted for inflation.

According to the applicable regulations listed above, it is determined that it is necessary to continue the maintenance for landfills by extending the post-closure care period to adequately protect human health and the environment. In evaluating the current conditions of the landfill by assessment of leachate or groundwater monitoring results or potential for any migration of hazardous wastes which may threaten human health and the environment, the Illinois EPA may request the facility submit a permit modification.

2. Permit Conditions and Modification Requirements in 35 IAC 703.241(a)(2) and 35 IAC Part 703 Appendix A.E.2

35 IAC 703.241 has specific requirements regarding Establishing Permit Conditions, which reads:

> Each RCRA permit issued pursuant to Section 39(d) of the Environmental Protection Act [415 ILCS 5/39(d)] must contain terms and conditions that the Agency determines are necessary to adequately protect human health and the environment.

> Section 39(d) of the Act specifies that all RCRA permits must contain terms and conditions, schedules of compliance, which may be required to accomplish the purpose and provisions of the Act.

It is further specified that extending the Post-Closure Care is classified as a Class 2 Modification request in Section 703, Appendix A.E.2. Therefore, it is appropriate for the Illinois EPA to require the facility to submit a request to extend the post-closure care period by a specified date in a compliance schedule of the RCRA permit. Extending post-closure care is a necessary requirement to meet the terms of 35 IAC Part 724 included in Section 3.1 above and the requirements of the Act (also discussed in Section 3.3 below). A minimum of 180-day prior to the end date of the initial 30-years of post-closure care period is recommend timeline for a facility to submit a Class 2 Modification to the permit as it involves a public comment period before making the final decision. This Class 2 Modification must be submitted to the Illinois EPA within 60 days of this extended closure date.

3. Sections 12(a), 21(n) and 39(g) of the Act

The following three sections of the Act apply for the post-closure care of hazardous waste landfills in Illinois:

> **ACT – 12(a):** No person shall: Cause or threaten or allow the discharge of any contaminants into the environment in any State so as to cause or tend to cause water pollution in Illinois, either alone or in combination with matter from other sources, or so as to violate regulations or standards adopted by the Pollution Control Board under this Act.
>
> **ACT - 21(n):** Use any land which has been used as a hazardous waste disposal site except in compliance with conditions imposed by the Agency under subsection (g) of Section 39.
>
> **ACT - 39(g):** The Agency shall include as conditions upon all permits issued for hazardous waste disposal sites such restrictions upon the future use of such sites as are reasonably necessary to protect public health and the environment, including permanent prohibition of the use of such sites for purposes which may create an unreasonable risk of injury to human health or to the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Agency shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

In accordance with 39(g) and 21(n) of the Act, the Illinois EPA must include land use restrictions for the hazardous waste landfill under post-closure care to protect public health and the environment. The establishment of the land use restrictions is also necessary to meet the conditions of 12(a) of the Act to prohibit discharge of any contaminants into the environment.

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4. USEPA Guideline for Evaluating Post-Closure Care Period, dated December 15, 2016

A Guideline for Evaluating Post-Closure Care Period dated December 15, 2016, was distributed by USEPA. Because many hazardous wastes degrade slowly or do not degrade under containment in these units, the continued presence of hazardous waste in the unit (*i.e.*, any case other than clean closure) indicates the potential for unacceptable impacts on human health and the environment in the future if post-closure care is not maintained. For example, there are often uncertainties in whether controls will continue to function as planned and whether future activities will lead to unplanned exposures to human and environmental receptors. Even if there is no current evidence of actual releases from the facility, significant factors can change over time.

As far as the 30-year post-closure period goes, the regulations' identification of a default 30-year post-closure care period does **not** reflect a determination by EPA that 30 years of post-closure care is necessarily sufficient to eliminate potential threats to human health and the environment in all cases. Nor is the full 30-year period always necessary.

The evaluation criteria listed in the guidance document include:

- Nature of waste in the unit. EPA recommends that current data from regulatory standards be used for comparison to facility-specific performance goals articulated in the post-closure plan, and that, as necessary, the plan be updated to account for any new information on toxicity and carcinogenicity and understand constituents of concern which may change over time.

- Design of the Unit. It is recommended that the permitting authority consider any unit-specific design, in concert with applicable closure and post-closure care requirements, when evaluating whether adjustment of the post-closure care period is warranted to protect against any potential risk on human health and the environment.

- Leachate: Monitoring for leachate generation serves as the most effective way of examining the integrity of the waste management unit.

- Groundwater: Groundwater monitoring serves as the primary means of detecting leachate releases and groundwater contamination.

- Siting & Site hydrogeology: Relevant facility location characteristics (which might have changed since the post-closure plan was approved) may include proximity to vulnerable areas such as residential areas and surface and drinking water sources. The current and reasonably anticipated future land use of the facility and surrounding properties may also be relevant. Location in potentially vulnerable areas increases the likelihood and potential severity of releases.

- Facility History: All waste management must be adequately managed to prevent releases of contaminants to the environment. Good compliance records, routine maintenance and inspections, emergency procedures to handle natural disasters, and prompt and efficient response to spills and other incidents, are some of the management practices that help demonstrate whether the unit has been adequately managed.

- Integrity of cover system: A viable cover is the most important mechanism in preventing leachate generation and, ultimately, releases of contaminants.

- Long Term Care: Establishment and maintenance of physical and legal controls are necessary to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place.

A long-term stewardship is necessary to be established to maintain the physical and legal controls that are necessary to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place at a site or closed facility. EPA also recommends that consideration be given as to whether a funding source is available to support any necessary ECs and ICs in the future.

It is Illinois EPA's determination that as long as hazardous waste is left in place, the risk of future potential for the contamination continues to exist at the hazardous waste landfill. In order to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place, hazardous waste management units with waste left in place, Long Term Stewardship (LTS) for all hazardous waste management units is necessary to continue the maintenance of the landfill in perpetuity. Furthermore, as USEPA recommends, the funding for the LTS is necessary to implement the LTS.

So long as the decision to leave waste in place is compounded with Laraway RDF managing and monitoring leachate generated from Areas 1 and 2, post-closure care cost will need to be maintained.

5. ASTSWMO Position Paper, dated July 20. 2022 "Post-Closure Care Beyond 30 Years at RCRA Subtitle C Facilities

The ASTSWMO (Association of State and Territorial Solid Waste Management Organization) Board of Directors prepared and sent a Position Paper, entitled POST-CLOSURE CARE BEYOND 30 YEARS AT RCRA SUBTITLE C FACILITIES, dated July 20, 2022, to the USEPA to recommend that USEPA either revise the RCRA regulations for post-closure or issue supplemental guidance on the implementation of the post-closure regulations under Subtitle C of RCRA. Such guidance should be congruent with the key issues highlighted in the issues section of this position paper. ASTSWMO remains ready to work with EPA to achieve a mutually satisfactory outcome on this very important issue.

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This Position paper highlighted the issues that the USEPA guidance needs to be made clear to:
- State that there is a presumption that a Subtitle C post-closure care obligation remains as long as hazardous waste remains in a closed land disposal unit, even if there is no evidence of a release after 30 years of post-closure care;
- Require Financial assurance obligation during the extended post-closure care period must be maintained;
- Allow for an alternate endorsable document such as EC can be used to control such requirements and restrictions;
- Provide guidance for monitoring for any new emerging or newly listed wastes.

Illinois EPA agrees with above, and the subject permit conditions reflect the issues and concerns addressed in the Position paper within the currently applicable regulations and the guidance.

35 IAC 703.241(a)(3)

If, as the result of an assessments or other information, the Agency determines that conditions, in addition to those required under subpart EEE of 40 CFR 63 or 35 IAC Parts 724 or 726, are necessary to ensure adequate protection of human health and the environment, the Agency must include those terms and conditions in a RCRA permit for a hazardous waste combustion unit.

Illinois EPA Comment

The Agency did determine that in order to ensure adequate protection of the environment and human health that post-closure care must be extended. This determination was the stimulus for the post-closure care extension letter being sent to Laraway RDF.

35 IAC 703.270

When the Agency receives any information (for example, inspects the facility, receives information submitted by the permittee, as required in the permit (see 35 IAC 702.140 through 702.152 and Section 703.241 et seq.), receives a request for reissuance pursuant to 35 IAC 705.128, or conducts a review of the permit file) it may determine whether or not one or more of the causes, listed in Sections 703.271 or 703.272, for modification, reissuance, or both, exist. If cause exists, the Agency must modify or reissue the permit accordingly, subject to the limitations of Section 703.273, and may request an updated application if necessary. When a permit is modified, only the conditions subject to modification are reopened. If a permit is reissued, the entire permit is reopened and subject to revision and the permit is reissued for a new term. (See 35 IAC 705.128(c)(2).) If cause does not exist pursuant to Section 703.271 or 703.272, the Agency must not modify or reissue the permit, except on the request of the permittee. If a permit modification is requested by the permittee, the Agency must approve or deny the request according to the procedures of Section 703.280 through 703.283 or Section 703.353 and Subpart G of 35 IAC Part 705. Otherwise, a draft permit must be prepared and other procedures in 35 IAC Part 705 must be followed.

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BOARD NOTE: Derived from the preamble to 40 CFR 270.41 (2017). The Board has chosen to use "reissue" where the corresponding federal provisions use "revoke and reissue". Revocation is a remedy in the context of an enforcement action that is reserved to the Board. See 415 ILCS 5/33(b); 35 IAC 702.186. The Board intends that a reissued permit completely supersede the earlier version of that permit.

Illinois EPA Comment

Internal discussion in regard to Class 1* permit modifications and Class 3 permit modifications along with discussions of the information found after reading the annual leachate reports from Laraway RDF lead the Illinois EPA to the need to modify the RCRA Permit accordingly which would have been via a Class 2 permit modification and the extension of Post-Closure Care. To prevent the duplication of work, an addendum to the permit renewal that is already in house is being requested instead of a Class 2 permit modification.

35 IAC 703.271

The following are cause for modification, but not reissuance, of permits; the following are cause for reissuance as well as modification when the permittee requests or agrees:

a) Alterations. There are material and substantial alterations or additions to the permitted facility or activity that occurred after permit issuance which justify the application of permit conditions that are different or absent in the existing permit.

b) Information. The Agency has received information. Permits will be modified during their terms for this cause only if the information was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and would have justified the application of different permit conditions at the time of issuance.

c) New statutory requirements or regulations. The standards or regulations on which the permit was based have been changed by statute, through promulgation of new or amended standards or regulations, or by judicial decision after the permit was issued.

d) Compliance schedules. The Agency determines good cause exists for modification of a compliance schedule, such as an act of God, strike, flood, materials shortage, or other events over which the permittee has little or no control and for which there is no reasonably available remedy.

e) The Agency must also modify a permit as follows:

   1) When modification of a closure plan is required under 35 IAC 724.212(b) or 724.218(b).

2) After the Agency receives the notification of expected closure under 35 IAC 724.213, when the Agency determines that extension of the 90 or 180 day periods under 35 IAC 724.213, modification of the 30-year post-closure period under 35 IAC 724.217(a), continuation of security requirements under 35 IAC 724.217(b), or permission to disturb the integrity of the containment system under 35 IAC 724.217(c) are unwarranted.

3) When the permittee has filed a request under 35 IAC 724.247(c) for a modification to the level of financial responsibility or when the Agency demonstrates under 35 IAC 724.247(d) that an upward adjustment of the level of financial responsibility is required.

4) When the corrective action program specified in the permit under 35 IAC 724.200 has not brought the regulated unit into compliance with the groundwater protection standard within a reasonable period of time.

5) To include a detection monitoring program meeting the requirements of 35 IAC 724.198, when the owner or operator has been conducting a compliance monitoring program under 35 IAC 724.199 or a corrective action program under 35 IAC 724.200, and the compliance period ends before the end of the post-closure care period for the unit.

6) When a permit requires a compliance monitoring program under 35 IAC 724.199, but monitoring data collected prior to permit issuance indicate that the facility is exceeding the groundwater protection standard.

7) To include conditions applicable to units at a facility.

8) When a land treatment unit is not achieving complete treatment of hazardous constituents under its current permit conditions.

f) Notwithstanding any other provision of this Section, when a permit for a land disposal facility is reviewed under 35 IAC 702.161(d), the Agency must modify the permit as necessary to assure that the facility continues to comply with the currently applicable requirements in this Part and 35 IAC Parts 702, 703, and 720 through 727.

Illinois EPA Comment

Annual reports submitted by Laraway RDF which show historical leachate generation levels indicate there is no reason to believe that Laraway RDF will reach an end to the generation of leachate and thus no foreseeable end to the need for maintenance and monitoring thereof.

35 IAC 703.282

a) For Class 2 modifications, listed in Appendix A, the permittee must submit a modification request to the Agency that does the following:

1) Describes the exact change to be made to the permit conditions and supporting documents referenced by the permit;

2) Identifies that the modification is a Class 2 modification;

3) Explains why the modification is needed; and

4) Provides the applicable information required by Section 703.181 through 703.185, 703.201 through 703.207, 703.221 through 703.225, and 703.230.

b) The permittee must send a notice of the modification request to all persons on the facility mailing list maintained by the Agency and to the appropriate units of State and local government as specified in 35 IAC 705.163(a)(5) and must, to the extent practicable, publish this notice in a newspaper of general circulation published in the County in which the facility is located. If no such newspaper exists, the permittee must publish the notice in a newspaper of general circulation in the vicinity of the facility. This notice must be mailed and published within seven days before or after the date of submission of the modification request, and the permittee must provide to the Agency evidence of the mailing and publication. The notice must include:

1) Announcement of a 60-day comment period, in accordance with subsection (e), and the name and address of an Agency contact to whom comments must be sent;

2) Announcement of the date, time and place for a public meeting held in accordance with subsection (d);

3) Name and telephone number of the permittee's contact person;

4) Name and telephone number of an Agency contact person;

5) Locations where copies of the modification request and any supporting documents can be viewed and copied; and

6) The following statement: "The permittee's compliance history during the life of the permit being modified is available from the Agency contact person".

c) The permittee must place a copy of the permit modification request and supporting documents in a location accessible to the public in the vicinity of the permitted facility.

d) The permittee must hold a public meeting no earlier than 15 days after the publication of the notice required in subsection (b) and no later than 15 days before the close of the 60-day comment period. The meeting must be held in the County in which the permitted facility is located, unless it is impracticable to do so, in which case the hearing must be held in the vicinity of the facility.

e) The public must be provided 60 days to comment on the modification request. The comment period begins on the date that the permittee publishes the notice in the local newspaper. Comments must be submitted to the Agency contact identified in the public notice.

f) Agency Decision

1) No later than 90 days after receipt of the notification request, the Agency must:

A. Approve the modification request, with or without changes, and modify the permit accordingly;

B. Deny the request;

C. Determine that the modification request must follow the procedures in Section 703.283 for Class 3 modifications for either of the following reasons:

i. There is significant public concern about the proposed modification; or

ii. The complex nature of the change requires the more extensive procedures of Class 3;

D. Approve the request, with or without changes, as a temporary authorization having a term of up to 180 days; or

E. Notify the permittee that the Agency will decide on the request within the next 30 days.

2) If the Agency notifies the permittee of a 30-day extension for a decision, the Agency must, no later than 120 days after receipt of the modification request, do the following:

A. Approve the modification request, with or without changes, and modify the permit accordingly;

B. Deny the request;

C. Determine that the modification request must follow the procedures in Section 703.283 for Class 3 modifications for the following reasons:

i. There is significant public concern about the proposed modification; or

ii. The complex nature of the change requires the more extensive procedures of Class 3; or

D. Approve the request, with or without changes, as a temporary authorization having a term of up to 180 days.

3) If the Agency fails to make one of the decisions specified in subsection (f)(2) by the 120th day after receipt of the modification request, the permittee is automatically authorized to conduct the activities described in the modification request for up to 180 days, without formal Agency action. The authorized activities must be conducted as described in the permit modification request and must be in compliance with all appropriate standards of 35 IAC Part 725. If the Agency approves, with or without changes, or denies the modification request during the term of the temporary or automatic authorization provided for in subsections (f)(1), (f)(2), or (f)(3), such action cancels the temporary or automatic authorization.

4) Notification by Permittee

A. In the case of an automatic authorization under subsection (f)(3), or a temporary authorization under subsection (f)(1)(D) or (f)(2)(D), if the Agency has not made a final approval or denial of the modification request by the date 50 days prior to the end of the temporary or automatic authorization, the permittee must, within seven days after that time, send a notification to persons on the facility mailing list, and make a reasonable effort to notify other persons who submitted written comments on the modification request, that informs them as follows:

i. That the permittee has been authorized temporarily to conduct the activities described in the permit modification request; and

ii. That, unless the Agency acts to give final approval or denial of the request by the end of the authorization period, the permittee will receive authorization to conduct such activities for the life of the permit.

B. If the owner or operator fails to notify the public by the date specified in subsection (f)(4)(A), the effective date of the permanent authorization will be deferred until 50 days after the owner or operator notifies the public.

5) Except as provided in subsection (f)(7), if the Agency does not finally approve or deny a modification request before the end of the automatic or temporary authorization period or reclassify the modification as a Class 3 modification, the permittee is authorized to conduct the activities described in the permit modification request for the life of the permit unless modified later under Section 703.270 or Section 703.280. The activities authorized under this subsection must be conducted as described in the permit modification request and must be in compliance with all appropriate standards of 35 IAC Part 725.

6) In making a decision to approve or deny a modification request, including a decision to issue a temporary authorization or to reclassify a modification as a Class 3, the Agency must consider all written comments submitted to the Agency during the public comment period and must respond in writing to all significant comments in the Agency's decision.

7) With the written consent of the permittee, the Agency may extend indefinitely or for a specified period the time periods for final approval or denial of a modification request or for reclassifying a modification as a Class 3.

g) The Agency must deny or change the terms of a Class 2 permit modification request under subsections (f)(1) through (f)(3) for the following reasons:

1) The modification request is incomplete;

2) The requested modification does not comply with the appropriate requirements of 35 IAC Part 724 or other applicable requirements; or

3) The conditions of the modification fail to protect human health and the environment.

h) The permittee may perform any construction associated with a Class 2 permit modification request beginning 60 days after the submission of the request unless the Agency establishes a later date for commencing.

Illinois EPA Comment

With the additional information that the Illinois EPA has received from Laraway RDF along with research of historical records it is the belief of the Illinois EPA that Laraway RDF will need to submit a Class 2 permit modification to address the need for continued post-closure care and the associated post-closure care costs.

Due to the regulations set forth in 35 IAC 703.282 the Illinois EPA cannot unilaterally seek this modification. This is why the Illinois EPA is instead sending the post-closure extension letter to Laraway RDF in order to initiate the 35 IAC 703.282 process so that Laraway RDF can properly be in compliance.

35 IAC Part 703 Appendix A.E.2

E.	Post-Closure	
Class	Modifications	
2	2.	Extension of post-closure care period.

Illinois EPA Comment

In 35 IAC Part 703 Appendix A.E.2 it is expressly written that for the post-closure care period to be extended that a Class 2 permit modification must be submitted. Working backwards from this point is the reason that the Illinois EPA as prepared the post-closure care extension letter which instructs Laraway RDF that a Class 2 permit modification must be submitted in order to maintain compliance.

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6. Illinois EPA's Decisions Regarding Extending Post-Closure Care at other IL RCRA Facilities and Communications from Other States

The Illinois EPA recently has made the following decisions regarding post-closure care beyond the initial 30-years for the following permitted and interim status facilities:

- On July 1, 2022, Illinois EPA issued its proposed decision to deny the request for the completion of post-closure care and extend the post-closure care period beyond the initial 30 years at the City of North Chicago site (0971250007). After a public notice and the comment period, the Illinois EPA's final decision to extend the post-closure care period at the City of North Chicago was issued on August 19, 2022.

- On November 15, 2022, Illinois EPA issued its proposed decision to extend the post-closure care period beyond the initial 30 years at the RCH Newco site (1978030005). The final decision to extend the post-closure acre period was issued by the Agency on March 13, 2024 (C-68).

- In addition to the extending the post-closure care period, a renewed RCRA Post-Closure Permit was issued for CID site (0310390001) on January 19, 2023. This permit has post-closure requirements in Section I of the permit, which contains the updated requirements in the Post-Closure Section, which were the reflection of the updated template for the post-closure section to require that post-closure care may be extend if necessary to protect human health and the environment and that the environmental covenant (EC) is necessary to be established prior to exiting the permit.

- A draft renewed permit for Greenfield Multistate Trust (Former Tronox) site was issued on March 11, 2024, which included the Agency's decision to extend the post-closure care period beyond the 30-year. The final renewed permit for this site will be finalized and issued soon.

- In addition, the Illinois EPA has proposed to and will extend Post-Closure care at the Greenfield Multistate Trust (formerly Tronox) site in its renewed Permit draft dated 3/11/2024).

When questions were raised regarding the extending of Post-Closure at other States during the USEPA-Lead Post-Closure Care Implementation Group (which met generally on a Bi-Weekly biases in 2022 through April 2023), it was general concurrence among USEPA and States representatives that if the waste remains in place, post-closure care must continue to be implemented. Among those States that have extended the post-closure care beyond 30-years were Wisconsin (which is one of Region 5 States) and Florida. In response to this reviewer's inquiry about how these states implemented extending of post-closure care ta RCRA sites, the following responses were received both on 4/23/2023:

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- Doug Coenen, P.E., of Wisconsin Department of Natural Resources called initially to discuss on the phone. He indicated that WI Statute requires long-term care (a.k.a Post-Closure Care) to be implemented in perpetuity. He indicated that this is why they do not even need to address extending of post-closure area as if the waste remains in place, post-closure care continues and there is no need to address post-closure care period. However, WI still uses rolling 30-years for financial assurance. He then sent me an email to quate the Statue of WI (289.41(1.m) (c).

- Merline Russell, P.G., of Florida Department of Environmental Protection has indicated they have extended post-closure care in a couple of ways. One is to simply add another 30-years to initial 30-years and requires 60 years of Post-Closure care. In another way, FL requires the facility to have "rolling" 30-years, which means it always have 30 years as required post-closure care period regardless of how many years of post-closure care the facility completed. This rolling 30-year is also reflected in the financial assurance requirements.

7. Climate Change Consideration for RCRA Permitting

On June 5, 2024 the USEPA issued Guidance which requires the authorized states including Illinois to incorporate climate change considerations into RCRA permitting program.

The June 5, 2024, guidance requires that, "RCRA permits will include the conditions that the permitting Authority determines are necessary to ensure that the facility operation will be compliant and protective in the face of such impacts."

Currently Hazardous waste remains at Areas 1 and 2, therefore, vulnerability screening and assessment for the any potential climate change impacts must be incorporated into the long-term care for Areas 1 and 2 which will be included in modifications to the RCRA permit going forward.

In the event that the Phase I Landfill no longer has hazardous waste then the climate change considerations may be reevaluated.

Implementation of the climate change considerations is underway with RCRA permits currently being drafted by the Illinois EPA, not just for Laraway RDF.

8. Restoring to Thirty (30) Financial Assurance Value

From Table I-2, $1,097,079 represent the HWMUs Post-Closure Care cost for two (2) years. In order to bring the financial assurance coverage back to thirty (30) years of coverage, the value would be multiplied by fifteen (15). $1,097,079 per two years * 15 years = $16,456,185. The cost estimate for the HWMUs (Areas 1 and 2) will be modified from WMI's proposed $1,097,079 to the Illinois EPA's required $16,456,185. All other proposed cost estimate values will be approved as requested. This required adjustment will result in a new grand total of $50,574,272.

Review Notes
Laraway RDF
JJR

Decision
Having reviewed the cost estimate, checking unit prices for the adjustment of inflation, checked the Financial Assurance requirements, and consulted will all persons involved in the review of this cost estimate, I would advise that the permit application be approved.

Changes to the Permit

Section III.B – Non-Hazardous Waste Landfill Unit Identification

Name of Constructed Area	Size (Acres)	Approval Date
Phase 9C / 10B	9.13	July 2024

Attachment D – Cost Estimate

I. HWMUs Post-Closure Care (In accordance with Condition I.F.1)

A. HWMUs Post-Closure Care (from Table I-2)	$16,456,185

II. Non-Hazardous Waste Landfill (In accordance with Condition III.K.6):

B. MSWLF Closure (from Table 13-1)	$9,524,326
C. MSWLF Post-Closure Care (from Table 13-2)	$4,709,258
D. Non-Hazardous Sub-Total	$14,233,584

III. South Stack Closure, Post-Closure Care, and Corrective Action Activities (In accordance with Condition V.K.1):

E. South Stack Closure (from Table 10-1)	$6,886,012
F. South Stack Post-Closure Care (from Table 11-2)	$5,553,746
G. Corrective Action (from Table 10-2)	$7,444,745
H. South Stack Sub-Total	$19,884,503

IV. Summary of Costs

I. HWMUs Post-Closure Care	$16,456,185
J. Non-Hazardous Sub-Total	$14,233,584
K. South Stack Sub-Total	$19,884,503
L. Grand Total	$50,574,272

Review Notes
Laraway RDF
JJR

Attachment F - Approved Permit Application Identification

127. Class 1* Permit Modification Requests, all approved on July XX, 2024:
Log No. B-141R-M-167 (2022 Cost Estimate) – Dated May 9, 2022
Log No. B-141R-M-174 (2023 Cost Estimate) – Dated May 12, 2023
Log No. B-141R-M-178 (Disposal Cell Phase
9C / 10B Construction Acceptance Report) – Dated January 22, 2024
Log No. B-141R-M-181 (2024 Cost Estimate) – Dated May 8, 2024

Item	Comment	Quantity	Events	Unit	Unit Price	2021 Total	2022 Total	2023 Total	2024 Total
General Maintenance & Inspection									
General maintenance of RCRA Unit	Utilities, labor, and materials	1	2	Per year	$20,000	$40,000	$40,000	$20,000	$40,000
Mow and fertilize vegetative cover	As needed	55	2	Per acre	$40	$4,400	$4,400	$2,200	$4,400
Redress final cover	Two acres every five years	2	2	Per acre	$1,800	$3,600	$3,600	$3,600	$7,200
Inspect cover, runon / runoff systems	Four times per year	4	2	Per inspection	$500	$4,000	$4,000	$2,000	$4,000
Inspect Gas & Leachate Systems	Four times per year	4	2	Per inspection	$500	$4,000	$4,000	$2,000	$4,000
Inspect emergency / safety equipment	Four times per year	4	2	Per inspection	$250	$2,000	$2,000	$1,000	$2,000
Inspect fence, gates, and benchmark	Four times per year	4	2	Per inspection	$500	$4,000	$4,000	$2,000	$4,000
Groundwater Sampling & Analysis									
Analytical Costs Observation wells	10 Wells Semi-Annual Lists	10	2	Per sample	$660	$10,560	$10,560	$5,280	$13,200
Analytical Costs GMZ wells	27 Wells Semi-Annual Lists	27	2	Per sample	$670	$28,944	$28,944	$14,472	$36,180
Sampling costs	40 Wells for entire yearly program	40	2	Per sample	$440	$34,480	$34,480	$17,240	$35,200
Leachate sampling, analysis, and disposal									
Sampling and Analysis	Four times per year	4	2	Per event	$1,350	$10,800	$10,800	$5,400	$10,800
Monthly level monitoring	DTMs and leachate wells (28 points per month)	28	24	Per sample	$25	$16,800	$16,800	$8,400	$16,800
Leachate Management	Utilities, labor, and materials	1	2	Per year	$35,000	$70,000	$70,000	$35,000	$70,000
Transportation and Disposal	260 loads per year at 4,500 gallons per load	1,170,000	2	Per gallon	$0.17	$397,800	$397,800	$198,900	$397,800
Groundwater Extraction System									
Groundwater Extraction System O&M	Utilities, labor, and materials	1	2	Per year	$50,000	$100,000	$100,000	$50,000	$100,000
Report Submittals / Certifications									
Miscellaneous reporting	Groundwater, RCRA, Leachate	1	2	Per year	$15,000	$30,000	$30,000	$15,000	$30,000
Post-closure certification	At end of Post-Closure Care Period	1	1	One time	$5,000	$5,000	$5,000	$5,000	$5,000
Decommission Groundwater Wells	At end of Post-Closure Care Period	1	1	One time	$20,000	$20,000	$20,000	$20,000	$20,000
Total						$786,384	$786,384	$407,492	$800,580
Inflation Adjustment						1.19	1.24	1.32	1.37
Adjusted Total						$933,573	$972,130	$539,005	$1,097,079

Item	Quantity	Units	Unit Price	2021 Total	2022 Total	2023 Total	2024 Total
South Stack Preparation and Grading (Complete)	0	cy	$1.50	$0	$0	$0	$0
Install Sideslope Drain (Completed)	0	lf	$200	$0	$0	$0	$0
Install Forcemain and Wet Well Lift Stations							
Forcemain (Completed)	0	lf	$100	$0	$0	$0	$0
Wet Well Lift Stations	1	each	$250,000	$250,000	$250,000	$250,000	$250,000
Place Final Cover System							
2-foot Low-Permeability Soil Layer (172.6 ac)	556,923	cy	$4	$2,227,692	$2,227,692	$2,227,692	$2,227,692
1-foot Vegetative Soil Layer (172.6 ac)	278,462	cy	$4	$1,113,848	$1,113,848	$1,113,848	$1,113,848
Dredge / Cleanout Moat and Return Water Pond							
Moat (77% Complete)	14,467	cy	$7	$101,269	$101,269	$101,269	$101,269
Return Water Pond	31,500	cy	$10	$315,000	$315,000	$315,000	$315,000
Soil Testing and Documentation	1	ls	$150,000	$150,000	$150,000	$150,000	$150,000
Surface Water Management System Construction							
Sedimentation Basin Conversion	1	ls	$20,000	$20,000	$20,000	$20,000	$20,000
Runoff Channel Construction	1	ls	$40,000	$40,000	$40,000	$40,000	$40,000
Establishment of Vegetation: Seed and Mulch	200	ac	$1,850	$370,000	$370,000	$370,000	$370,000
Construction Quality Assurance							
Inspectors (2 @ 50 hrs/wk x 25 wks)	2,500	hr	$60	$150,000	$150,000	$150,000	$150,000
Engineer (10 hrs/wk x 25 wks)	250	hr	$75	$18,750	$18,750	$18,750	$18,750
Senior Engineer (4 hrs/wk x 25 wks)	100	hr	$90	$9,000	$9,000	$9,000	$9,000
Groundwater Semi-Annual Sampling							
24 hours/event x 2 events x 2 years	96	hr	$100	$9,600	$9,600	$9,600	$9,600
Groundwater Semi-Annual Monitoring List G1							
12 wells/event x 2 events x 2 years	48	samples	$300	$14,400	$14,400	$14,400	$14,400
Semi-Annual Groundwater Data Review and Report							
12 hours/event x 2 events x 2 years	48	hr	$80	$3,840	$3,840	$3,840	$3,840
Groundwater Momitoring Well Replacement (1 well total)	1	ls	$12,000	$12,000	$12,000	$12,000	$12,000
Certification and Documentation of Closure	1	ls	$150,000	$150,000	$150,000	$150,000	$150,000
Preparation and Filing of Plat	1	ls	$10,000	$10,000	$10,000	$10,000	$10,000
Total				$4,965,399	$4,965,399	$4,965,399	$4,965,399
Inflation Adjustment				1.19	1.24	1.32	1.37
Adjusted Total				$5,894,784	$6,138,238	$6,567,915	$6,804,360

Item	Quantity	Units	Unit Price	2024 Total
Pump and treat liquid in Olin Ponds to on-site treatment plant (east pond already dewatered)	191261000	gal	$0.015	$2,868,915
Removeal of phosphate solids to south stack (estimated four foot thick over 71 acres)	458186	cy	$7.20	$3,298,939
Remove one-foot of impacted soils to south stack	114546	cy	$7.20	$824,731
Removal of treatment plant piping	1500	ft	$20	$30,000
Sampling and testing of clay soils	[redacted]			
Sampling technician (two days per report / 71 samples per report	10	days	$1,000	$10,000
Soil analysis (five samples per acre @ 71 acres)	355	samples	$200	$71,000
Reporting (Five separate reports over three to four years)	5	each	$5,000	$25,000
Corrective Action Observation	[redacted]			
Inspectors (One @ 40 hrs/we x 140 wks)	4160	hr	$61	$253,760
Senior engineer (four hrs/wk x 104 wks)	416	hr	$150	$62,400
Total	[redacted]			$7,444,745

Item	Quantity	Units	Unit Price	2021 Total	2022 Total	2023 Total	2024 Total
Site Inspections (20 hours / quarter)	80	hr	$50	$4,000	$4,000	$4,000	$4,000
Final Cover Maintenance (2 acres at 1-foot)	3,226	cy	$5.50	$17,743.00	$17,743	$17,743	$17,743
Vegetation Maintenance Mowing / Controlled Burn	200	ac	$33	$6,600	$6,600	$6,600	$6,600
Vegetation Repair	3.3	ac	$1,850	$6,105	$6,105	$6,105	$6,105
Miscellaneous Repairs	1	ls	$20,000	$20,000	$20,000	$20,000	$20,000
Stack Seepage Collection System Maintenance	[redacted]						
Labor (10 hr/wk x 52 wks/yr)	520	hr	$45	$23,400	$23,400	$23,400	$23,400
Pump replacement	1	ls	$20,000	$20,000	$20,000	$20,000	$20,000
Miscellaneous repairs	1	ls	$5,000	$5,000	$5,000	$5,000	$5,000
Groundwater semi-annual sampling for both stacks (29 hrs/event x 2 events)	58	hr	$100	$5,800	$5,800	$5,800	$5,800
Groundwater semi-annual monitoring for south stack (12 wells/event x 2 events)	24	samples	$300	$7,200	$7,200	$7,200	$7,200
Groundwater semi-annual monitoring for north stack (7 wells/event x 2 events)	14	samples	$481	$6,734	$6,734	$6,734	$6,734
semi-annual groundwater data review and report (14 hrs/event x 2 events)	28	hr	$80	$2,240	$2,240	$2,240	$2,240
Groundwater Monitoring Well Replacement (annualized lump sum cost)	1	ls	$2,000	$2,000	$2,000	$2,000	$2,000
Annual Report Preparation	80	hr	$80	$6,400	$6,400	$6,400	$6,400
Total	[redacted]			$133,222	$133,222	$133,222	$133,222
Inflation Adjustment				1.19	1.24	1.32	1.37
Adjusted Total				$158,157	$164,689	$176,218	$182,561
Number of Years of PCC				30	30	30	30
PCC Cost				$4,744,724	$4,940,681	$5,286,528	$5,476,844
One Time Decomissioning of Groundwater Wells at the end of PCC	19	wells	$584	$9,633	$10,013	$10,716	$11,096
Grand Total	[redacted]			$4,754,357	$4,950,694	$5,297,244	$5,487,940

Service	Quantity	Unit	Inflation	2021 Total	2022 Total	2023 Unit	2023 Total	2024 Unit	WM Unit	Difference	2024 Total	WM Total	Difference
Equipment Cleaning	10	hours	1.036	$1,206	$1,256	$134.35	$1,343	$139.19	$139.19	$0.00	$1,392	$1,392	$0.13
Backfill and Grading	20,000	cuyd	1.036	$60,371	$62,864	$3.36	$67,264	$3.48	$3.48	$0.00	$69,619	$69,619	-$0.20
Solidification Dismantlement	400	cuyd	1.036	$13,455	$14,010	$37.48	$14,991	$38.83	$38.83	$0.00	$15,532	$15,532	$0.29
Final Cover (On-Site Material 134.94 acres)			1.036										
Grading Layer Soil Placement (1.0 feet)	209,152	cuyd	1.036	$787,227	$819,739	$4.02	$842,669	$4.16	$4.16	$0.00	$871,060	$871,060	$0.48
Protective Soil Cover (2.5 feet)	522,881	cuyd	1.036	$1,642,861	$1,710,711	$3.36	$1,758,565	$3.48	$3.48	$0.00	$1,820,128	$1,820,128	$0.15
Topsoil Cover (0.5 feet)	104,576	cuyd	1.036	$328,570	$342,140	$3.36	$351,712	$3.48	$3.48	$0.00	$364,025	$364,025	$0.13
Geocomposite Drainage Layer	5,647,118	sqft	1.036	$2,640,240	$2,749,281	$0.50	$2,826,190	$0.52	$0.52	$0.00	$2,931,058	$2,931,058	$0.46
Geomembrane	5,647,118	sqft	1.036	$2,385,905	$2,484,442	$0.45	$2,553,942	$0.47	$0.47	$0.00	$2,650,238	$2,650,238	$0.35
Landscaping (Seeding and Mulch)	130	ac	1.036	$267,132	$278,371	$2,207	$286,158	$2,286.45	$2,286.45	$0.00	$296,416	$296,416	$0.36
Construct Surface Water Diversion Ditches	25,400	ft	1.036	$91,848	$95,641	$4.02	$102,336	$4.16	$4.16	$0.00	$105,784	$105,784	$0.11
Install Gas Monitoring Probes	4	each	1.036	$24,033	$25,025	$6,694	$26,777	$6,934.98	$6,935.00	$0.02	$27,740	$27,740	$0.06
Construction Observation			1.036										
Inspectors	2,800	hours	1.036	$236,022	$245,770	$90	$253,906	$93.24	$93.24	$0.00	$261,072	$261,072	$0.00
Engineers	224	hours	1.036	$21,750	$22,648	$105	$23,398	$108.78	$108.78	$0.00	$24,367	$24,367	$0.28
Senior Engineer	56	hours	1.036	$7,409	$7,715	$142	$7,971	$147.11	$147.11	$0.00	$8,238	$8,238	-$0.27
Closure Certification	1	lump sum	1.036	$60,070	$62,551	$66,930	$66,929	$69,339.48	$69,339.00	-$0.48	$69,339	$69,339	-$0.48
Plat Preparation and Recording	1	lump sum	1.036	$7,208	$7,506	$8,031	$8,032	$8,320.12	$8,320.00	-$0.12	$8,320	$8,320	-$0.12
Total				$8,575,306	$8,929,672		$9,192,184				$9,524,326	$9,524,328	$1.74

Service	Quantity	Unit	Quantity	Unit	Inflation	Unit Price
Site Inspection and Documentation	3	hours	4	quarters	1.036	$66.94
Final Cover Maintenance (0.33 acres at 1 ft)	550	cuyd	1	year	1.036	$7.36
Vegetation Maintenance / Mowing	187.54	ac	1	year	1.036	$62.88
Vegetation Repairs	0.66	ac	1	year	1.036	$2,208.73
Miscellaneous Repairs	1	lump sum	1	year	1.036	$1,338.62
Leachate Transportation and Disposal (4.2 gallons per acre per day)	787	gpd	365	days	1.036	$0.31
Leachate Collection System Maintenance						
Labor	4	hours	52	weeks	1.036	$46.86
Cleaning of leachate collection pipe	13600	lft	1	-	1.036	$0.69
Leachate Monitoring (Analysis and Sampling)						
List L1: 5 samples x 2 events	5	samples	2	events	1.036	$903.44
List L2: 1 sample per year	1	samples	1	year	1.036	$776.38
Groundwater & Leachate Sampling and Level Measurements	26	hours	4	events	1.036	$181.45
Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	1.036	$143.96
Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	1.036	$139.13
Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	1.036	$143.96
Grpindwater Monitoring List G1 quarterly wells	14	wells	4	events	1.036	$139.13
Grpoundwater Data Review	12	hours	4	events	1.036	$66.94
Gas Monitoring / Sampling						
Labor	26	hours	1	year	1.036	$46.86
Gas probe analysis	28	samples	4	year	1.036	$46.86
Ambient air monitoring	4	samples	4	year	1.036	$46.86
Preparation of Annual Reports / Certification of Completion	8	hours	4	quarters	1.036	$107.10
Decommissioning of Groundwater Wells	41	wells	1	one time	1.036	$563.78
Total						

Table 13-12

2021 Cost	21 30YR	2022 Cost	22 30YR	2023 Unit Price	2023 Cost	23 30YR	2024 Unit Price
$721	$21,630	$751	$22,523	$66.94	$803	$24,100	$69.35
$3,632	$108,961	$3,782	$113,461	$7.36	$4,047	$121,403	$7.62
$10,069	$302,058	$10,484	$314,533	$62.88	$11,792	$353,774	$65.14
$1,308	$39,251	$1,362	$40,872	$2,208.73	$1,458	$43,733	$2,288.24
$1,201	$36,043	$1,251	$37,531	$1,338.62	$1,339	$40,159	$1,386.81
$32,953	$988,576	$34,313	$1,029,404	$0.134	$38,578	$1,157,345	$0.1388
[redacted]							
$8,747	$262,413	$9,108	$273,251	$46.86	$9,746	$292,379	$48.54
$8,407	$252,197	$8,754	$262,613	$0.69	$9,367	$280,996	$0.71
[redacted]							
$8,109	$243,256	$8,443	$253,302	$903.44	$9,034	$271,033	$935.97
$697	$20,904	$726	$21,768	$776.38	$776	$23,291	$804.33
$16,937	$508,112	$17,637	$529,097	$181.45	$18,871	$566,134	$187.99
$2,584	$77,526	$7,265	$217,965	$143.96	$7,774	$233,222	$149.15
$2,497	$74,923	$7,022	$210,648	$139.13	$7,513	$225,394	$144.14
$14,471	$434,145	$7,535	$226,037	$143.96	$8,062	$241,860	$149.15
$13,986	$419,572	$7,282	$218,450	$139.13	$7,791	$233,741	$144.14
$2,884	$86,518	$3,003	$90,092	$66.94	$3,213	$96,398	$69.35
[redacted]							
$1,093	$32,802	$1,139	$34,156	$46.86	$1,218	$36,547	$48.54
$4,710	$141,299	$4,905	$147,135	$46.86	$5,248	$157,435	$48.54
$673	$20,186	$701	$21,019	$46.86	$750	$22,491	$48.54
$3,076	$92,274	$3,203	$96,085	$107.10	$3,427	$102,811	$110.95
$24,288	$24,288	$21,347	$21,347	$557.10	$21,727	$21,727	$577.15
$163,043	$4,186,934	$160,011	$4,181,290	[redacted]	$172,535	$4,545,971	[redacted]

2024 Cost	WM	Difference	2024 30YR	WM	Difference
$832	$833	$0.76	$24,967	$24,990	$23
$4,192	$4,194	$1.54	$125,774	$125,820	$46
$12,217	$12,218	$1.03	$366,509	$366,540	$31
$1,510	$1,511	$0.76	$45,307	$45,330	$23
$1,387	$1,387	$0.19	$41,604	$41,610	$6
$39,878	$39,878	$0.11	$1,196,337	$1,196,340	$3
[redacted]					
$10,097	$10,098	$1.19	$302,904	$302,940	$36
$9,704	$9,722	$18.29	$291,111	$291,660	$549
[redacted]					
$9,360	$9,360	$0.32	$280,790	$280,800	$10
$804	$805	$0.67	$24,130	$24,150	$20
$19,551	$19,551	$0.50	$586,515	$586,530	$15
$8,054	$8,054	$0.06	$241,618	$241,620	$2
$7,784	$7,784	$0.41	$233,508	$233,520	$12
$8,352	$8,352	-$0.23	$250,567	$250,560	-$7
$8,072	$8,072	$0.13	$242,156	$242,160	$4
$3,329	$3,329	$0.06	$99,868	$99,870	$2
[redacted]					
$1,262	$1,263	$0.90	$37,863	$37,890	$27
$5,437	$5,438	$1.26	$163,102	$163,140	$38
$777	$777	$0.32	$23,300	$23,310	$10
$3,550	$3,551	$0.58	$106,512	$106,530	$18
$23,663	$23,948	$284.81	$23,663	$23,948	$285
$179,811	$180,125	$313.67	$4,708,107	$4,709,258	$1,151

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: May 20, 2024

TO: John Roop, P.E., RCRA Unit

FROM: Shawntay Dial, Groundwater Unit ~~JR~~ SDD 5-30-24

SUBJECT: Updated closure/post-closure costs for RCRA unit, corrective action units, and solid waste unit

RE: 1970450002 -- Will County
Laraway Recycling and Disposal Facility
ILD074411745
Log No. B-141R-M-174
Received: May 18, 2023
RCRA Permit- 24A

A technical review has been completed on the groundwater portions of a document entitled, "Updated closure & post-closure costs for RCRA unit, corrective action units, and solid waste unit.", dated May 12, 2023 and received by the Illinois EPA on May 18, 2023. The cost estimate was submitted by Mr. Ian Johnson of Waste Management of Illinois, Inc. on behalf of Laraway Recycling and Disposal facility (Laraway) in Joliet, Illinois. The document was submitted to meet the requirements for Section V.I, Financial assurance for corrective action and Section VIII, Cost estimate for facility post-closure. The subject submittal was reviewed as a Class 1* modification request to the RCRA Permit (Permit).

Environmental Justice (EJ), 39(i), FOS, CROPA, Right to Know (RTK)

A search of the EJ Database and 39(i) form status will be conducted by the project manager.

Anthony Guido FOS was contacted on May 13, 2024, and there are no comments regarding groundwater.

The subject submittal does not require a CROPA with any other Bureau.

A Right to Know (RTK) checklist evaluation has been performed. In this instance, RTK is not applicable and there are no concerns at this time.

FACILITY BACKGROUND

The permit contains requirements for groundwater corrective action at two (2) closed hazardous waste management units (HWMU) (referred to as "Areas 1" and "Area 2"), groundwater monitoring for a non-hazardous waste portion of the facility, and two (2) phosphogypsum piles (referred to as the "North Stack" and the "South Stack") that are addressed as solid waste management units (SWMU).

SUBJECT SUBMITTAL

This submittal contains an updated RCRA post-closure cost estimate, an updated corrective action closure/post-closure plan, and an updated solid waste unit closure/post-closure plan for the Laraway Recycling and Disposal Facility. Only the closure/post-closure care cost estimates that pertain to groundwater monitoring costs were reviewed.

The facility states that the proposed updated post-closure cost estimates for RCRA corrective action groundwater monitoring, from Table I-2, are as follows (annual inflation costs from 2010 through 2022 calculated in the estimated grand total using a CPI of 7%.):

- Groundwater analytical costs for 10 Semi-annual list observation wells, at $528 per sample for 1 remaining event - $5,280
- Groundwater analytical costs for 27 GMZ wells, at $536 per sample for 1 remaining event - $14,472
- Groundwater sampling cost (includes elevation only wells) for 40 wells, at $431 per sample for 1 remaining event - $17,240
- Groundwater extraction system O & M per year for 1 remaining event- $50,000
- Decommissioning groundwater wells for 40 wells, at $20,000, for one-time event
- The proposed updated post-closure cost estimate provides groundwater monitoring for one (1) year, as that is what is remaining in the post-closure care period. However, if the facility continues to exceed the Class I Groundwater Quality Standards, then groundwater monitoring must continue beyond that time.
- Total post-closure costs with a CPI of 7% - $539,005

The proposed updated closure care cost estimates for the South Stack SWMU, from Table 10-1, are as follows (annual inflation costs from 2009 through 2022 calculated in the estimated grand total):

- Groundwater semi-annual sampling for 96 total hours (2 years) at $100.00 per hour - $9,600
- Groundwater semi-annual sampling of List G1 for 48 samples (2 years) at $300.00 per sample - $14,400

- Semi-annual groundwater data review and report for 48 total hours (2 years) at $80.00 per hour - $3,840
- Groundwater monitoring well replacement of 1 well at $12,000 - $12,000
- Total estimated closure costs for the south stack SWMU with a 2022 inflation increase of 7%- 6,646,730

The proposed updated post-closure cost estimates for the South Stack SWMU, from Table 11-2, are as follows (annual inflation costs from 2009 through 2022 calculated in the estimated grand total):

- Groundwater semi-annual sampling of both stacks for 58 total hours at $100.00 per hour - $5,800
- Groundwater semi-annual monitoring of South Stack for 24 samples (12 wells x 2 events) at $300.00 - $7,200
- Groundwater semi-annual monitoring of North Stack for 14 samples (7 wells x 2 events) at $481.00 - $6,734
- Semi-annual groundwater data review and report at 28 hours (14 hrs. x 2 events) at $80.00 - $2,240
- Groundwater monitoring well replacement (lump sum) - $2,000
- Decommissioning of 19 groundwater wells at end of post-closure at $564 each- $10,716
- Total post-closure costs including annual cost inflation of 7% - $5,360,766

The proposed post-closure costs are annual costs. Each of these proposed costs has been multiplied by 30 and added to the other non-groundwater related costs to produce a final cost for 30 years.

ILLINOIS EPA COMMENTS

1. The groundwater portions of the cost estimates associated with the closed RCRA, South and North Stack closure and post-closure care have been reviewed and can be approved with the condition that the "Groundwater and Sampling Analysis" line items in Table I-2 are updated in the future cost estimate to reflect two (2) events per well, per year of the two (2) year cost estimate.

2. The estimates include groundwater costs associated with: (1) sampling and analysis, (2) data review, (3) groundwater extraction system maintenance and replacement, (4) preparation of groundwater monitoring reports, and (5) decommissioning of groundwater wells. The costs have been totaled and then adjusted based on the annual Consumer Price Index (CPI).

ILLINOIS EPA RECOMMENDATIONS

The Illinois EPA has determined that the groundwater portions of the subject submittal can be approved with the condition that:

1. Table I-2: All line items in the "Groundwater Sampling and Analysis" section must be updated in future cost estimates to reflect two (2) events per well, per year of the two (2) year cost estimate.
    a. Line items included are: 1) Analytical Costs Observation Wells; 2) Analytical Costs GMZ Wells and; 3) Sampling Costs (including Elevation Only Wells)

Illinois Environmental Protection Agency

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

Right-to-Know Evaluation

Date: 5/20/2024

Site Information		Employee Information	
Site Name:	Laraway Recycling and Disposal Facility	Name:	Shawntay Dial
Site ID Number:	1970450002	Section/Unit:	Permit Section/ Groundwater Unit
Site Address:	21233 W. Laraway Rd.	Phone:	217-558-0177
City, State, Zip:	Joliet Illinois 60436	Email:	shawntay.dial@illinois.gov

Criteria (check all that apply)

☐ Groundwater contamination (including soil contamination exceeding the applicable remediation objectives for the soil component of the groundwater ingestion exposure route) beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the Class I groundwater quality standards or the Class I groundwater remediation objectives within the setback zone or regulated recharge area of a community water system (CWS) well, or within the setback zone of a private, semi-private, or non-CWS well:

- ○ Limited community relations activities are required: Five (5) or fewer potable water supply wells, other than a CWS well, are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) potable water supply wells, or one or more CWS wells, are affected by the release at the site.

☐ Groundwater contamination or soil gas contamination from volatile chemicals beyond the boundary of the site where the release occurred poses a threat of indoor inhalation exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ Soil contamination or soil gas contamination beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ The Agency refers a matter for enforcement under Section 43(a) of the Act.

☐ The Agency issues a seal order under Section 34 of the Act.

☐ The Agency, USEPA, or a third party under Agency or USEPA oversight performs an immediate/emergency removal under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

Summary

☑ None of the above criteria are met and the site does not warrant further evaluation.

○ Insufficient information has been submitted to complete a Right-to-Know evaluation.

○ At least one of the above criteria is met and the site must be further evaluated by submittal of a Contaminant Evaluation Group (CEG) Referral to the Office of Community Relations. This form may be digitally signed and submitted electronically.

Project Manager: Shawntay Dial (Signature) 5/20/2024 (Date)

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: June 18, 2024

To: John Roop

From: Ed Wagner EW

Re: 1970450002 -- Will County
Laraway Recycling and Disposal Facility
Permit No. B-141R
Application Log No. B-141R-M-167

Subject: Annual Update to Closure/ Post-Closure Care Plans and Cost Estimates for the Non-Hazardous Solid Waste Unit and typographical error correction

A review of the groundwater portion of Significant Permit Modification, Log No. B-141R-M-167 for Laraway Recycling and Disposal Facility has been completed. The application, dated May 9, 2022, was prepared by Ian Johnson, P.E., of Waste Management, and was received by the Illinois EPA on May 11, 2022.

The Laraway Recycling and Disposal Facility consists two closed hazardous waste units (HWMU), referred to as Areas 1 and 2, and two phospho-gypsum piles (referred to as the North Stack and the South Stack) that are addressed as Solid Waste Management Units (SWMU), which are regulated under the RCRA program. An operating solid waste management unit to the north, east and south of Areas 1 and 2 is subject to 35 IAC 811-813 regulations.

This memo is solely reviewing the closure and post-closure care cost estimates for the solid waste unit at the Laraway facility. The portions of the application pertaining to the RCRA units will be reviewed by the RCRA groundwater reviewer.

FOS Comments

Anthony Guido (FOS) was contacted on May 12, 2022, by the RCRA Groundwater Unit reviewer, and there are no comments regarding groundwater.

Operator's Discussion

From the cover letter of the submittal:

"In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 4.13%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 8 and portions of Phases 10 through 14 are in place."

This section has been prepared in accordance with the applicable 35 IAC 811 and 812 regulations for a non-hazardous solid waste landfill. The closure and post-closure care plans have been prepared to address the Expansion as it applies to the currently permitted areas and areas requested to be permitted. All cost estimates are prepared using third party estimates and no allowance was calculated for salvage value of equipment or waste, resale value of the land, or the sale of landfill gas. Cost estimates will be revised annually using for inflation.

In addition the facility is requesting that the following text be added back to the permit. The most recent permit erroneously omitted the text. This omission was discussed with IEPA reviewers, who concurred that it was in error.

Permit Correction:
Attachment A to Laraway RCRA Post-Closure permit was issued (Log #B-141R-M-161 & M-162, issued April 15, 2022) cited that Condition IV.24 had been removed. The information from this permit condition was to be transferred to Condition IV .17, however the language starting with the text below was omitted:

> *"In the event of a confirmed significant change in groundwater quality due to the facility has occurred, the groundwater monitoring at the affected monitoring well will immediately return to quarterly monitoring ... "*

As the Agency has indicted that this was an omission on their part, we are requesting to modify the permit to add this language back into the permit.

Addendum #1

An Addendum dated July 26, 2023, was submitted by Ian Johnson and received by the IEPA on July 28, 2023. The addendum provided updated values for Table 13-2 which accounts for the current 41 wells in the network. The original submittal accounted for only 39 wells.

Agency Response

This review evaluated only the costs associated with the Solid Waste Unit. Table 13-1: "Current Operational Areas Post-Closure Care Cost Estimate" was reviewed. No groundwater monitoring well network changes are required by the closure activities, therefore no groundwater associated costs were included in this table. Costs in Table 13-2, "Current Operational Areas Post-Closure Care Cost Estimate" of the submittal were reviewed. The costs associated with the sample collection, analysis and recording are appropriate. The quantities (number of wells, sample types and monitoring frequencies) were reviewed against the permit that was in place at the time the application was submitted and have been verified. This review notes that the Table 13-2 mistakenly uses the label of "2021" when referring to 2022 costs, however no denial point is being issued regarding the typo.

The following table summarizes the solid waste unit groundwater-related post-closure care costs:

Description	Event		Yearly		2022 Unit Price	Annual Cost	30 Year Cost
	Quantity	Unit	Quantity	Unit			
Groundwater & Leachate Sampling and Level Measurements	26	hours	4	events	$169.58	$17,637.00	$529,110.00
Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$134.55	$7,266.00	$217,980.00
Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$130.03	$7,022.00	$210,660.00
Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$134.55	$7,535.00	$226,050.00
Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$130.03	$7,282.00	$218,460.00
Groundwater Data Review	12	hours	4	events	$62.56	$3,004.00	$90,120.00
Decommission Groundwater Wells	41	wells	1	one time	$526.90	$21,603.00	$21,603.00

Permit Correction:

The erroneously omitted language that occurred with the issuance of the April 15, 2022 Permit was corrected with the issuance of the following Laraway RCRA Post-Closure permit issued (Log #B-141R-M-164, issued June 29, 2022). That submittal did not contain any groundwater related proposals for permit change, however the review of the omitted language was contained in the Groundwater Unit Agency Memo dated May 25, 2022. Therefore, this review does not address making this correction.

Agency Recommendations

After review, it is recommended that Significant Permit Modification, Log No. B-141R-M-167 for Laraway Recycling and Disposal Facility be approved with respect to groundwater issues.

Specifically, this Permit Approves:

- The 2022 Solid Waste Unit Post-Closure Care Cost Estimates

Log No. B-141R-M-167 Changes to Permit:

- No changes are required to Section IV: Groundwater Monitoring for Non-Hazardous Waste Landfills

- Update Attachment F with the approval of B-141R-M-167

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: June 18, 2024

To: John Roop

From: Ed Wagner EW

Re: 1970450002 -- Will County
Laraway Recycling and Disposal Facility
Permit No. B-141R
Application Log No. B-141R-M-174

Subject: Annual Update to Closure/ Post-Closure Care Plans and Cost Estimates for the Non-Hazardous Solid Waste Unit

A review of the groundwater portion of Significant Permit Modification, Log No. B-141R-M-174 for Laraway Recycling and Disposal Facility has been completed. The application, dated May 12, 2023, was prepared by Ian Johnson, P.E., of Waste Management, and was received by the Illinois EPA on May 18, 2022.

The Laraway Recycling and Disposal Facility consists two closed hazardous waste units (HWMU), referred to as Areas 1 and 2, and two phospho-gypsum piles (referred to as the North Stack and the South Stack) that are addressed as Solid Waste Management Units (SWMU), which are regulated under the RCRA program. An operating solid waste management unit to the north, east and south of Areas 1 and 2 is subject to 35 IAC 811-813 regulations.

This memo is solely reviewing the closure and post-closure care cost estimates for the solid waste unit at the Laraway facility. The portions of the application pertaining to the RCRA units will be reviewed by the RCRA groundwater reviewer.

FOS Comments

Anthony Guido (FOS) was contacted on May 12, 2022, by the RCRA Groundwater Unit reviewer, and there are no comments regarding groundwater.

Operator's Discussion

From the cover letter of the submittal:

"In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 7%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 8 and portions of Phases 10 through 14 are in place (9.2 acres of Phases 9/10 will be constructed in 2023)."

This section has been prepared in accordance with the applicable 35 IAC 811 and 812 regulations for a non-hazardous solid waste landfill. The closure and post-closure care plans have been prepared to address the Expansion as it applies to the currently permitted areas and areas requested to be permitted. All cost estimates are prepared using third party estimates and no allowance was calculated for salvage value of equipment or waste, resale value of the land, or the sale of landfill gas. Cost estimates will be revised annually using for inflation.

Addendum #1

An Addendum dated July 26, 2023, was submitted by Ian Johnson and received by the IEPA on July 28, 2023. The addendum provided updated values for Table 13-2 which accounts for the current 41 wells in the network. The original submittal accounted for only 39 wells.

Agency Response

This review evaluated only the costs associated with the Solid Waste Unit. Table 13-1: "Current Operational Areas Post-Closure Care Cost Estimate" was reviewed. No groundwater monitoring well network changes are required by the closure activities, therefore no groundwater associated costs were included in this table. Costs in Table 13-2, "Current Operational Areas Post-Closure Care Cost Estimate" of the submittal were reviewed. The costs associated with the sample collection, analysis and recording are appropriate. The quantities (number of wells, sample types and monitoring frequencies) were reviewed against the permit that was in place at the time the application was submitted and have been verified.

The following table summarizes the solid waste unit groundwater-related post-closure care costs:

Description	Event		Yearly		2022 Unit Price	Annual Cost	30 Year Cost
	Quantity	Unit	Quantity	Unit			
Groundwater & Leachate Sampling and Level Measurements	26	hours	4	events	$181.45	$18,872.00	$566,160.00
Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$143.96	$7,775.00	$233,250.00
Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$139.13	$7,514.00	$225,420.00
Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$143.96	$8,062.00	$241,860.00
Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$139.13	$7,792.00	$233,760.00
Groundwater Data Review	12	hours	4	events	$66.94	$3,214.00	$96,420.00
Decommission Groundwater Wells	41	wells	1	one time	$563.78	$23,116.00	$23,116.00

Agency Recommendations

After review, it is recommended that Significant Permit Modification, Log No. B-141R-M-174 for Laraway Recycling and Disposal Facility be approved with respect to groundwater issues.

Specifically, this Permit Approves:

- The 2023 Solid Waste Unit Post-Closure Care Cost Estimates

Log No. B-141R-M-174 Changes to Permit:

- No changes are required to Section IV: Groundwater Monitoring for Non-Hazardous Waste Landfills

- Update Attachment F with the approval of B-141R-M-174.

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: June 18, 2024

To: John Roop

From: Ed Wagner EW

Re: 1970450002 -- Des Plaines County
Laraway Recycling and Disposal Facility
Permit No. B-141R
Application Log No. B-141R-M-181

Subject: Annual Update to Closure/Post-Closure Care Plans and Cost Estimates for the Non-Hazardous Solid Waste Unit

A review of the groundwater portion of Significant Permit Modification, Log No. B-141R-M-181 for Laraway Recycling and Disposal Facility has been completed. The application, dated May 8, 2024, was prepared by Ian Johnson, P.E., of Waste Management, and was received by the Illinois EPA on May 10, 2024.

The Laraway Recycling and Disposal Facility consists of two closed hazardous waste units (HWMU), referred to as Areas 1 and 2, and two phospho-gypsum piles (referred to as the North Stack and the South Stack) that are addressed as Solid Waste Management Units (SWMU), which are regulated under the RCRA program. An operating solid waste management unit to the north, east and south of Areas 1 and 2 is subject to 35 IAC 811-813 regulations.

This memo is solely reviewing the closure and post-closure care cost estimates for the solid waste unit at the Laraway facility. The portions of the application pertaining to the RCRA units will be reviewed by the RCRA groundwater reviewer.

FOS Comments

No comments were received.

Operator's Discussion

From the cover letter of the submittal:

"In accordance with Permit No. B-141R, condition III.K.8., the closure and post-closure plans have been revised to reflect current costs and have been increased for inflation by 3.6%. In addition, as noted in permit condition III.J.5, the closure and post-closure cost estimates have been revised to account for only those areas for which operating authorization has been obtained or is being requested. The closure/post-closure plans and associated cost estimates assume that the existing solid waste unit, Interim Horizontal Expansion, and Phases 1 through 10 and portions of Phases 11 through 14 are in place (9.2 acres of Phases 9/10 were constructed in 2023)."

Table 13-3 in Attachment 4 of this application outlines the financial assurance documentation of the closure/post-closure plan. This facility will provide written notification of this permit modification, in accordance with 35 IAC 703.281, to all individuals on the facility's mailing list within 90 days of approval by the Agency.

Agency Response

This review evaluated only the costs associated with the Solid Waste Unit. Table 13-1: "Current Operating Areas Closure Cost Estimate" was reviewed. No groundwater monitoring well network changes are required by the closure activities, therefore no groundwater associated costs were included in this table. Costs in Table 13-2, "Current Operational Areas Post-Closure Care Cost Estimate" of the submittal were reviewed. The costs associated with the sample collection, analysis and recording are appropriate. The quantities (number of wells, sample types and monitoring frequencies) were reviewed against the permit that was in place at the time the application was submitted and have been verified.

The following table summarizes the solid waste unit groundwater-related post-closure care costs:

Description	Event		Yearly		2024 Unit Price	Annual Cost	30 Year Cost
	Quantity	Unit	Quantity	Unit			
Groundwater & Leachate Sampling and Level Measurements	26	hours	4	events	$187.98	$19,551.00	$586,530.00
Groundwater Monitoring List G2 semi-annual wells	27	wells	2	events	$149.14	$8,054.00	$241,620.00
Groundwater Monitoring List G1 semi-annual wells	27	wells	2	events	$144.14	$7,784.00	$233,520.00
Groundwater Monitoring List G2 quarterly wells	14	wells	4	events	$149.14	$8,352.00	$250,560.00
Groundwater Monitoring List G1 quarterly wells	14	wells	4	events	$144.14	$8,072.00	$242,160.00
Groundwater Data Review	12	hours	4	events	$69.35	$3,329.00	$99,870.00
Decommission Groundwater Wells	41	wells	1	one time	$584.08	$23,948.00	$23,948.00

Agency Recommendations

After review, it is recommended that Significant Permit Modification, Log No. B-141R-M-181 for Laraway Recycling and Disposal Facility be approved with respect to groundwater issues.

Specifically, this Permit Approves:

- The 2024 Solid Waste Unit Post-Closure Care Cost Estimates

Log No. B-141R-M-181 Changes to Permit:

- No changes are required to Section IV: Groundwater Monitoring for Non-Hazardous Waste Landfills

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: July 17, 2024

TO: John Roop, P.E., RCRA Unit

FROM: Shawntay Dial, Groundwater Unit SDD 7-22-24

SUBJECT: Updated closure/post-closure costs for RCRA unit, corrective action units, and solid waste unit

RE: 1970450002 -- Will County
Laraway Recycling and Disposal Facility
ILD074411745
Log No. B-141R-M-181
Received: May 10, 2024
RCRA Permit-24A

A technical review has been completed on the groundwater portions of documents entitled:

Submittal 1: "Update closure & post-closure costs for RCRA unit, corrective action units, and solid waste unit" (received by the Illinois EPA on May 10, 2024). The submittal provides updated cost estimates for units at Laraway Recycling and Disposal Facility (Laraway) to meet the requirement of Condition V.K.1 (Financial Assurance for Corrective Action) and Condition VIII.34 (Cost Estimate for Facility Post-closure).

Submittal 2: Additional Information regarding Table I-2 and newly added Table 10-2 for the Olin Ponds. Costs were increased in Table I-2 to reflect the proposed two (2) year groundwater sampling costs. The submittal was received by the Illinois EPA on June 5, 2024.

Submittal 3: Additional Information regarding Technical Deficiencies. The submittal is in response to the Illinois EPA Technical Notice of Deficiency (NOD) letter (June 12, 2024). The submittal was received June 24, 2024.

Submittal 4: Additional Information regarding Technical Deficiencies. The submittal is in response to the second Illinois EPA Technical NOD letter (July 3, 2024). The submittal was received July 10, 2024

Additionally, a Teams Meeting was held with John Roop, P.E. (Illinois EPA), Shawntay Dial (Illinois EPA) and Ian Johnson (Laraway) on July 8, 2024 to discuss discrepancies in the

groundwater sampling third party cost estimates prior to the submittal of the July 10, 2024 additional information. The subject submittals were reviewed as Class 1* modification requests to the RCRA Permit (Permit).

Environmental Justice (EJ), 39(i), FOS, CROPA, Right To Know (RTK)

A search of the SWAP tool and Environmental Justice (EJ) Database and 39(i) form status will be conducted by the project manager.

Anthony Guido FOS was contacted on May 13, 2024, and there are no comments regarding groundwater.

The subject submittal does not require a CROPA with any other Bureau.

A RTK checklist evaluation has been performed. In this instance, RTK is not applicable and there are no concerns at this time.

FACILITY BACKGROUND

The permit contains requirements for groundwater corrective action at two (2) closed hazardous waste management units (HWMU) (referred to as "Areas 1" and "Area 2"), groundwater monitoring for a non-hazardous waste portion of Laraway, and two (2) phosphogypsum piles (referred to as the "North Stack" and the "South Stack") that are addressed as solid waste management units (SWMU).

SUBJECT SUBMITTALS

The subject submittals contain: 1) an updated RCRA post-closure cost estimate; 2) an updated corrective action closure/post-closure plan; and 3) an updated solid waste unit closure/post-closure plan for Laraway. Only the closure/post-closure care cost estimates that pertain to groundwater monitoring costs were reviewed.

Laraway states that the proposed updated post-closure cost estimates for RCRA corrective action groundwater monitoring, from Table I-2, are as follows (annual inflation costs from 2010 through 2023 calculated in the estimated grand total.):

- Groundwater analytical costs for 10 observation wells, at $660 per sample for two (2) events - $13,200
- Groundwater analytical costs for 27 GMZ wells, at $670 per sample for two (2) events - $36,180
- Groundwater sampling cost (includes elevation only wells) for 40 wells, at $440 per sample for two (2) events - $35,200
- Decommissioning groundwater wells for 40 wells, at $20,000, for one-time event

- The proposed updated post-closure cost estimate provides groundwater monitoring for two (2) years. However, if Laraway continues to exceed the Class I Groundwater Quality Standards, then groundwater monitoring must continue beyond that time.
- Total post-closure costs with a CPI of 3.6%- $800,580

The proposed updated closure care cost estimates for the South Stack SWMU, from Table 10-1, are as follows (annual inflation costs from 2009 through 2023 calculated in the estimated grand total):

- Groundwater semi-annual sampling for 96 total hours (two (2) years) at $100.00 per hour - $9,600
- Groundwater semi-annual sampling of List G1 for 48 samples (two (2) years) at $300.00 per sample - $14,400
- Semi-annual groundwater data review and report for 48 total hours (two (2) years) at $80.00 per hour - $3,840
- Groundwater monitoring well replacement of one (1) well at $12,000 - $12,000
- Total estimated closure costs for the south stack SWMU with a 2023 inflation increase of 3.6%- 6,886,012

The proposed updated post-closure cost estimates for the South Stack SWMU, from Table 11-2, are (annual inflation costs from 2009 through 2023 calculated in the estimated grand total):

- Groundwater semi-annual sampling of both stacks for 58 total hours at $100.00 per hour - $5,800
- Groundwater semi-annual monitoring of South Stack for 24 samples (12 wells x 2 events) at $300.00 - $7,200
- Groundwater semi-annual monitoring of North Stack for 14 samples (7 wells x 2 events) at $481.00 - $6,734
- Semi-annual groundwater data review and report at 28 hours (14 hrs. x 2 events) at $80.00 - $2,240
- Groundwater monitoring well replacement (lump sum) - $2,000
- Decommissioning of 19 groundwater wells at end of post-closure at $584 each- $11,096
- Total post-closure costs including annual cost inflation of 3.6%- $5,553,746

The proposed post-closure costs are annual costs. Each of the proposed costs has been multiplied by 30 and added to the other non-groundwater related costs to produce a final cost for 30 years.

ILLINOIS EPA COMMENTS

1. The groundwater portions of the cost estimates associated with the closed RCRA, South and North Stack closure and post-closure care have been reviewed and can be approved. The estimates include groundwater costs associated with: 1) sampling and analysis; 2) data review; 3) groundwater extraction system maintenance and replacement; and 4)

preparation of groundwater monitoring reports. The costs have been totaled and then adjusted based on the annual Consumer Price Index (CPI).

ILLINOIS EPA RECOMMENDATIONS

The Illinois EPA has determined that the groundwater portions of the subject submittal are appropriate and can be approved.

The revised pages will be incorporated by the RCRA Unit Project Manager

Illinois Environmental Protection Agency

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

Right-to-Know Evaluation

Date: 5/30/2024

Site Information		Employee Information	
Site Name:	Laraway Recycling and Disposal Facility	Name:	Shawntay Dial
Site ID Number:	1970450002	Section/Unit:	Permit Section/ Groundwater Unit
Site Address:	21233 W. Laraway Rd	Phone:	217-558-0177
City, State, Zip:	Joliet Illinois 60436	Email:	shawntay.dial@illinois.gov

Criteria (check all that apply)

☐ Groundwater contamination (including soil contamination exceeding the applicable remediation objectives for the soil component of the groundwater ingestion exposure route) beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the Class I groundwater quality standards or the Class I groundwater remediation objectives within the setback zone or regulated recharge area of a community water system (CWS) well, or within the setback zone of a private, semi-private, or non-CWS well:

- ○ Limited community relations activities are required: Five (5) or fewer potable water supply wells, other than a CWS well, are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) potable water supply wells, or one or more CWS wells, are affected by the release at the site.

☐ Groundwater contamination or soil gas contamination from volatile chemicals beyond the boundary of the site where the release occurred poses a threat of indoor inhalation exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ Soil contamination or soil gas contamination beyond the boundary of the site where the release occurred poses a threat of exposure to the public above the appropriate Tier 1 remediation objectives, based on the current use of the off-site property:

- ○ Limited community relations activities are required: Five (5) or fewer off-site properties are affected by the release at the site.
- ○ Expanded community relations activities are required: More than five (5) off-site properties are affected by the release at the site.

☐ The Agency refers a matter for enforcement under Section 43(a) of the Act.

☐ The Agency issues a seal order under Section 34 of the Act.

☐ The Agency, USEPA, or a third party under Agency or USEPA oversight performs an immediate/emergency removal under the federal Comprehensive Environmental Response, Compensation, and Liability Act.

Summary

- ⊘ None of the above criteria are met and the site does not warrant further evaluation.
- ○ Insufficient information has been submitted to complete a Right-to-Know evaluation.
- ○ At least one of the above criteria is met and the site must be further evaluated by submittal of a Contaminant Evaluation Group (CEG) Referral to the Office of Community Relations. This form may be digitally signed and submitted electronically.

Project Manager: Shawntay Dial (Signature) 5/30/2024 (Date)

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

To: John Roop, P.E.
From: William T. Sinnott, II WTS
Date: July 19, 2024

RE 1970450002—Will County
Laraway Recycling & Disposal Facility
ILD 074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-181
RCRA Permit File-24A

Introduction

Laraway Recycling & Disposal facility is owned and operated by Waste Management of Illinois, Inc. and located on 21233 W. Laraway Road, Joliet, Illinois. This facility has both a hazardous waste landfill and solid waste landfill. This hazardous waste landfill has a RCRA Hazardous waste RCRA Permit.

Corrective Action

In accordance with this permit, the facility is performing corrective action on the Solid Waste Management Unit referred to as the South Stack. In addition, as part of the Solid Waste Landfill expansion, the facility will perform remedial activities on the Olin Ponds. These ponds will be dewatered followed by excavation of the phosphogypsum solids which will be placed on the South Stack and ultimately remediation of any impacted soil beneath the phosphogypsum solids.

Review

The submittals presented include cost estimates for closure and post-closure of the South Stack and remediation the Olin Ponds. These submittals were reviewed on their merit and technical accuracy. This review of the three (3) different permit modification requests finds these submittals acceptable.

Conclusions

The Illinois EPA should approve the subject cost estimate submittals as they relate to corrective action. My review notes and hard copies of the subject submittals are attached to this memorandum.

Review Notes
By: William T. Sinnott, II
Beginning Date: July 1, 2024
Ending Date:

1970450002—Will County
Laraway Recycling & Disposal Facility
ILD 074411745
Log Nos. B-141R-M-167, B-141R-M-174, B-141R-M-181
RCRA Permit File-24A

Introduction

The following submittal were presented to IEPA and subsequently received on the corresponding dates:

B-141R-M-167 The original submittal was submitted on May 9, 2022 and received by IEPA on May 11, 2022. Additional information was submitted on May 31, 2023 and received by IEPA on June 2, 2023.

B-141R-M-174 The original submittal was submitted on May 12, 2023 and received by the Illinois EPA on May 18, 2023. Additional information was submitted on July 26, 2023 and received by IEPA on July 28, 2023.

B-141R-M-181 The original submittal was submitted May 8, 2024 and received by the Illinois EPA on May 10, 2024. Additional information was submitted on May 31, 2024 and June 17, 2024 and received by the Illinois EPA on June 5, 2024 and June 20, 2024 respectively.

Background

Operations first started on the Olin site in 1926 with the manufacturing of trisodium phosphate, the first synthetic cleaning agent to replace soap, by the Blockson Chemical Company. Olin Corporation continued to manage the South Stack after it ceased operations in 1985. As the south stack had no Bureau of Land Permits, it also had no formal closure or post-closure plan. Generally, the main post-operation activity by Olin was the management of stack liquids that seeped from the perimeter of the stack into the moat. This liquid collected in the return water pond and was conveyed by the return water pipeline to the Olin treatment plant.

The specific elements of the corrective action plan were proposed as part of the North and South Stack Corrective Action Plan submitted to the Illinois EPA on March 17, 2008 and subsequently approved by the Log No. B-141R on May 17, 2010.

Olin continued to manage the south stack after it ceased operations in 1985. At this time, the south stack had remained uncovered and exposed for more than 20 years and had become a significant environmental hazard for the community. The stack had not been capped there were no provisions for the collection and treatment of stack liquids and there was not monitoring.

The ponds are currently used to manage phosphate slurry generated by the treatment plan from the treatment of stormwater runoff and seepage from the phosphogypsum stack. Previously, the settled solids were dredged from the west pond and pumped to the center pond for further settling. From the center pond solids were then processed through a storage tank. From there, the solids were loaded into tanker trucks and transported to a manufacturer where it was reformulated with other nutrients to make fertilizer. The screener tank and storage tank have been removed and reclamation of phosphate solids as fertilizer is currently not performed.

The east pond was constructed in 1970, pursuant to Permit No. 1970-EA-283 issued by the Illinois Sanitary Water Board, to manage inorganic wastewater from the now razed Olin manufacturing plant that was located north of the ponds. Since their initial permitting in the early 1970s, and IEPA water pollution control permit has been reissued for the ponds on about a 5-year cycle.

The treatment plant was built in 1979 to treat stormwater collected within the manufacturing plant area. Starting in about 1987, the plant also treated stormwater runoff and seepage from the phosphogypsum stack. The ponds were constructed by mass excavation of soil from within the pond footprint. These soils were used to construct the earthen perimeter berm and interior berms of the ponds.

Subject Submittals Review

B-141R-M-167 According to Table 10-1 of this submittal the Estimated Closure Costs-South Stack SWMU the Subtotal for this estimate is $4,965,399 with a Grand Total of $6,211,697. This estimate was adjusted for inflation for years 2009 thru 2021. During a review, the rows were added to verify the correct subtotal. The respective years of inflation were applied to this Subtotal which yielded the corresponding Grand Total. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be review by the Groundwater Unit.

According to Table 11-2 of this submittal the Cost Estimate for Post-Closure Care South Stack SWMU, the Total Annual Cost is estimated at $133,224. This Cost was updated for inflation for years 2009 thru 2021. This estimate was multiplied by 30 for a 30 year cost of $5,000,040. Added to this was a cost of $10,013 for Decommissioning 19 groundwater wells at the end of Post Closure for a Grand Total Post Closure Cost of $5,010,052. During a review, the rows were added to verify the Total Annual Cost. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be reviewed by the Groundwater Unit.

B-141R-M-174 According to Table 10-1 of this submittal the Estimated Closure Costs-South Stack SWMU the Subtotal for this estimate is $4,965,399 with a Grand Total of $6,646,730. This estimate was adjusted for inflation for years 2009 thru 2022 Thus, the only difference between this table and the previous table is adding 7% for inflation for 2022. During a review, the rows were added to verify the correct subtotal. The respective years of inflation were applied to this Subtotal which yielded the corresponding Grand Total. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be review by the Groundwater Unit.

According to Table 11-2 of this submittal the Cost Estimate for Post-Closure Care South Stack SWMU, the Total Annual Cost is estimated at $133,224. This Cost was updated for inflation for years 2009 thru 2022. This estimate was multiplied by 30 for a cost of $5,350,050. Added to this was a cost of $10,716 for a Grand Total Post Closure Cost of $5,360,766. During a review, the rows were added to verify the Total Annual Cost. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be review by the Groundwater Unit.

B-141R-M-181 According to Table 10-1 of this submittal the Estimated Closure Costs-South Stack SWMU the Subtotal for this estimate is $4,965,399 with a Grand Total of **$6,886,012.** This estimate was adjusted for inflation for years 2009 thru 2023 Thus, the only difference between this table and the previous table is adding 3.6% for inflation for 2023. During a review, the rows were added to verify the correct subtotal. The respective years of inflation were applied to this Subtotal which yielded the corresponding Grand Total. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be review by the Groundwater Unit.

According to Table 11-2 of this submittal the Cost Estimate for Post-Closure Care South Stack SWMU, the Total Annual Cost is estimated at $133,224. This Cost was updated for inflation for years 2009 thru 2023. This estimate was multiplied by 30 for a cost of $5,542,650. Added to this was a cost of $11,096 for a Grand Total Post Closure Cost of **$5,553,746**. During a review, the rows were added to verify the Total Annual Cost. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be reviewed by the Groundwater Unit.

According to Table 10-2 of this submittal the Estimated Corrective Action Costs—Olin Ponds SWMU the Grand Total is **$7,444,745**. During a review, the rows were added to verify the Total Annual Cost. The rows in this Table seemed appropriate without verifying the groundwater related estimates, as these will be reviewed by the Groundwater Unit. This is the first year of the Corrective Action Cost Estimate for the Olin Ponds SWMU, as such there are no inflation factors to be adjusted for.

Recommendations

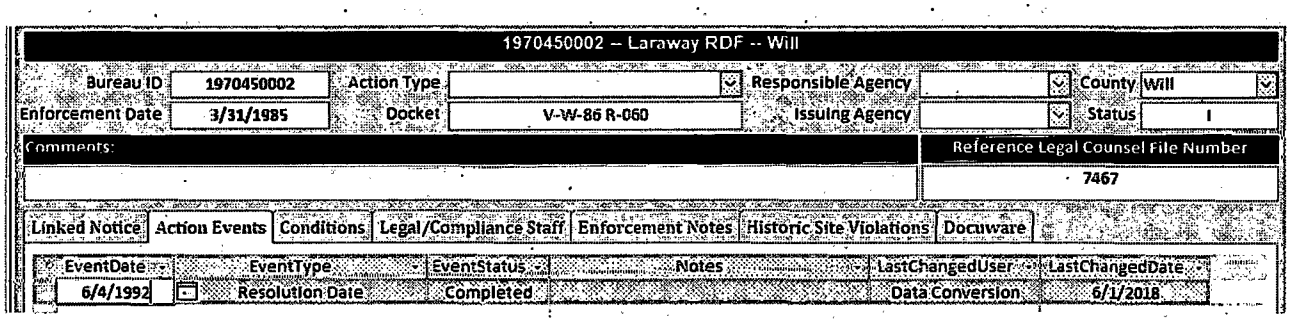
The cost estimates provided in the subject three (3) submittals appear acceptable. As such, the corrective action portions of the revised RCRA Permit involving cost estimates and financial assurance should reflect these updated values. More specifically, Attachment D Section III should be updated to reflect these updated Closure and Post-Closure Cost Estimates for the South Stack.

Currently before the Illinois EPA is a November 10, 2023 submittal entitled "Olin Ponds Corrective Action Workplan for the Laraway Recycling & Disposal Facility" which is currently under review by the Illinois EPA. This submittal has been logged in as B-141R-CA-23 which was submitted in response to Condition V.I.2 of Permit Log No. B-141R-M-125 issued on October 10, 2023.

As part of the Olin Pond Work Plan Conditional Approval (Log No. B-141R-CA-23), a closure cost estimate will be submitted to the Illinois EPA. Once issued, the Permit language will be revised to include the Olin Ponds in the annual cost estimate submittal requirements.

Laraway RDF – 1970450002 – ILD074411745 – FACES
Checked 7/22/24

1. March 31, 1985

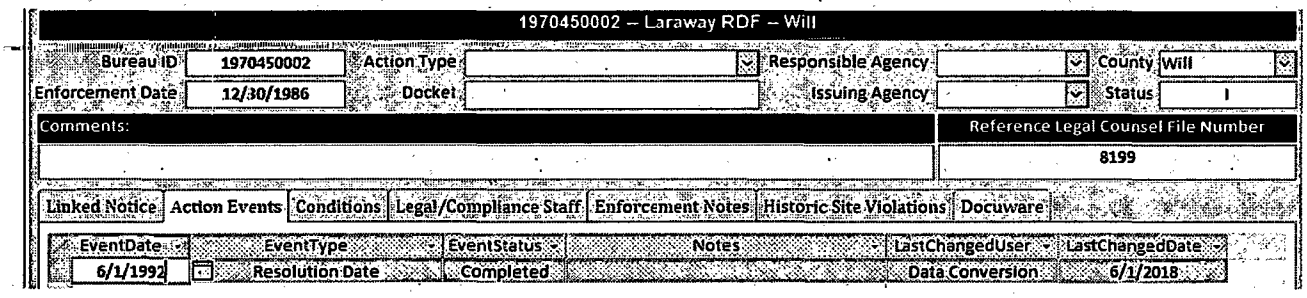

1970450002 -- Laraway RDF -- Will

Bureau ID: 1970450002 | Action Type: | Responsible Agency: | County: Will
Enforcement Date: 3/31/1985 | Docket: V-W-86 R-060 | Issuing Agency: | Status: I
Comments: | Reference Legal Counsel File Number: 7467

Linked Notice | Action Events | Conditions | Legal/Compliance Staff | Enforcement Notes | Historic Site Violations | Docuware

EventDate	EventType	EventStatus	Notes	LastChangedUser	LastChangedDate
6/4/1992	Resolution Date	Completed		Data Conversion	6/1/2018

2. December 30, 1986

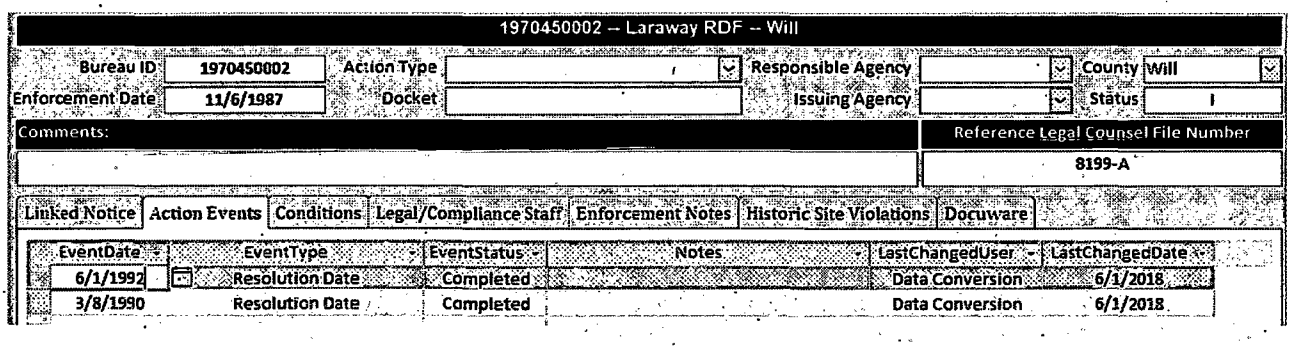

1970450002 -- Laraway RDF -- Will

Bureau ID: 1970450002 | Action Type: | Responsible Agency: | County: Will
Enforcement Date: 12/30/1986 | Docket: | Issuing Agency: | Status: I
Comments: | Reference Legal Counsel File Number: 8199

Linked Notice | Action Events | Conditions | Legal/Compliance Staff | Enforcement Notes | Historic Site Violations | Docuware

EventDate	EventType	EventStatus	Notes	LastChangedUser	LastChangedDate
6/1/1992	Resolution Date	Completed		Data Conversion	6/1/2018

3. November 6, 1987


1970450002 -- Laraway RDF -- Will

Bureau ID: 1970450002 | Action Type: | Responsible Agency: | County: Will
Enforcement Date: 11/6/1987 | Docket: | Issuing Agency: | Status: I
Comments: | Reference Legal Counsel File Number: 8199-A

Linked Notice | Action Events | Conditions | Legal/Compliance Staff | Enforcement Notes | Historic Site Violations | Docuware

EventDate	EventType	EventStatus	Notes	LastChangedUser	LastChangedDate
6/1/1992	Resolution Date	Completed		Data Conversion	6/1/2018
3/8/1990	Resolution Date	Completed		Data Conversion	6/1/2018

NATIONALLY-DEFINED VALUES - WASTE CODE

"D" CODES - CHARACTERISTIC WASTE CODES

Code	Description
D001	IGNITABLE WASTE
D002	CORROSIVE WASTE
D003	REACTIVE WASTE
D004	ARSENIC
D005	BARIUM
D006	CADMIUM
D007	CHROMIUM
D008	LEAD
D009	MERCURY
D010	SELENIUM
D011	SILVER
D012	ENDRIN (1,2,3,4,10,10-HEXACHLORO-1,7-EPOXY-1,4,4A,5,6,7,8,8A-OCTAHYDRO-1,4-ENDO, ENDO-5,8-DIMETH-ANO-NAPHTHALENE)
D013	LINDANE (1,2,3,4,5,6-HEXA-CHLOROCYCLOHEXANE, GAMMA ISOMER)
D014	METHOXYCHLOR (1,1,1-TRICHLORO-2,2-BIS [P-METHOXYPHENYL] ETHANE)
D015	TOXAPHENE (C10 H10 CL8, TECHNICAL CHLORINATED CAMPHENE, 67-69 PERCENT CHLORINE)
D016	2,4-D (2,4-DICHLOROPHENOXYACETIC ACID)
D017	2,4,5-TP SILVEX (2,4,5-TRICHLOROPHENOXYPROPIONIC ACID)
D018	BENZENE
D019	CARBON TETRACHLORIDE
D020	CHLORDANE
D021	CHLOROBENZENE
D022	CHLOROFORM
D023	O-CRESOL
D024	M-CRESOL
D025	P-CRESOL
D026	CRESOL
D027	1,4-DICHLOROBENZENE
D028	1,2-DICHLOROETHANE
D029	1,1-DICHLOROETHYLENE
D030	2,4-DINITROTOLUENE
D031	HEPTACHLOR (AND ITS EPOXIDE)
D032	HEXACHLOROBENZENE
D033	HEXACHLOROBUTADIENE
D034	HEXACHLOROETHANE
D035	METHYL ETHYL KETONE

D036	NITROBENZENE
D037	PENTACHLOROPHENOL
D038	PYRIDINE
D039	TETRACHLOROETHYLENE
D040	TRICHLOROETHYLENE
D041	2,4,5-TRICHLOROPHENOL
D042	2,4,6-TRICHLOROPHENOL
D043	VINYL CHLORIDE

"F" CODES - WASTES FROM NON-SPECIFIC SOURCES

Code	Description
F001	THE FOLLOWING SPENT HALOGENATED SOLVENTS USED IN DEGREASING: TETRACHLOROETHYLENE, TRICHLORETHYLENE, METHYLENE CHLORIDE, 1,1,1-TRICHLOROETHANE, CARBON TETRACHLORIDE AND CHLORINATED FLUOROCARBONS; ALL SPENT SOLVENT MIXTURES/BLENDS USED IN DEGREASING CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F002	THE FOLLOWING SPENT HALOGENATED SOLVENTS: TETRACHLOROETHYLENE, METHYLENE CHLORIDE, TRICHLOROETHYLENE, 1,1,1-TRICHLOROETHANE, CHLOROBENZENE, 1,1,2-TRICHLORO-1,2,2-TRIFLUOROETHANE, ORTHO-DICHLOROBENZENE, TRICHLOROFLUOROMETHANE, AND 1,1,2, TRICHLOROETHANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE HALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F003	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: XYLENE, ACETONE, ETHYL ACETATE, ETHYL BENZENE, ETHYL ETHER, METHYL ISOBUTYL KETONE, N-BUTYL ALCOHOL, CYCLOHEXANONE, AND METHANOL; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONLY THE ABOVE SPENT NONHALOGENATED SOLVENTS; AND ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS, AND A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THOSE SOLVENTS LISTED IN F001, F002, F004, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F004	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: CRESOLS, CRESYLIC ACID, AND NITROBENZENE; AND THE STILL BOTTOMS FROM THE RECOVERY OF THESE SOLVENTS; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, AND F005; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F005	THE FOLLOWING SPENT NONHALOGENATED SOLVENTS: TOLUENE, METHYL ETHYL KETONE, CARBON DISULFIDE, ISOBUTANOL, PYRIDINE, BENZENE, 2-ETHOXYETHANOL, AND 2-NITROPROPANE; ALL SPENT SOLVENT MIXTURES/BLENDS CONTAINING, BEFORE USE, A TOTAL OF TEN PERCENT OR MORE (BY VOLUME) OF ONE OR MORE OF THE ABOVE NONHALOGENATED SOLVENTS OR THOSE SOLVENTS LISTED IN F001, F002, OR F004; AND STILL BOTTOMS FROM THE RECOVERY OF THESE SPENT SOLVENTS AND SPENT SOLVENT MIXTURES.
F006	WASTEWATER TREATMENT SLUDGES FROM ELECTROPLATING OPERATIONS, EXCEPT FROM THE FOLLOWING PROCESSES: (1) SULFURIC ACID ANODIZING OF ALUMINUM; (2) TIN PLATING ON CARBON STEEL; (3) ZINC PLATING (SEGREGATED BASIS) ON CARBON STEEL; (4) ALUMINUM OR ZINC-ALUMINUM PLATING ON CARBON STEEL; (5) CLEANING/STRIPPING ASSOCIATED WITH TIN, ZINC, AND ALUMINUM PLATING ON CARBON STEEL; AND (6) CHEMICAL ETCHING AND MILLING OF ALUMINUM.
F007	SPENT CYANIDE PLATING BATH SOLUTIONS FROM ELECTROPLATING OPERATIONS.

F008	PLATING BATH RESIDUES FROM THE BOTTOM OF PLATING BATHS FROM ELECTROPLATING OPERATIONS IN WHICH CYANIDES ARE USED IN THE PROCESS.
F009	SPENT STRIPPING AND CLEANING BATH SOLUTIONS FROM ELECTROPLATING OPERATIONS IN WHICH CYANIDES ARE USED IN THE PROCESS.
F010	QUENCHING BATH RESIDUES FROM OIL BATHS FROM METAL HEAT TREATING OPERATIONS IN WHICH CYANIDES ARE USED IN THE PROCESS.
F011	SPENT CYANIDE SOLUTIONS FROM SLAT BATH POT CLEANING FROM METAL HEAT TREATING OPERATIONS.
F012	QUENCHING WASTEWATER TREATMENT SLUDGES FROM METAL HEAT TREATING OPERATIONS IN WHICH CYANIDES ARE USED IN THE PROCESS.
F019	WASTEWATER TREATMENT SLUDGES FROM THE CHEMICAL CONVERSION COATING OF ALUMINUM, EXCEPT FROM ZIRCONIUM PHOSPHATING IN ALUMINUM CAN WASHING WHEN SUCH PHOSPHATING IS AN EXCLUSIVE CONVERSION COATING PROCESS.
F020	WASTES (EXCEPT WASTEWATER AND SPENT CARBON FROM HYDROGEN CHLORIDE PURIFICATION) FROM THE PRODUCTION OR MANUFACTURING USE (AS A REACTANT, CHEMICAL INTERMEDIATE, OR COMPONENT IN A FORMULATING PROCESS) OF TRI- OR TETRACHLOROPHENOL OR OF INTERMEDIATES USED TO PRODUCE THEIR PESTICIDE DERIVATIVES. (THIS LISTING DOES NOT INCLUDE WASTES FROM THE PRODUCTION OF HEXACHLOROPHENE FROM HIGHLY PURIFIED 2,4,5-TRICHLOROPHENOL.)
F021	WASTES (EXCEPT WASTEWATER AND SPENT CARBON FROM HYDROGEN CHLORIDE PURIFICATION) FROM THE PRODUCTION OR MANUFACTURING USE (AS A REACTANT, CHEMICAL INTERMEDIATE, OR COMPONENT IN A FORMULATING PROCESS) OF PENTACHLOROPHENOL, OR OF INTERMEDIATES USED TO PRODUCE DERIVATIVES.
F022	WASTES (EXCEPT WASTEWATER AND SPENT CARBON FROM HYDROGEN CHLORIDE PURIFICATION) FROM THE MANUFACTURING USE (AS A REACTANT, CHEMICAL INTERMEDIATE, OR COMPONENT IN A FORMULATING PROCESS) OF TETRA-, PENTA-, OR HEXACHLOROBENZENES UNDER ALKALINE CONDITIONS.
F023	WASTES (EXCEPT WASTEWATER AND SPENT CARBON FROM HYDROGEN CHLORIDE PURIFICATION) FROM THE PRODUCTION OF MATERIALS ON EQUIPMENT PREVIOUSLY USED FOR THE PRODUCTION OR MANUFACTURING USE (AS A REACTANT, CHEMICAL INTERMEDIATE, OR COMPONENT IN A FORMULATING PROCESS) OF TRI- AND TETRACHLOROPHENOLS. (THIS LISTING DOES NOT INCLUDE WASTES FROM EQUIPMENT USED ONLY FOR THE PRODUCTION OR USE OF HEXACHLOROPHENE FROM HIGHLY PURIFIED 2,4,5-TRICHLOROPHENOL.)
F024	PROCESS WASTES INCLUDING, BUT NOT LIMITED TO, DISTILLATION RESIDUES, HEAVY ENDS, TARS, AND REACTOR CLEAN-OUT WASTES FROM THE PRODUCTION OF CERTAIN CHLORINATED ALIPHATIC HYDROCARBONS BY FREE RADICAL CATALYZED PROCESSES. THESE CHLORINATED ALIPHATIC HYDROCARBONS ARE THOSE HAVING CARBON CHAIN LENGTHS RANGING FROM ONE TO, AND INCLUDING FIVE, WITH VARYING AMOUNTS AND POSITIONS OF CHLORINE SUBSTITUTION. (THIS LISTING DOES NOT INCLUDE WASTEWATERS, WASTEWATER TREATMENT SLUDGE, SPENT CATALYSTS, AND WASTES LISTED IN SECTIONS 261.31. OR 261.32)
F025	CONDENSED LIGHT ENDS, SPENT FILTERS AND FILTER AIDS, AND SPENT DESICCANT WASTES FROM THE PRODUCTION OF CERTAIN CHLORINATED ALIPHATIC HYDROCARBONS BY FREE RADICAL CATALYZED PROCESSES. THESE CHLORINATED ALIPHATIC HYDROCARBONS ARE THOSE HAVING CARBON CHAIN LENGTHS RANGING FROM ONE TO, AND INCLUDING FIVE, WITH VARYING AMOUNTS AND POSITIONS OF CHLORINE SUBSTITUTION.
F026	WASTES (EXCEPT WASTEWATER AND SPENT CARBON FROM HYDROGEN CHLORIDE PURIFICATION) FROM THE PRODUCTION OF MATERIALS ON EQUIPMENT PREVIOUSLY USED FOR THE MANUFACTURING USE (AS A REACTANT, CHEMICAL INTERMEDIATE, OR COMPONENT IN A FORMULATING PROCESS) OF TETRA-, PENTA-, OR HEXACHLOROBENZENE UNDER ALKALINE CONDITIONS.
F027	DISCARDED UNUSED FORMULATIONS CONTAINING TRI-, TETRA-, OR PENTACHLOROPHENOL OR DISCARDED UNUSED FORMULATIONS CONTAINING COMPOUNDS DERIVED FROM THESE CHLOROPHENOLS. (THIS LISTING DOES NOT INCLUDE FORMULATIONS CONTAINING HEXACHLOROPHENE SYNTHESIZED FROM PREPURIFIED 2,4,5-TRICHLOROPHENOL AS THE SOLE COMPONENT.)
F028	RESIDUES RESULTING FROM THE INCINERATION OR THERMAL TREATMENT OF SOIL CONTAMINATED WITH EPA HAZARDOUS WASTE NOS. F020, F021, F022, F023, F026, AND F027.

F032	WASTEWATERS, PROCESS RESIDUALS, PRESERVATIVE DRIPPAGE, AND SPENT FORMULATIONS FROM WOOD PRESERVING PROCESSES GENERATED AT PLANTS THAT CURRENTLY USE, OR HAVE PREVIOUSLY USED, CHLOROPHENOLIC FORMULATIONS [EXCEPT POTENTIALLY CROSS-CONTAMINATED WASTES THAT HAVE HAD THE F032 WASTE CODE DELETED IN ACCORDANCE WITH SECTION 261.35 (I.E., THE NEWLY PROMULGATED EQUIPMENT CLEANING OR REPLACEMENT STANDARDS), AND WHERE THE GENERATOR DOES NOT RESUME OR INITIATE USE OF CHLOROPHENOLIC FORMULATIONS]. (THIS LISTING DOES NOT INCLUDE K001 BOTTOM SEDIMENT SLUDGE FROM THE TREATMENT OF WASTEWATER FROM WOOD PRESERVING PROCESSES THAT USE CREOSOTE AND/OR PENTACHLOROPHENOL.)
F034	WASTEWATERS, PROCESS RESIDUALS, PRESERVATIVE DRIPPAGE, AND SPENT FORMULATIONS FROM WOOD PRESERVING PROCESSES GENERATED AT PLANTS THAT USE CREOSOTE FORMULATIONS. THIS LISTING DOES NOT INCLUDE K001 BOTTOM SEDIMENT SLUDGE FROM THE TREATMENT OF WASTEWATER FROM WOOD PRESERVING PROCESSES THAT USE CREOSOTE AND/OR PENTACHLOROPHENOL.
F035	WASTEWATERS, PROCESS RESIDUALS, PRESERVATIVE DRIPPAGE, AND SPENT FORMULATIONS FROM WOOD PRESERVING PROCESSES GENERATED AT PLANTS THAT USE INORGANIC PRESERVATIVES CONTAINING ARSENIC OR CHROMIUM. THIS LISTING DOES NOT INCLUDE K001 BOTTOM SEDIMENT SLUDGE FROM THE TREATMENT OF WASTEWATER FROM WOOD PRESERVING PROCESSES THAT USE CREOSOTE AND/OR PENTACHLOROPHENOL.
F037	PETROLEUM REFINERY PRIMARY OIL/WATER/SOLIDS SEPARATION SLUDGE - ANY SLUDGE GENERATED FROM THE GRAVITATIONAL SEPARATION OF OIL/WATER/SOLIDS DURING THE STORAGE OR TREATMENT OF PROCESS WASTEWATERS AND OILY COOLING WASTEWATERS FROM PETROLEUM REFINERIES. SUCH SLUDGES INCLUDE, BUT ARE NOT LIMITED TO, THOSE GENERATED IN OIL/WATER/SOLIDS SEPARATORS; TANKS AND IMPOUNDMENTS; DITCHES AND OTHER CONVEYANCES; SUMPS; AND STORM WATER UNITS RECEIVING DRY WEATHER FLOW. SLUDGES GENERATED IN STORM WATER UNITS THAT DO NOT RECEIVE DRY WEATHER FLOW, SLUDGES GENERATED IN AGGRESSIVE BIOLOGICAL TREATMENT UNITS AS DEFINED IN SECTION 261.31(B)(2) (INCLUDING SLUDGES GENERATED IN ONE OR MORE ADDITIONAL UNITS AFTER WASTEWATERS HAVE BEEN TREATED IN AGGRESSIVE BIOLOGICAL TREATMENT UNITS), AND K051 WASTES ARE EXEMPTED FROM THIS LISTING.
F038	PETROLEUM REFINERY SECONDARY (EMULSIFIED) OIL/WATER/SOLIDS SEPARATION SLUDGE - ANY SLUDGE AND/OR FLOAT GENERATED FROM THE PHYSICAL AND/OR CHEMICAL SEPARATION OF OIL/WATER/SOLIDS IN PROCESS WASTEWATERS AND OILY COOLING WASTEWATERS FROM PETROLEUM REFINERIES. SUCH WASTES INCLUDE, BUT ARE NOT LIMITED TO, ALL SLUDGES AND FLOATS GENERATED IN INDUCED AIR FLOTATION (IAF) UNITS, TANKS AND IMPOUNDMENTS, AND ALL SLUDGES GENERATED IN DAF UNITS. SLUDGES GENERATED IN STORMWATER UNITS THAT DO NOT RECEIVE DRY WEATHER FLOW, SLUDGES GENERATED IN AGGRESSIVE BIOLOGICAL TREATMENT UNITS AS DEFINED IN SECTION 261.31(B)(2) (INCLUDING SLUDGES GENERATED IN ONE OR MORE ADDITIONAL UNITS AFTER WASTEWATERS HAVE BEEN TREATED IN AGGRESSIVE BIOLOGICAL TREATMENT UNITS), AND F037, K048, AND K051 WASTES ARE EXEMPTED FROM THIS LISTING.
F039	LEACHATE RESULTING FROM THE TREATMENT, STORAGE, OR DISPOSAL OF WASTES CLASSIFIED BY MORE THAN ONE WASTE CODE UNDER SUBPART D, OR FROM A MIXTURE OF WASTES CLASSIFIED UNDER SUBPARTS C AND D OF THIS PART. (LEACHATE RESULTING FROM THE MANAGEMENT OF ONE OR MORE OF THE FOLLOWING EPA HAZARDOUS WASTES AND NO OTHER HAZARDOUS WASTES RETAINS ITS HAZARDOUS WASTE CODE(S): F020, F021, F022, F023, F026, F027, AND/OR F028.)

"K" CODES - WASTES FROM SPECIFIC SOURCES

Code	Description
K001	BOTTOM SEDIMENT SLUDGE FROM THE TREATMENT OF WASTEWATERS FROM WOOD PRESERVING PROCESSES THAT USE CREOSOTE AND/OR PENTACHLOROPHENOL.
K002	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF CHROME YELLOW AND ORANGE PIGMENTS.
K003	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF MOLYBDATE ORANGE PIGMENTS.
K004	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF ZINC YELLOW PIGMENTS.
K005	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF CHROME GREEN PIGMENTS.

K006	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF CHROME OXIDE GREEN PIGMENTS (ANHYDROUS AND HYDRATED).
K007	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF IRON BLUE PIGMENTS.
K008	OVEN RESIDUE FROM THE PRODUCTION OF CHROME OXIDE GREEN PIGMENTS.
K009	DISTILLATION BOTTOMS FROM THE PRODUCTION OF ACETALDEHYDE FROM ETHYLENE.
K010	DISTILLATION SIDE CUTS FROM THE PRODUCTION OF ACETALDEHYDE FROM ETHYLENE.
K011	BOTTOM STREAM FROM THE WASTEWATER STRIPPER IN THE PRODUCTION OF ACRYLONITRILE.
K013	BOTTOM STREAM FROM THE ACETONITRILE COLUMN IN THE PRODUCTION OF ACRYLONITRILE.
K014	BOTTOMS FROM THE ACETONITRILE PURIFICATION COLUMN IN THE PRODUCTION OF ACRYLONITRILE.
K015	STILL BOTTOMS FROM THE DISTILLATION OF BENZYL CHLORIDE.
K016	HEAVY ENDS OR DISTILLATION RESIDUES FROM THE PRODUCTION OF CARBON TETRACHLORIDE.
K017	HEAVY ENDS (STILL BOTTOMS) FROM THE PURIFICATION COLUMN IN THE PRODUCTION OF EPICHLOROHYDRIN.
K018	HEAVY ENDS FROM THE FRACTIONATION COLUMN IN ETHYL CHLORIDE PRODUCTION.
K019	HEAVY ENDS FROM THE DISTILLATION OF ETHYLENE DICHLORIDE IN ETHYLENE DICHLORIDE PRODUCTION.
K020	HEAVY ENDS FROM THE DISTILLATION OF VINYL CHLORIDE IN VINYL CHLORIDE MONOMER PRODUCTION.
K021	AQUEOUS SPENT ANTIMONY CATALYST WASTE FROM FLUOROMETHANE PRODUCTION.
K022	DISTILLATION BOTTOM TARS FROM THE PRODUCTION OF PHENOL/ACETONE FROM CUMENE.
K023	DISTILLATION LIGHT ENDS FROM THE PRODUCTION OF PHTHALIC ANHYDRIDE FROM NAPHTHALENE.
K024	DISTILLATION BOTTOMS FROM THE PRODUCTION OF PHTHALIC ANHYDRIDE FROM NAPHTHALENE.
K025	DISTILLATION BOTTOMS FROM THE PRODUCTION OF NITROBENZENE BY THE NITRATION OF BENZENE.
K026	STRIPPING STILL TAILS FROM THE PRODUCTION OF METHYL ETHYL PYRIDINES.
K027	CENTRIFUGE AND DISTILLATION RESIDUES FROM TOLUENE DIISOCYANATE PRODUCTION.
K028	SPENT CATALYST FROM THE HYDROCHLORINATOR REACTOR IN THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.
K029	WASTE FROM THE PRODUCT STEAM STRIPPER IN THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.
K030	COLUMN BOTTOMS OR HEAVY ENDS FROM THE COMBINED PRODUCTION OF TRICHLOROETHYLENE AND PERCHLOROETHYLENE.
K031	BY-PRODUCT SALTS GENERATED IN THE PRODUCTION OF MSMA AND CACODYLIC ACID.
K032	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF CHLORDANE.
K033	WASTEWATER AND SCRUB WATER FROM THE CHLORINATION OF CYCLOPENTADIENE IN THE PRODUCTION OF CHLORDANE.
K034	FILTER SOLIDS FROM THE FILTRATION OF HEXACHLOROCYCLOPENTADIENE IN THE PRODUCTION OF CHLORDANE.
K035	WASTEWATER TREATMENT SLUDGES GENERATED IN THE PRODUCTION OF CREOSOTE.
K036	STILL BOTTOMS FROM TOLUENE RECLAMATION DISTILLATION IN THE PRODUCTION OF DISULFOTON.
K037	WASTEWATER TREATMENT SLUDGES FROM THE PRODUCTION OF DISULFOTON.
K038	WASTEWATER FROM THE WASHING AND STRIPPING OF PHORATE PRODUCTION.
K039	FILTER CAKE FROM THE FILTRATION OF DIETHYLPHOSPHORODITHIOIC ACID IN THE PRODUCTION OF PHORATE.
K040	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF PHORATE.
K041	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF TOXAPHENE.
K042	HEAVY ENDS OR DISTILLATION RESIDUES FROM THE DISTILLATION OF TETRACHLOROBENZENE IN THE PRODUCTION OF 2,4,5-T.
K043	2,6-DICHLOROPHENOL WASTE FROM THE PRODUCTION OF 2,4-D.
K044	WASTEWATER TREATMENT SLUDGES FROM THE MANUFACTURING AND PROCESSING OF EXPLOSIVES.
K045	SPENT CARBON FROM THE TREATMENT OF WASTEWATER CONTAINING EXPLOSIVES.

K046	WASTEWATER TREATMENT SLUDGES FROM THE MANUFACTURING, FORMULATION, AND LOADING OF LEAD-BASED INITIATING COMPOUNDS.
K047	PINK/RED WATER FROM TNT OPERATIONS.
K048	DISSOLVED AIR FLOTATION (DAF) FLOAT FROM THE PETROLEUM REFINING INDUSTRY.
K049	SLOP OIL EMULSION SOLIDS FROM THE PETROLEUM REFINING INDUSTRY.
K050	HEAT EXCHANGER BUNDLE CLEANING SLUDGE FROM THE PETROLEUM REFINING INDUSTRY.
K051	API SEPARATOR SLUDGE FROM THE PETROLEUM REFINING INDUSTRY.
K052	TANK BOTTOMS (LEADED) FROM THE PETROLEUM REFINING INDUSTRY.
K060	AMMONIA STILL LIME SLUDGE FROM COKING OPERATIONS.
K061	EMISSION CONTROL DUST/SLUDGE FROM THE PRIMARY PRODUCTION OF STEEL IN ELECTRIC FURNACES.
K062	SPENT PICKLE LIQUOR FROM STEEL FINISHING OPERATIONS OF PLANTS THAT PRODUCE IRON OR STEEL.
K069	EMISSION CONTROL DUST/SLUDGE FROM SECONDARY LEAD SMELTING.
K071	BRINE PURIFICATION MUDS FROM THE MERCURY CELL PROCESS IN CHLORINE PRODUCTION, IN WHICH SEPARATELY PREPURIFIED BRINE IS NOT USED.
K073	CHLORINATED HYDROCARBON WASTE FROM THE PURIFICATION STEP OF THE DIAPHRAGM CELL PROCESS USING GRAPHITE ANODES IN CHLORINE PRODUCTION.
K083	DISTILLATION BOTTOMS FROM ANILINE PRODUCTION.
K084	WASTEWATER TREATMENT SLUDGES GENERATED DURING THE PRODUCTION OF VETERINARY PHARMACEUTICALS FROM ARSENIC OR ORGANO-ARSENIC COMPOUNDS.
K085	DISTILLATION OR FRACTIONATION COLUMN BOTTOMS FROM THE PRODUCTION OF CHLOROBENZENES.
K086	SOLVENT WASHES AND SLUDGES, CAUSTIC WASHES AND SLUDGES, OR WATER WASHES AND SLUDGES FROM CLEANING TUBS AND EQUIPMENT USED IN THE FORMULATION OF INK FROM PIGMENTS, DRIERS, SOAPS, AND STABILIZERS CONTAINING CHROMIUM AND LEAD.
K087	DECANTER TANK TAR SLUDGE FROM COKING OPERATIONS.
K088	SPENT POTLINERS FROM PRIMARY ALUMINUM REDUCTION.
K093	DISTILLATION LIGHT ENDS FROM THE PRODUCTION OF PHTHALIC ANHYDRIDE FROM ORTHO-XYLENE.
K094	DISTILLATION BOTTOMS FROM THE PRODUCTION OF PHTHALIC ANHYDRIDE FROM ORTHO-XYLENE.
K095	DISTILLATION BOTTOMS FROM THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.
K096	HEAVY ENDS FROM THE HEAVY ENDS COLUMN FROM THE PRODUCTION OF 1,1,1-TRICHLOROETHANE.
K097	VACUUM STRIPPER DISCHARGE FROM THE CHLORDANE CHLORINATOR IN THE PRODUCTION OF CHLORDANE.
K098	UNTREATED PROCESS WASTEWATER FROM THE PRODUCTION OF TOXAPHENE.
K099	UNTREATED WASTEWATER FROM THE PRODUCTION OF 2,4-D.
K100	WASTE LEACHING SOLUTION FROM ACID LEACHING OF EMISSION CONTROL DUST/SLUDGE FROM SECONDARY LEAD SMELTING.
K101	DISTILLATION TAR RESIDUES FROM THE DISTILLATION OF ANILINE-BASED COMPOUNDS IN THE PRODUCTION OF VETERINARY PHARMACEUTICALS FROM ARSENIC OR ORGANO-ARSENIC COMPOUNDS.
K102	RESIDUE FROM THE USE OF ACTIVATED CARBON FOR DECOLORIZATION IN THE PRODUCTION OF VETERINARY PHARMACEUTICALS FROM ARSENIC OR ORGANO-ARSENIC COMPOUNDS.
K103	PROCESS RESIDUES FROM ANILINE EXTRACTION FROM THE PRODUCTION OF ANILINE.
K104	COMBINED WASTEWATERS GENERATED FROM NITROBENZENE/ANILINE PRODUCTION.
K105	SEPARATED AQUEOUS STREAM FROM THE REACTOR PRODUCT WASHING STEP IN THE PRODUCTION OF CHLOROBENZENES.
K106	WASTEWATER TREATMENT SLUDGE FROM THE MERCURY CELL PROCESS IN CHLORINE PRODUCTION.
K107	COLUMN BOTTOMS FROM PRODUCT SEPARATION FROM THE PRODUCTION OF 1,1-DIMETHYLHYDRAZINE (UDMH) FROM CARBOXYLIC ACID HYDRAZIDES.
K108	CONDENSED COLUMN OVERHEADS FROM PRODUCT SEPARATION AND CONDENSED REACTOR VENT GASES FROM THE PRODUCTION OF 1,1-DIMETHYLHYDRAZINE FROM CARBOXYLIC ACID HYDRAZIDES.

K109	SPENT FILTER CARTRIDGES FROM PRODUCT PURIFICATION FROM THE PRODUCT OF 1,1-DIMETHYLHYDRAZINE FROM CARBOXYLIC ACID HYDRAZIDES.
K110	CONDENSED COLUMN OVERHEADS FROM INTERMEDIATE SEPARATION FROM THE PRODUCTION OF 1,1-DIMETHYLHYDRAZINE FROM CARBOXYLIC ACID HYDRAZIDES.
K111	PRODUCT WASHWATERS FROM THE PRODUCTION OF DINITROTOLUENE VIA NITRATION OF TOLUENE.
K112	REACTION BY-PRODUCT WATER FROM THE DRYING COLUMN IN THE PRODUCTION OF TOLUENEDIAMINE VIA HYDROGENATION OF DINITROTOLUENE.
K113	CONDENSED LIQUID LIGHT ENDS FROM PURIFICATION OF TOLUENEDIAMINE IN PRODUCTION OF TOLUENEDIAMINE VIA HYDROGENATION OF DINITROTOLUENE.
K114	VICINALS FROM THE PURIFICATION OF TOLUENEDIAMINE IN PRODUCTION OF TOLUENEDIAMINE VIA HYDROGENATION OF DINITROTOLUENE.
K115	HEAVY ENDS FROM PURIFICATION OF TOLUENEDIAMINE IN THE PRODUCTION OF TOLUENEDIAMINE VIA HYDROGENATION OF DINITROTOLUENE.
K116	ORGANIC CONDENSATE FROM THE SOLVENT RECOVERY COLUMN IN THE PRODUCTION OF TOLUENE DIISOCYANATE VIA PHOSGENATION OF TOLUENEDIAMINE.
K117	WASTEWATER FROM THE REACTOR VENT GAS SCRUBBER IN THE PRODUCTION OF ETHYLENE DIBROMIDE VIA BROMINATION OF ETHENE.
K118	SPENT ADSORBENT SOLIDS FROM PURIFICATION OF ETHYLENE DIBROMIDE IN THE PRODUCTION OF ETHYLENE DIBROMIDE VIA BROMINATION OF ETHENE.
K123	PROCESS WASTEWATER (INCLUDING SUPERNATES, FILTRATES, AND WASHWATERS) FROM THE PRODUCTION OF ETHYLENEBISDITHIOCARBAMIC ACID AND ITS SALTS.
K124	REACTOR VENT SCRUBBER WATER FROM THE PRODUCTION OF ETHYLENEBISDITHIOCARBAMIC ACID AND ITS SALTS.
K125	FILTRATION, EVAPORATION, AND CENTRIFUGATION SOLIDS FROM THE PRODUCTION OF ETHYLENEBISDITHIOCARBAMIC ACID AND ITS SALTS.
K126	BAGHOUSE DUST AND FLOOR SWEEPINGS IN MILLING AND PACKAGING OPERATIONS FROM PRODUCTION OR FORMULATION OF ETHYLENEBISDITHIOCARBAMIC ACID AND ITS SALTS.
K131	WASTEWATER FROM THE REACTOR AND SPENT SULFURIC ACID FROM THE ACID DRYER FROM THE PRODUCTION OF METHYL BROMIDE.
K132	SPENT ABSORBENT AND WASTEWATER SEPARATOR SOLIDS FROM THE PRODUCTION OF METHYL BROMIDE.
K136	STILL BOTTOMS FROM THE PURIFICATION OF ETHYLENE DIBROMIDE IN THE PRODUCTION OF ETHYLENE DIBROMIDE VIA BROMINATION OF ETHENE.
K141	PROCESS RESIDUES FROM THE RECOVERY OF COAL TAR, INCLUDING, BUT NOT LIMITED TO, TAR COLLECTING SUMP RESIDUES FROM THE PRODUCTION OF COKE FROM COAL OR THE RECOVERY OF COKE BY-PRODUCTS PRODUCED FROM COAL. THIS LISTING DOES NOT INCLUDE K087 (DECANTER TANK SLUDGE FROM COKING OPERATIONS).
K142	TANK STORAGE RESIDUES FROM THE PRODUCTION OF COKE FROM COAL OR FROM THE RECOVERY OF COKE BY-PRODUCTS FROM COAL.
K143	PROCESS RESIDUES FROM THE RECOVERY OF LIGHT OIL, INCLUDING, BUT NOT LIMITED TO, THOSE GENERATED IN STILLS, DECANTERS, AND WASH OIL RECOVERY UNITS FROM THE RECOVERY OF COKE BY-PRODUCTS PRODUCED FROM COAL.
K144	WASTEWATER SUMP RESIDUES FROM LIGHT OIL REFINING, INCLUDING, BUT NOT LIMITED TO, INTERCEPTING OR CONTAMINATION SUMP SLUDGES FROM THE RECOVERY OF COKE BY-PRODUCTS PRODUCED FROM COAL.
K145	RESIDUES FROM NAPHTHALENE COLLECTION AND RECOVERY OPERATIONS FROM THE RECOVERY OF COKE BY-PRODUCTS PRODUCED FROM COAL.
K147	TAR STORAGE RESIDUES FROM COAL TAR REFINING.
K148	RESIDUES FROM COAL TAR DISTILLATION, INCLUDING, BUT NOT LIMITED TO, STILL BOTTOMS.
K149	DISTILLATION BOTTOMS FROM THE PRODUCTION OF ALPHA (OR METHYL-) CHLORINATED TOLUNES, RING-CHLORINATED TOLUNES, BENZOYL CHLORIDES, AND COMPOUNDS WITH MIXTURES OF THESE FUNCTIONAL

	GROUPS. [THIS WASTE DOES NOT INCLUDE STILL BOTTOMS FROM THE DISTILLATION OF BENZOYL CHLORIDE]
K150	ORGANIC RESIDULES EXCLUDING SPENT CARBON ADSORBENT, FROM THE SPENT CHLORINE GAS AND HYDROCHLORIC ACID RECOVERY PROCESSES ASSOCIATED WITH THE PRODUCTION OF ALPHA (OR METHYL-) CHLORINATED TOLUNES, BENZOYL CHLORIDES, AND COMPOUNDS WITH MIXTURES OF THESE FUNCTIONAL GROUPS.
K151	WASTEWATER TREATMENT SLUDGES, EXCLUDING NEUTRALIZATION AND BIOLOGICAL SLUDGES, GENERATED DURING THE TREATMENT OF WASTEWATERS FROM THE PRODUCTION OF ALPHA (OR METHYL-) CHLORINATED TOLUNES, BENZOYL CHLORIDES, AND COMPOUNDS WITH MIXTURES OF THESE FUNCTIONAL GROUPS.
K156	ORGANIC WASTE (INCLUDING HEAVY ENDS, STILL BOTTOMS, LIGHT ENDS, SPENT SOLVENTS, FILTRATES, AND DECANTATES) FROM THE PRODUCTION OF CARBAMATES AND CARBAMOYL OXIMES.
K157	WASTEWATERS (INCLUDING SCRUBBER WATERS, CONDENSER WATERS, WASHWATERS, AND SEPARATION WATERS) FROM THE PRODUCTION OF CARBAMATES AND CARBAMOYL OXIMES.
K158	BAG HOUSE DUSTS AND FILTER/SEPARATION SOLIDS FROM THE PRODUCTION OF CARBAMATES AND CARBAMOYL OXIMES.
K159	ORGANICS FROM THE TREATMENT OF THIOCARBAMATE WASTES.
K161	PURIFICATION SOLIDS (INCLUDING FILTRATION, EVAPORATION, AND CENTRIFUGATION SOLIDS), BAG HOUSE DUST AND FLOOR SWEEPINGS FROM THE PRODUCTION OF DITHIOCARBAMATE ACIDS AND THEIR SALTS. (THIS LISTING DOES NOT INCLUDE K125 OR K126).
K169	CRUDE OIL STORAGE TANK SEDIMENT FROM PETROLEUM REFINING OPERATIONS
K170	CLARIFIED SLURRY OIL TANK SEDIMENT AND/OR IN-LINE FILTER/SEPARATION SOLIDS FROM PETROLEUM REFINING OPERATIONS
K171	SPENT HYDROTREATING CATALYST FROM PETROLEUM REFINING OPERATIONS,INCLUDING GUARD BEDS USED TO DESULFURIZE FEEDS TO OTHER CATALYTIC REACTORS (THIS LISTING DOES NOT INCLUDE INERT SUPPORT MEDIA)
K172	SPENT HYDROREFINING CATALYST FROM PETROLEUM REFINING OPERATIONS, INCLUDING GUARD BEDS USED TO DESULFURIZE FEEDS TO OTHER CATALYTIC REACTORS (THIS LISTING DOES NOT INCLUDE INERT SUPPORT MEDIA)
K174	WASTEWATER TREATMENT SLUDGES FROM THE PRODUCTION OF ETHLYENE DICHLORIDE OR VINYL CHLORIDE
K175	WASTEWATER TREATMENT SLUDGE FROM THE PRODUCTION OF VINYL CHLORIDE MONOMER..
K176	BAGHOUSE FILTERS FROM THE PRODUCTION OF ANTIMONY OXIDE, INCLUDING FILTERS FROM THE PRODUCTION OF INTERMEDIATES (E.G.,ANTIMONY METAL OR CRUDE ANTIMONY OXIDE)
K177	SLAG FROM THE PRODUCTION OF ANTIMONY OXIDE THAT IS SPECULATIVELY ACCUMULATED OR DISPOSED,INCLUDING SLAG FROM THE PRODUCTION OF INTERMEDIATES (E.G.,ANTIMONY METAL OR CRUDE ANTIMONY OXIDE)
K178	RESIDUES FROM MANUFACTURING AND MANUFACTURING-SITE STORAGE OF FERRIC CHLORIDE FROM ACIDS FORMED DURING THE PRODUCTION OF TITANIUM DIOXIDE USING THE CHLORIDE-ILMENITE PROCESS.
K181	NONWASTEWATERS FROM THE PRODUCTION OF DYES AND/OR PIGMENTS.

"P" CODES - ACUTELY HAZARDOUS COMPOUNDS

Code	Description
P001	2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYLBUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3% (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 0.3%
P002	1-ACETYL-2-THIOUREA (OR) ACETAMIDE, N-(AMINOTHIOXOMETHYL)-
P003	2-PROPENAL (OR) ACROLEIN

P004	1,4,5,8-DIMETHANONAPHTHALENE, 1,2,3,4,10,10-HEXA-CHLORO-1,4,4A,5,8,8A,-HEXAHYDRO-, (1ALPHA, 4ALPHA, 4ABETA, 5ALPHA, 8ALPHA, 8ABETA)- (OR) ALDRIN
P005	2-PROPEN-1-OL (OR) ALLYL ALCOHOL
P006	ALUMINUM PHOSPHIDE (R,T)
P007	3(2H)-ISOXAZOLONE, 5-(AMINOMETHYL)- (OR) 5-(AMINOMETHYL)-3-ISOXAZOLOL
P008	4-AMINOPYRIDINE (OR) 4-PYRIDINAMINE
P009	AMMONIUM PICRATE (R) (OR) PHENOL, 2,4,6-TRINITRO-, AMMONIUM SALT (R)
P010	ARSENIC ACID H3ASO4
P011	ARSENIC OXIDE AS2O5 (OR) ARSENIC PENTOXIDE
P012	ARSENIC OXIDE AS2O3 (OR) ARSENIC TRIOXIDE
P013	BARIUM CYANIDE
P014	BENZENETHIOL (OR) THIOPHENOL
P015	BERYLLIUM
P016	DICHLOROMETHYL ETHER (OR) METHANE, OXYBIS[CHLORO-
P017	2-PROPANONE, 1-BROMO- (OR) BROMOACETONE
P018	BRUCINE (OR) STRYCHNIDIN-10-ONE, 2,3-DIMETHOXY-
P020	DINOSEB (OR) PHENOL, 2-(1-METHYLPROPYL)-4,6-DINITRO-
P021	CALCIUM CYANIDE (OR) CALCIUM CYANIDE CA(CN)2
P022	CARBON DISULFIDE
P023	ACETALDEHYDE, CHLORO- (OR) CHLOROACETALDEHYDE
P024	BENZENAMINE, 4-CHLORO- (OR) P-CHLORANILINE
P026	1-(O-CHLOROPHENYL)THIOUREA (OR) THIOUREA, (2-CHLOROPHENYL)-
P027	3-CHLOROPROPIONITRILE (OR) PROPANENITRILE, 3-CHLORO-
P028	BENZENE, (CHLOROMETHYL)- (OR) BENZYL CHLORIDE
P029	COPPER CYANIDE (OR) COPPER CYANIDE CU(CN)
P030	CYANIDES (SOLUBLE CYANIDE SALTS), NOT OTHERWISE SPECIFIED
P031	CYANOGEN (OR) ETHANEDINITRILE
P033	CYANOGEN CHLORIDE (OR) CYANOGEN CHLORIDE (CN)CL
P034	2-CYCLOHEXYL-4,6-DINITROPHENOL (OR) PHENOL, 2-CYCLOHEXYL-4,6-DINITRO-
P036	ARSONOUS DICHLORIDE, PHENYL- (OR) DICHLOROPHENYLARSINE
P037	2,7:3,6-DIMETHANONAPHTH[2,3-B]OXIRENE, 3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-, (1AALPHA, 2BETA, 2AALPHA, 3BETA, 6BETA, 6AALPHA, 7BETA, 7AALPHA)- (OR) DIELDRIN
P038	ARSINE, DIETHYL- (OR) DIETHYLARSINE
P039	DISULFOTON (OR) PHOSPHORODITHIOIC ACID, O,O-DIETHYL S-[2-(ETHYLTHIO)ETHYL] ESTER
P040	O,O-DIETHYL O-PYRAZINYL PHOSPHOROTHIOATE (OR) PHOSPHOROTHIOIC ACID, O,O-DIETHYL O-PYRAZINYL ESTER
P041	DIETHYL-P-NITROPHENYL PHOSPHATE (OR) PHOSPHORIC ACID, DIETHYL 4-NITROPHENYL ESTER
P042	1,2-BENZENEDIOL, 4-[1-HYDROXY-2-(METHYLAMINO)ETHYL]-, (R)- (OR) EPINEPHRINE
P043	DIISOPROPYLFLUOROPHOSPHATE (DFP) (OR) PHOSPHOROFLUORIDIC ACID, BIS(1-METHYLETHYL) ESTER
P044	DIMETHOATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIMETHYL S-[2-(METHYLAMINO)-2-OXOETHYL] ESTER
P045	2-BUTANONE, 3,3-DIMETHYL-1-(METHYLTHIO)-, O-[METHYLAMINO)CARBONYL] OXIME (OR) THIOFANOX
P046	ALPHA,ALPHA-DIMETHYLPHENETHYLAMINE (OR) BENZENEETHANAMINE, ALPHA, ALPHA-DIMETHYL-
P047	4,6-DINITRO-O-CRESOL, & SALTS (OR) PHENOL, 2-METHYL-4,6-DINITRO-, & SALTS
P048	2,4-DINITROPHENOL (OR) PHENOL, 2,4-DINITRO-
P049	DITHIOBIURET (OR) THIOIMIDODICARBONIC DIAMIDE [(H2N)C(S)]2NH
P050	6,9-METHANO-2,4,3-BENZODIOXATHIEPIN,6,7,8,9,10,10-HEXACHLORO-1,5,5A,6,9,9A-HEXAHYDRO-,3-OXIDE (OR) ENDOSULFAN

P051	2,7:3,6-DIMETHANONAPHTH[2,3-B]OXIRENE, 3,4,5,6,9,9-HEXACHLORO-1A,2,2A,3,6,6A,7,7A-OCTAHYDRO-, (1AALPHA, 2BETA, 2ABETA, 3ALPHA, 6ALPHA, 6ABETA, 7BETA, 7AALPHA)- & METABOLITES (OR) ENDRIN (OR) ENDRIN, & METABOLITES
P054	AZIRIDINE (OR) ETHYLENEIMINE
P056	FLUORINE
P057	ACETAMIDE, 2-FLUORO- (OR) FLUOROACETAMIDE
P058	ACETIC ACID, FLUORO-, SODIUM SALT (OR) FLUOROACETIC ACID, SODIUM SALT
P059	4,7-METHANO-1H-INDENE, 1,4,5,6,7,8,8-HEPTACHLORO-3A,4,7,7A-TETRAHYDRO- (OR) HEPTACHLOR
P060	1,4,5,8-DIMETHANONAPHTHALENE, 1,2,3,4,10,10-HEXA-CHLORO-1,4,4A,5,8,8A,-HEXAHYDRO-, (1ALPHA, 4ALPHA, 4ABETA, 5BETA, 8BETA, 8ABETA)- (OR) ISODRIN
P062	HEXAETHYL TETRAPHOSPHATE (OR) TETRAPHOSPHORIC ACID, HEXAETHYL ESTER
P063	HYDROCYANIC ACID (OR) HYDROGEN CYANIDE
P064	METHANE, ISOCYANATO- (OR) METHYL ISOCYANATE
P065	FULMINIC ACID, MERCURY(2+) SALT (R,T) (OR) MERCURY FULMINATE (R,T)
P066	ETHANIMIDOTHIOIC ACID, N-[[(METHYLAMINO)CARBONYL]OXY]-, METHYL ESTER (OR) METHOMYL
P067	1,2-PROPYLENIMINE (OR) AZIRIDINE, 2-METHYL-
P068	HYDRAZINE, METHYL- (OR) METHYL HYDRAZINE
P069	2-METHYLLACTONITRILE (OR) PROPANENITRILE, 2-HYDROXY-2-METHYL-
P070	ALDICARB (OR) PROPANAL, 2-METHYL-2-(METHYLTHIO)-, O-[(METHYLAMINO)CARBONYL]OXIME
P071	METHYL PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O,-DIMETHYL O-(4-NITROPHENYL) ESTER
P072	ALPHA-NAPHTHYLTHIOUREA (OR) THIOUREA, 1-NAPHTHALENYL-
P073	NICKEL CARBONYL (OR) NICKEL CARBONYL NI(CO)4, (T-4)-
P074	NICKEL CYANIDE (OR) NICKEL CYANIDE NI(CN)2
P075	NICOTINE, & SALTS (OR) PYRIDINE, 3-(1-METHYL-2-PYRROLIDINYL)-,(S)-, & SALTS
P076	NITRIC OXIDE (OR) NITROGEN OXIDE NO
P077	BENZENAMINE, 4-NITRO- (OR) P-NITROANILINE
P078	NITROGEN DIOXIDE (OR) NITROGEN OXIDE NO2
P081	1,2,3-PROPANETRIOL, TRINITRATE (R) (OR) NITROGLYCERINE (R)
P082	METHANIMINE, N-METHYL-N-NITROSO- (OR) N-NITROSODIMETHYLAMINE
P084	N-NITROSOMETHYLVINYLAMINE (OR) VINYLAMINE, N-METHYL-N-NITROSO-
P085	DIPHOSPHORAMIDE, OCTAMETHYL- (OR) OCTAMETHYLPYROPHOSPHORAMIDE
P087	OSMIUM OXIDE OSO4, (T-4)- (OR) OSMIUM TETROXIDE
P088	7-OXABICYCLO[2.2.1]HEPTANE-2,3-DICARBOXYLIC ACID (OR) ENDOTHALL
P089	PARATHION (OR) PHOSPHOROTHIOIC ACID, O,O-DIETHYL-O-(4-NITROPHENYL) ESTER
P092	MERCURY, (ACETATO-O)PHENYL- (OR) PHENYLMERCURY ACETATE
P093	PHENYLTHIOUREA (OR) THIOUREA, PHENYL-
P094	PHORATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIETHYL S-[(ETHYLTHIO)METHYL] ESTER
P095	CARBONIC DICHLORIDE (OR) PHOSGENE
P096	HYDROGEN PHOSPHIDE (OR) PHOSPHINE
P097	FAMPHUR (OR) PHOSPHOROTHIOIC ACID O-[4-[(DIMETHYLAMINO)SULFONYL]PHENYL] O,O-DIMETHYL ESTER
P098	POTASSIUM CYANIDE (OR) POTASSIUM CYANIDE K(CN)
P099	ARGENTATE (1-), BIS(CYANO-C)-, POTASSIUM (OR) POTASSIUM SILVER CYANIDE
P101	ETHYL CYANIDE (OR) PROPANENITRILE
P102	2-PROPYN-1-OL (OR) PROPARGYL ALCOHOL
P103	SELENOUREA
P104	SILVER CYANIDE (OR) SILVER CYANIDE AG(CN)
P105	SODIUM AZIDE

P106	SODIUM CYANIDE (OR) SODIUM CYANIDE NA(CN)
P108	STRYCHNIDIN-10-ONE, & SALTS (OR) STRYCHNINE, & SALTS
P109	TETRAETHYLDITHIOPYROPHOSPHATE (OR) THIODIPHOSPHORIC ACID, TETRAETHYL ESTER
P110	PLUMBANE, TETRAETHYL- (OR) TETRAETHYL LEAD
P111	DIPHOSPHORIC ACID, TETRAETHYL ESTER (OR) TETRAETHYL PYROPHOSPHATE
P112	METHANE, TETRANITRO- (R) (OR) TETRANITROMETHANE (R)
P113	THALLIC OXIDE (OR) THALLIUM OXIDE TL2O3
P114	SELENIOUS ACID, DITHALLIUM (1+) SALT (OR) THALLIUM(I) SELENITE
P115	SULFURIC ACID, DITHALLIUM (1+) SALT (OR) THALLIUM(I) SULFATE
P116	HYDRAZINECARBOTHIOAMIDE (OR) THIOSEMICARBAZIDE
P118	METHANETHIOL, TRICHLORO- (OR) TRICHLOROMETHANETHIOL
P119	AMMONIUM VANADATE (OR) VANADIC ACID, AMMONIUM SALT
P120	VANADIUM OXIDE V2O5 (OR) VANADIUM PENTOXIDE
P121	ZINC CYANIDE (OR) ZINC CYANIDE ZN(CN)2
P122	ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS GREATER THAN 10% (R,T)
P123	TOXAPHENE
P127	7-BENZOFURANOL, 2,3-DIHYDRO-2,2-DIMETHYL-, METHYLCARBAMATE (OR) CARBOFURAN
P128	PHENOL, 4-(DIMETHYLAMINO)-3,5-DIMETHYL-, METHYLCARBAMATE (ESTER)
P185	1,3-DITHIOLANE-2-CARBOXALDEHYDE, 2,4-DIMETHYL-, O- [(METHYLAMINO)-CARBONYL]OXIME (OR) TIRPATE
P188	BENZOIC ACID, 2-HYDROXY-, COMPD. WITH (3AS-CIS)-1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYLPYRROLO[2,3-B]INDOL-5-YL METHYLCARBAMATE ESTER (1:1) (OR) PHYSOSTIGMINE SALICYLATE
P189	CARBAMIC ACID, [(DIBUTYLAMINO)-THIO]METHYL-, 2,3-DIHYDRO-2,2-DIMETHYL -7-BENZOFURANYL ESTER (OR) CARBOSULFAN
P190	CARBAMIC ACID, METHYL-, 3-METHYLPHENYL ESTER (OR) METOLCARB
P191	CARBAMIC ACID, DIMETHYL-, 1-[(DIMETHYL-AMINO)CARBONYL]- 5-METHYL-1H- PYRAZOL-3-YL ESTER (OR) DIMETILAN
P192	ISOLAN (OR) CARBAMIC ACID, DIMETHYL-, 3-METHY-L-(1-METHYLETHYL)-1H- PYRAZOL-5-YL ESTER
P194	ETHANIMIDOTHIOC ACID, 2-(DIMETHYLAMINO)-N-[[(METHYLAMINO) CARBONYL]OXY]-2-OXO-, METHYL ESTER (OR) OXAMYL
P196	MANGANESE DIMETHYLDITHIOCARBAMATE (OR) MANGANESE, BIS(DIMETHYLCARBAMODITHIOATO-S,S')-,
P197	FORMPARANATE (OR) METHANIMIDAMIDE, N,N-DIMETHYL-N'-[2-METHYL-4-[[(METHYLAMINO)CARBONYL]OXY]PHENYL]
P198	METHANIMIDAMIDE, N,N-DIMETHYL-N'-[3-[[(METHYLAMINO)-CARBONYL]OXY]PHENYL]-, MONOHYDROCHLORIDE (OR) FORMETANATE HYDROCHLORIDE
P199	METHIOCARB (OR) MEXACARBATE (OR) PHENOL, (3,5-DIMETHYL-4-(METHYLTHIO)-, METHYLCARBAMATE
P201	PHENOL, 3-METHYL-5-(1-METHYLETHYL)-, METHYL CARBAMATE (OR) PROMECARB
P202	M-CUMENYL METHYLCARBAMATE (OR) 3-ISOPROPYLPHENYL N-METHYLCARBAMATE (OR) PHENOL, 3-(1-METHYLETHYL)-, METHYL CARBAMATE
P203	ALDICARB SULFONE (OR) PROPANAL, 2-METHYL-2-(METHYL-SULFONYL)-, O-[(METHYLAMINO)CARBONYL] OXIME
P204	PHYSOSTIGMINE (OR) PYRROLO[2,3-B]INDOL-5-OL, 1,2,3,3A,8,8A-HEXAHYDRO-1,3A,8-TRIMETHYL-METHYLCARBAMATE (ESTER), (3AS-CIS)-
P205	ZINC, BIS(DIMETHYLCARBAMODITHIOATO-S,S')-, (OR) ZIRAM

"U" CODES - TOXIC COMPOUNDS

Code	Description

U001	ACETALDEHYDE (I) (OR) ETHANAL (I)
U002	2-PROPANONE (I) (OR) ACETONE (I)
U003	ACETONITRILE (I,T)
U004	ACETOPHENONE (OR) ETHANONE, 1-PHENYL-
U005	2-ACETYLAMINOFLUORENE (OR) ACETAMIDE, N-9H-FLUOREN-2-YL
U006	ACETYL CHLORIDE (C,R,T)
U007	2-PROPENAMIDE (OR) ACRYLAMIDE
U008	2-PROPENOIC ACID (I) (OR) ACRYLIC ACID (I)
U009	2-PROPENENITRILE (OR) ACRYLONITRILE
U010	AZIRINO [2',3':3,4]PYRROLO[1,2-A]INDOLE-4,7-DIONE, 6-AMINO-8-[[(AMINOCARBONYL)OXY]METHYL]-1,1A,2,8,8A,8B-HEXAHYDRO-8A-METHOXY-5-METHYL-, [1AS-(1AALPHA, 8BETA, 8AALPHA, 8BALPHA)]- (OR) MITOMYCIN C
U011	1H-1,2,4-TRIAZOL-3-AMINE (OR) AMITROLE
U012	ANILINE (I,T) (OR) BENZENAMINE (I,T)
U014	AURAMINE (OR) BENZENAMINE, 4,4'-CARBONIMIDOYLBIS[N,N-DIMETHYL-
U015	AZASERINE (OR) L-SERINE, DIAZOACETATE (ESTER)
U016	BENZ[C]ACRIDINE
U017	BENZAL CHLORIDE (OR) BENZENE, (DICHLOROMETHYL)-
U018	BENZ[A]ANTHRACENE
U019	BENZENE (I,T)
U020	BENZENESULFONIC ACID CHLORIDE (C,R) (OR) BENZENESULFONYL CHLORIDE (C,R)
U021	[1,1'-BIPHENYL]-4,4'-DIAMINE (OR) BENZIDINE
U022	BENZO[A]PYRENE
U023	BENZENE, (TRICHLOROMETHYL)- (OR) BENZOTRICHLORIDE (C,R,T)
U024	DICHLOROMETHOXY ETHANE (OR) ETHANE, 1,1'-[METHYLENEBIS(OXY)]BIS[2-CHLORO-
U025	DICHLOROETHYL ETHER (OR) ETHANE, 1,1'-OXYBIS[2-CHLORO-
U026	CHLORNAPHAZIN (OR) NAPHTHALENAMINE, N,N'-BIS(2-CHLOROETHYL)-
U027	DICHLOROISOPROPYL ETHER (OR) PROPANE, 2,2'-OXYBIS[2-CHLORO-
U028	1,2-BENZENEDICARBOXYLIC ACID, BIS(2-ETHYLHEXYL) ESTER (OR) DIETHYLHEXYL PHTHALATE
U029	METHANE, BROMO- (OR) METHYL BROMIDE
U030	4-BROMOPHENYL PHENYL ETHER (OR) BENZENE, 1-BROMO-4-PHENOXY-
U031	1-BUTANOL (I) (OR) N-BUTYL ALCOHOL (I)
U032	CALCIUM CHROMATE (OR) CHROMIC ACID H2CRO4, CALCIUM SALT
U033	CARBON OXYFLUORIDE (R,T) (OR) CARBONIC DIFLUORIDE
U034	ACETALDEHYDE, TRICHLORO- (OR) CHLORAL
U035	BENZENEBUTANOIC ACID, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) CHLORAMBUCIL
U036	4,7-METHANO-1H-INDENE, 1,2,4,5,6,7,8,8-OCTACHLORO-2,3,3A,4,7,7A-HEXAHYDRO- (OR) CHLORDANE, ALPHA & GAMMA ISOMERS
U037	BENZENE, CHLORO- (OR) CHLOROBENZENE
U038	BENZENEACETIC ACID, 4-CHLORO-ALPHA-(4-CHLOROPHENYL)-ALPHA-HYDROXY-, ETHYL ESTER (OR) CHLOROBENZILATE
U039	P-CHLORO-M-CRESOL (OR) PHENOL, 4-CHLORO-3-METHYL-
U041	EPICHLOROHYDRIN (OR) OXIRANE, (CHLOROMETHYL)-
U042	2-CHLOROETHYL VINYL ETHER (OR) ETHENE, (2-CHLOROETHOXY)-
U043	ETHENE, CHLORO- (OR) VINYL CHLORIDE
U044	CHLOROFORM (OR) METHANE, TRICHLORO-
U045	METHANE, CHLORO- (I,T) (OR) METHYL CHLORIDE (I,T)

U046	CHLOROMETHYL METHYL ETHER (OR) METHANE, CHLOROMETHOXY-
U047	BETA-CHLORONAPHTHALENE (OR) NAPHTHALENE, 2-CHLORO-
U048	O-CHLOROPHENOL (OR) PHENOL, 2-CHLORO-
U049	4-CHLORO-O-TOLUIDINE, HYDROCHLORIDE (OR) BENZENAMINE, 4-CHLORO-2-METHYL-, HYDROCHLORIDE
U050	CHRYSENE
U051	CREOSOTE
U052	CRESOL (CRESYLIC ACID) (OR) PHENOL, METHYL-
U053	2-BUTENAL (OR) CROTONALDEHYDE
U055	BENZENE, (1-METHYLETHYL)- (I) (OR) CUMENE (I)
U056	BENZENE, HEXAHYDRO- (I) (OR) CYCLOHEXANE (I)
U057	CYCLOHEXANONE (I)
U058	2H-1,3,2-OXAZAPHOSPHORIN-2-AMINE, N,N-BIS(2-CHLOROETHYL)TETRAHYDRO-, 2-OXIDE (OR) CYCLOPHOSPHAMIDE
U059	5,12-NAPHTHACENEDIONE, 8-ACETYL-10-[(3-AMINO-2,3,6-TRIDEOXY)-ALPHA-L-LYXO-HEXOPYRANOSYL)OXY]-7,8,9,10-TETRAHYDRO-6,8,11-TRIHYDROXY-1-METHOXY-, (8S-CIS)- (OR) DAUNOMYCIN
U060	BENZENE, 1,1'-(2,2-DICHLOROETHYLIDENE)BIS[4-CHLORO- (OR) DDD
U061	BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLIDENE)BIS[4-CHLORO- (OR) DDT
U062	CARBAMOTHIOIC ACID, BIS(1-METHYLETHYL)-, S-(2,3-DICHLORO-2-PROPENYL) ESTER (OR) DIALLATE
U063	DIBENZ[A,H]ANTHRACENE
U064	BENZO[RST]PENTAPHENE (OR) DIBENZO[A,I]PYRENE
U066	1,2-DIBROMO-3-CHLOROPROPANE (OR) PROPANE, 1,2-DIBROMO-3-CHLORO-
U067	ETHANE, 1,2-DIBROMO- (OR) ETHYLENE DIBROMIDE
U068	METHANE, DIBROMO- (OR) METHYLENE BROMIDE
U069	1,2-BENZENEDICARBOXYLIC ACID, DIBUTYL ESTER (OR) DIBUTYL PHTHALATE
U070	BENZENE, 1,2-DICHLORO- (OR) O-DICHLOROBENZENE
U071	BENZENE, 1,3-DICHLORO- (OR) M-DICHLOROBENZENE
U072	BENZENE, 1,4-DICHLORO- (OR) P-DICHLOROBENZENE
U073	[1,1'-BIPHENYL]-4,4'-DIAMINE, 3,3'-DICHLORO- (OR) 3,3'-DICHLOROBENZIDINE
U074	1,4-DICHLORO-2-BUTENE (I,T) (OR) 2-BUTENE, 1,4-DICHLORO- (I,T)
U075	DICHLORODIFLUOROMETHANE (OR) METHANE, DICHLORODIFLUORO-
U076	ETHANE, 1,1-DICHLORO- (OR) ETHYLIDENE DICHLORIDE
U077	ETHANE, 1,2-DICHLORO- (OR) ETHYLENE DICHLORIDE
U078	1,1-DICHLOROETHYLENE (OR) ETHENE, 1,1-DICHLORO-
U079	1,2-DICHLOROETHYLENE (OR) ETHENE, 1,2-DICHLORO-,(E)-
U080	METHANE, DICHLORO- (OR) METHYLENE CHLORIDE
U081	2,4-DICHLOROPHENOL (OR) PHENOL, 2,4-DICHLORO-
U082	2,6-DICHLOROPHENOL (OR) PHENOL, 2,6-DICHLORO-
U083	PROPANE, 1,2-DICHLORO- (OR) PROPYLENE DICHLORIDE
U084	1,3-DICHLOROPROPENE (OR) 1-PROPENE, 1,3-DICHLORO-
U085	1,2:3,4-DIEPOXYBUTANE (I,T) (OR) 2,2'-BIOXIRANE
U086	HYDRAZINE, 1,2-DIETHYL- (OR) N,N'-DIETHYLHYDRAZINE
U087	O,O-DIETHYL S-METHYL DITHIOPHOSPHATE (OR) PHOSPHORODITHIOIC ACID, O,O-DIETHYL S-METHYL ESTER
U088	1,2-BENZENEDICARBOXYLIC ACID, DIETHYL ESTER (OR) DIETHYL PHTHALATE
U089	DIETHYLSTILBESTEROL (OR) PHENOL, 4,4'-(1,2-DIETHYL-1,2-ETHENEDIYL)BIS, (E)-
U090	1,3-BENZODIOXOLE, 5-PROPYL- (OR) DIHYDROSAFROLE
U091	[1,1'-BIPHENYL]-4,4'-DIAMINE, 3,3'-DIMETHOXY- (OR) 3,3'-DIMETHOXYBENZIDINE

U092	DIMETHYLAMINE (I) (OR) METHANAMINE, N-METHYL- (I)
U093	BENZENAMINE, N,N-DIMETHYL-4-(PHENYLAZO)- (OR) P-DIMETHYLAMINOAZOBENZENE
U094	7,12-DIMETHYLBENZ[A]ANTHRACENE (OR) BENZ[A]ANTHRACENE, 7,12-DIMETHYL-
U095	[1,1'-BIPHENYL]-4,4'-DIAMINE, 3,3'-DIMETHYL- (OR) 3,3'-DIMETHYLBENZIDINE
U096	ALPHA,ALPHA-DIMETHYLBENZYLHYDROPEROXIDE (R) (OR) HYDROPEROXIDE, 1-METHYL-1-PHENYLETHYL- (R)
U097	CARBAMIC CHLORIDE, DIMETHYL- (OR) DIMETHYLCARBAMOYL CHLORIDE
U098	1,1-DIMETHYLHYDRAZINE (OR) HYDRAZINE, 1,1-DIMETHYL-
U099	1,2-DIMETHYLHYDRAZINE (OR) HYDRAZINE, 1,2-DIPHENYL-
U101	2,4-DIMETHYLPHENOL (OR) PHENOL, 2,4-DIMETHYL-
U102	1,2-BENZENEDICARBOXYLIC ACID, DIMETHYL ESTER (OR) DIMETHYL PHTHALATE
U103	DIMETHYL SULFATE (OR) SULFURIC ACID, DIMETHYL ESTER
U105	2,4-DINITROTOLUENE (OR) BENZENE, 1-METHYL-2,4-DINITRO-
U106	2,6-DINITROTOLUENE (OR) BENZENE, 2-METHYL-1,3-DINITRO-
U107	1,2-BENZENEDICARBOXYLIC ACID, DIOCTYL ESTER (OR) DI-N-OCTYL PHTHALATE
U108	1,4-DIETHYLENEOXIDE (OR) 1,4-DIOXANE
U109	1,2-DIPHENYLHYDRAZINE (OR) HYDRAZINE, 1,2-DIPHENYL-
U110	1-PROPANIMINE, N-PROPYL-(I) (OR) DIPROPYLAMINE (I)
U111	1-PROPANAMINE, N-NITROSO-N-PROPYL- (OR) DI-N-PROPYLNITROSAMINE
U112	ACETIC ACID, ETHYL ESTER (I) (OR) ETHYL ACETATE (I)
U113	2-PROPENOIC ACID, ETHYL ESTER (I) (OR) ETHYL ACRYLATE (I)
U114	CARBAMODITHIOIC ACID, 1,2-ETHANEDIYLBIS-, SALTS & ESTERS (OR) ETHYLENEBISDITHIOCARBAMIC ACID, SALTS & ESTERS
U115	ETHYLENE OXIDE (I,T) (OR) OXIRANE (I,T)
U116	2-IMIDAZOLIDINETHIONE (OR) ETHYLENETHIOUREA
U117	ETHANE, 1,1'-OXYBIS-(I) (OR) ETHYL ETHER (I)
U118	2-PROPENOIC ACID, 2-METHYL-, ETHYL ESTER (OR) ETHYL METHACRYLATE
U119	ETHYL METHANESULFONATE (OR) METHANESULFONIC ACID, ETHYL ESTER
U120	FLUORANTHENE
U121	METHANE, TRICHLOROFLUORO- (OR) TRICHLOROMONOFLUOROMETHANE
U122	FORMALDEHYDE
U123	FORMIC ACID (C,T)
U124	FURAN (I) (OR) FURFURAN (I)
U125	2-FURANCARBOXALDEHYDE (I) (OR) FURFURAL (I)
U126	GLYCIDYLALDEHYDE (OR) OXIRANECARBOXYALDEHYDE
U127	BENZENE, HEXACHLORO- (OR) HEXACHLOROBENZENE
U128	1,3-BUTADIENE, 1,1,2,3,4,4-HEXACHLORO- (OR) HEXACHLOROBUTADIENE
U129	CYCLOHEXANE, 1,2,3,4,5,6-HEXACHLORO-, (1ALPHA, 2ALPHA, 3BETA, 4ALPHA, 5ALPHA, 6BETA)- (OR) LINDANE
U130	1,3-CYCLOPENTADIENE, 1,2,3,4,5,5-HEXACHLORO- (OR) HEXACHLOROCYCLOPENTADIENE
U131	ETHANE, HEXACHLORO- (OR) HEXACHLOROETHANE
U132	HEXACHLOROPHENE (OR) PHENOL, 2,2'-METHYLENEBIS[3,4,6-TRICHLORO-
U133	HYDRAZINE (R,T)
U134	HYDROFLUORIC ACID (C,T) (OR) HYDROGEN FLUORIDE (C,T)
U135	HYDROGEN SULFIDE (OR) HYDROGEN SULFIDE H2S
U136	ARSINIC ACID, DIMETHYL- (OR) CACODYLIC ACID
U137	INDENO[1,2,3-CD]PYRENE
U138	METHANE, IODO- (OR) METHYL IODIDE

U140	1-PROPANOL, 2-METHYL- (I,T) (OR) ISOBUTYL ALCOHOL (I,T)
U141	1,3-BENZODIOXOLE, 5-(1-PROPENYL)- (OR) ISOSAFROLE
U142	1,3,4-METHENO-2H-CYCLOBUTA[CD]PENTALEN-2-ONE, 1,1A,3,3A,4,5,5,5A,5B,6-DECACHLOROOCTAHYDRO- (OR) KEPONE
U143	2-BUTENOIC ACID, 2-METHYL-, 7-[[2,3-DIHYDROXY-2-(1-METHOXYETHYL)-3-METHYL-1-OXOBUTOXY]METHYL]-2,3,5,7A-TETRAHYDRO-1H-PYRROLIZIN-1-YL ESTER, [1S-[1ALPHA(Z), 7(2S*,3R*), 7AALPHA]]- (OR) LASIOCARPINE
U144	ACETIC ACID, LEAD(2+) SALT (OR) LEAD ACETATE
U145	LEAD PHOSPHATE (OR) PHOSPHORIC ACID, LEAD(2+) SALT (2:3)
U146	LEAD SUBACETATE (OR) LEAD, BIS(ACETATO-O)TETRAHYDROXYTRI-
U147	2,5-FURANDIONE (OR) MALEIC ANHYDRIDE
U148	3,6-PYRIDAZINEDIONE, 1,2-DIHYDRO- (OR) MALEIC HYDRAZIDE
U149	MALONONITRILE (OR) PROPANEDINITRILE
U150	L-PHENYLALANINE, 4-[BIS(2-CHLOROETHYL)AMINO]- (OR) MELPHALAN
U151	MERCURY
U152	2-PROPENENITRILE, 2-METHYL- (I,T) (OR) METHACRYLONITRILE (I,T)
U153	METHANETHIOL (I,T) (OR) THIOMETHANOL (I,T)
U154	METHANOL (I) (OR) METHYL ALCOHOL (I)
U155	1,2-ETHANEDIAMINE, N,N-DIMETHYL-N'-2-PYRIDINYL-N'-(2-THIENYLMETHYL)- (OR) METHAPYRILENE
U156	CARBONOCHLORIDIC ACID, METHYL ESTER, (I,T) (OR) METHYL CHLOROCARBONATE (I,T)
U157	3-METHYLCHOLANTHRENE (OR) BENZ[J]ACEANTHRYLENE, 1,2-DIHYDRO-3-METHYL-
U158	4,4'-METHYLENEBIS(2-CHLOROANILINE) (OR) BENZENAMINE, 4,4'-METHYLENEBIS[2-CHLORO-
U159	2-BUTANONE (I,T) (OR) METHYL ETHYL KETONE (MEK) (I,T)
U160	2-BUTANONE, PEROXIDE (R,T) (OR) METHYL ETHYL KETONE PEROXIDE (R,T)
U161	4-METHYL-2-PENTANONE (I) (OR) METHYL ISOBUTYL KETONE (I) (OR) PENTANOL, 4-METHYL-
U162	2-PROPENOIC ACID, 2-METHYL-, METHYL ESTER (I,T) (OR) METHYL METHACRYLATE (I,T)
U163	GUANIDINE, N-METHYL-N'-NITRO-N-NITROSO- (OR) MNNG
U164	4(1H)-PYRIMIDINONE, 2,3-DIHYDRO-6-METHYL-2-THIOXO- (OR) METHYLTHIOURACIL
U165	NAPHTHALENE
U166	1,4-NAPHTHALENEDIONE (OR) 1,4-NAPHTHOQUINONE
U167	1-NAPTHALENAMINE (OR) ALPHA-NAPHTHYLAMINE
U168	2-NAPTHALENAMINE (OR) BETA-NAPHTHYLAMINE
U169	BENZENE, NITRO- (OR) NITROBENZENE (I,T)
U170	P-NITROPHENOL (I,T) (OR) PHENOL, 4-NITRO-
U171	2-NITROPROPANE (I,T) (OR) PROPANE, 2-NITRO- (I,T)
U172	1-BUTANAMINE, N-BUTYL-N-NITROSO- (OR) N-NITROSODI-N-BUTYLAMINE
U173	ETHANOL, 2,2'-(NITROSOIMINO)BIS- (OR) N-NITROSODIETHANOLAMINE
U174	ETHANAMINE, N-ETHYL-N-NITROSO- (OR) N-NITROSODIETHYLAMINE
U176	N-NITROSO-N-ETHYLUREA (OR) UREA, N-ETHYL-N-NITROSO-
U177	N-NITROSO-N-METHYLUREA (OR) UREA, N-METHYL-N-NITROSO-
U178	CARBAMIC ACID, METHYLNITROSO-, ETHYL ESTER (OR) N-NITROSO-N-METHYLURETHANE
U179	N-NITROSOPIPERIDINE (OR) PIPERIDINE, 1-NITROSO-
U180	N-NITROSOPYRROLIDINE (OR) PYRROLIDINE, 1-NITROSO-
U181	5-NITRO-O-TOLUIDINE (OR) BENZENAMINE, 2-METHYL-5-NITRO
U182	1,3,5-TRIOXANE, 2,4,6-TRIMETHYL- (OR) PARALDEHYDE
U183	BENZENE, PENTACHLORO- (OR) PENTACHLOROBENZENE
U184	ETHANE, PENTACHLORO- (OR) PENTACHLOROETHANE

U185	BENZENE, PENTACHLORONITRO- (OR) PENTACHLORONITROBENZENE (PCNB)
U186	1,3-PENTADIENE (I) (OR) 1-METHYLBUTADIENE (I)
U187	ACETAMIDE, N-(4-ETHOXYPHENYL)- (OR) PHENACETIN
U188	PHENOL
U189	PHOSPHORUS SULFIDE (R) (OR) SULFUR PHOSPHIDE (R)
U190	1,3-ISOBENZOFURANDIONE (OR) PHTHALIC ANHYDRIDE
U191	2-PICOLINE (OR) PYRIDINE, 2-METHYL-
U192	BENZAMIDE, 3,5-DICHLORO-N-(1,1-DIMETHYL-2-PROPYNYL)- (OR) PRONAMIDE
U193	1,2-OXATHIOLANE, 2,2-DIOXIDE (OR) 1,3-PROPANE SULTONE
U194	1-PROPANAMINE (I,T) (OR) N-PROPYLAMINE (I,T)
U196	PYRIDINE
U197	2,5-CYCLOHEXADIENE-1,4-DIONE (OR) P-BENZOQUINONE
U200	RESERPINE (OR) YOHIMBAN-16-CARBOXYLIC ACID, 11,17-DIMETHOXY-18-[(3,4,5-TRIMETHOXYBENZOYL)OXY]-, METHYL ESTER, (3BETA, 16BETA, 17ALPHA, 18BETA, 20ALPHA)-
U201	1,3-BENZENEDIOL (OR) RESORCINOL
U203	1,3-BENZODIOXOLE, 5-(2-PROPENYL)- (OR) SAFROLE
U204	SELENIOUS ACID (OR) SELENIUM DIOXIDE
U205	SELENIUM SULFIDE (OR) SELENIUM SULFIDE SES2 (R,T)
U206	D-GLUCOSE, 2-DEOXY-2-[[(METHYLNITROSOAMINO)-CARBONYL]AMINO]- (OR) GLUCOPYRANOSE, 2-DEOXY-2-(3-METHYL-3-NITROSOUREIDO)-,D- (OR) STREPTOZOTOCIN
U207	1,2,4,5-TETRACHLOROBENZENE (OR) BENZENE, 1,2,4,5-TETRACHLORO-
U208	1,1,1,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,1,2-TETRACHLORO-
U209	1,1,2,2-TETRACHLOROETHANE (OR) ETHANE, 1,1,2,2-TETRACHLORO-
U210	ETHENE, TETRACHLORO- (OR) TETRACHLOROETHYLENE
U211	CARBON TETRACHLORIDE (OR) METHANE, TETRACHLORO-
U213	FURAN, TETRAHYDRO-(I) (OR) TETRAHYDROFURAN (I)
U214	ACETIC ACID, THALLIUM(1+) SALT (OR) THALLIUM(I) ACETATE
U215	CARBONIC ACID, DITHALLIUM(1+) SALT (OR) THALLIUM(I) CARBONATE
U216	THALLIUM CHLORIDE TLCL (OR) THALLIUM(I) CHLORIDE
U217	NITRIC ACID, THALLIUM(1+) SALT (OR) THALLIUM(I) NITRATE
U218	ETHANETHIOAMIDE (OR) THIOACETAMIDE
U219	THIOUREA
U220	BENZENE, METHYL- (OR) TOLUENE
U221	BENZENEDIAMINE, AR-METHYL- (OR) TOLUENEDIAMINE
U222	BENZENAMINE, 2-METHYL-, HYDROCHLORIDE (OR) O-TOLUIDINE HYDROCHLORIDE
U223	BENZENE, 1,3-DIISOCYANATOMETHYL- (R,T) (OR) TOLUENE DIISOCYANATE (R,T)
U225	BROMOFORM (OR) METHANE, TRIBROMO-
U226	ETHANE, 1,1,1-TRICHLORO- (OR) METHYL CHLOROFORM
U227	1,1,2-TRICHLOROETHANE (OR) ETHANE, 1,1,2-TRICHLORO-
U228	ETHENE, TRICHLORO- (OR) TRICHLOROETHYLENE
U234	1,3,5-TRINITROBENZENE (R,T) (OR) BENZENE, 1,3,5-TRINITRO-
U235	1-PROPANOL, 2,3-DIBROMO-, PHOSPHATE (3:1) (OR) TRIS(2,3,-DIBROMOPROPYL) PHOSPHATE
U236	2,7-NAPHTHALENEDISULFONIC ACID,3,3'-[(3,3'-DIMETHYL[1,1'-BIPHENYL]-4,4'-DIYL)BIS(AZO)BIS[5-AMINO-4-HYDROXY]-, TETRASODIUM SALT (OR) TRYPAN BLUE
U237	2,4-(1H,3H)-PYRIMIDINEDIONE, 5-[BIS(2-CHLOROETHYL)AMINO]- (OR) URACIL MUSTARD
U238	CARBAMIC ACID, ETHYL ESTER (OR) ETHYL CARBAMATE (URETHANE)
U239	BENZENE, DIMETHYL- (I,T) (OR) XYLENE (I)

U240	2,4-D, SALTS & ESTERS (OR) ACETIC ACID, (2,4-DICHLOROPHENOXY)-, SALTS & ESTERS (OR) DICHLOROPHENOXYACETIC ACID 2,4-D
U243	1-PROPENE, 1,1,2,3,3,3-HEXACHLORO- (OR) HEXACHLOROPROPENE
U244	THIOPEROXYDICARBONIC DIAMIDE [(H2N)C(S)]2S2, TETRAMETHYL- (OR) THIRAM
U246	CYANOGEN BROMIDE (CN)BR
U247	BENZENE, 1,1'-(2,2,2-TRICHLOROETHYLIDENE)BIS[4-METHOXY- (OR) METHOXYCHLOR
U248	2H-1-BENZOPYRAN-2-ONE, 4-HYDROXY-3-(3-OXO-1-PHENYL-BUTYL)-, & SALTS, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS (OR) WARFARIN, & SALTS, WHEN PRESENT AT CONCENTRATIONS OF 0.3% OR LESS
U249	ZINC PHOSPHIDE ZN3P2, WHEN PRESENT AT CONCENTRATIONS OF 10% OR LESS
U271	BENOMYL (OR) CARBAMIC ACID, [1-[(BUTYLAMINO)CARBONYL]-1H-BENZIMIDAZOL-2-YL]-, METHYL ESTER
U278	BENDIOCARB (OR) 1,3-BENZODIOXOL-4-OL, 2,2-DIMETHYL-, METHYL CARBAMATE
U279	CARBARYL (OR) 1-NAPHTHALENOL, METHYLCARBAMATE
U280	BARBAN (OR) CARBAMIC ACID, (3-CHLOROPHENYL)-, 4-CHLORO-2-BUTYNYL ESTER
U328	BENZENAMINE, 2-METHYL- (OR) O-TOLUIDINE
U353	BENZENAMINE, 4-METHYL- (OR) P-TOLUIDINE
U359	ETHANOL, 2-ETHOXY- (OR) ETHYLENE GLYCOL MONOETHYL ETHER
U364	BENDIOCARB PHENOL (OR) 1,3-BENZODIOXOL-4-OL, 2,2-DIMETHYL-
U367	7-BENZOFURANOL, 2,3-DIHYDRO-2,2-DIMETHYL- (OR) CARBOFURAN PHENOL
U372	CARBAMIC ACID, 1H-BENZIMIDAZOL-2-YL, METHYL ESTER (OR) CARBENDAZIM
U373	CARBAMIC ACID, PHENYL-, 1-METHYLETHYL ESTER (OR) PROPHAM
U378	CARBAMODITHIOIC ACID, (HYDROXYMETHYL) METHYL-, MONOPOTASSIUM SALT (OR) POTASSIUM N-HYDROXYMETHYL- N-METHYLDI-THIOCARBAMATE
U387	CARBAMOTHIOIC ACID, DIPROPYL-, S-(PHENYLMETHYL) ESTER (OR) PROSULFOCARB
U389	CARBAMOTHIOIC ACID, BIS(1-METHYLETHYL)-, S-(2,3,3-TRICHLORO-2-PROPENYL) ESTER (OR) TRIALLATE
U394	A2213 (OR) ETHANIMIDOTHIOIC ACID, 2-(DIMETHYLAMINO)-N-HYDROXY-2-OXO-, METHYL ESTER
U395	DIETHYLENE GLYCOL, DICARBAMATE (OR) ETHANOL, 2,2'-OXYBIS-, DICARBAMATE
U404	ETHANAMINE, N,N-DIETHYL- (OR) TRIETHYLAMINE
U409	CARBAMIC ACID, [1,2-PHENYLENEBIS (IMINOCARBONOTHIOYL)]BIS-, DIMETHYL ESTER (OR) THIOPHANATE-METHYL
U410	ETHANIMIDOTHIOIC ACID, N,N'-[THIOBIS[(METHYLIMINO)CARBONYLOXY]]BIS-, DIMETHYL ESTER (OR) THIODICARB
U411	PHENOL, 2-(1-METHYLETHOXY)-, METHYLCARBAMATE (OR) PROPOXUR
U480*	2,4,6, TRIBROMPHENOL (I.E.; DISCARDED COMMERCIAL CHEMICAL PRODUCTS, OFF-SPECIFICATION SPECIES, CONTAINER RESIDUES, AND SPILL RESIDUES THEREOF)

*Waste Code U480 may only be reported in a Biennial Report submission.

OTHER CODES

Code	Description
LABP	LAB PACK
PHRM	HAZARDOUS WASTE PHARMACEUTICALS

LARAWAY RDF	21233 W LARAWAY RD - JOLIET - 60436	ILD074411745

View Source Record

General Information

Revision History Details

Received Date
08/18/1980

Non-notifier

Extract to Public?
Yes

Accessibility

Acknowledgement Flag

1. Reason for Submittal

Obtaining or updating an EPA ID number for an on-going regulated activity that will continue for a period of time. (Includes HSM activity) [Source N]

2. Site ID

EPA ID
ILD074411745

Activity Location
IL

3. Site Name

Name
CWM LARAWAY RDF

4. Site Location

Location Address

Street Number	Street 1	Street 2
	RTE 1 LARAWAY RD	

Zip	City, Town or Village	State
60421	ELWOOD	ILLINOIS

Country
UNITED STATES

County	State District
WILL	Des Plaines Region

Geographic Information

Coordinate Type
Decimal Degrees

Latitude	Longitude	Use Lat/Long as Primary Address
		No

5. Site Mailing Address

Street Number	Street 1	Street 2
	PO BOX 109	

Zip	City, Town or Village	State
60421	ELWOOD	ILLINOIS

Country
UNITED STATES

6. Site Land Type

Land Type
Private

7. North American Industry Classification System (NAICS)

Primary NAICS

Other NAICS

8. Site Contact Person

First Name	Middle Initial	Last Name
EDWARD		AROMI

Title

Email

Phone Number	Extension	Fax
815-727-6148		

Preferred Language
ENGLISH

8a. Site Contact Address

Street Number	Street 1	Street 2
	PO BOX 109	

Zip	City, Town or Village	State
60421	ELWOOD	ILLINOIS

Country
UNITED STATES

8b. Additional Contacts

Type	Name	Address	Action
There are no additional contacts to display.			

9a. Legal Owner

Type	Name	Address	Date	Action
Private	CHEMICAL WASTE MANAGEMENT INC-JOLIET	RTE 1 BOX 109, ELWOOD, IL 60421		(JavaScript:)

9b. Legal Operator

Type	Name	Address	Date	Action
There are no operators to display.				

10. Type of Federal Regulated Waste Activity

A. Hazardous Waste Activities

1. Generator of Hazardous Waste (Federal)

1 - Large Quantity Generator

Generator of Hazardous Waste (State)

2. Short Term Generator

None Selected

3. Treater, Storer, or Disposer of Haz Waste

Yes

4. Receives Hazardous Waste from Off-site

Yes

5. Recycler of Hazardous Waste

None Selected

6. Exempt Boiler and / or Industrial Furnace

None Selected

B. Waste Codes for Federally Regulated Hazardous Wastes

A. Hazardous Waste Codes (Federal)

D-Codes:
D000 D001 D002 D003 D006 D007 D008 D010 D016

F-Codes:
F001 F002 F003 F004 F005 F006 F007 F008 F009 F010 F011 F012 F017 F018 F019

K-Codes:
K016 K017 K023 K024 K044 K048 K049 K050 K052 K053 K056 K057 K058 K059 K078 K079 K081 K082 K086 K087 K094

P-Codes:
P006

U-Codes:
U001 U002 U008 U009 U013 U031 U044 U056 U057 U070 U080 U103 U107 U108 U112 U113 U122 U123 U140 U147 U154 U159 U160 U161 U162 U186 U190 U210 U211 U213 U220 U223 U226 U238 U239 U242

C. Waste Codes for State Regulated (non-Federal) Hazardous Wastes

B. Hazardous Waste Codes (State)

None Selected

11. Additional Regulated Waste Activities

A. Other Waste Activities

1. Transporter of Hazardous Waste

None Selected

2. Underground Injection Control

None Selected

3. United States Importer of Hazardous Waste

None Selected

4. Recognized Trader

None Selected

5. Importer/Exporter of SLABs

None Selected

B. Universal Waste Activities

1. Large Quantity Handler of Univ Waste

None Selected

C. Used Oil Activities

1. Used Oil Transporter

None Selected

2. Used Oil Processor and / or Re-refiner

None Selected

3. Off-Specification Used Oil Burner

None Selected

4. Used Oil Fuel Marketer

None Selected

2. Destination Facility for Universal Waste

None Selected

D. Pharmaceutical Activities

You cannot provide Subpart P information prior to 08/21/2019.

E. State Activities

Your State does not have any State defined activities.

12. Eligible Academic Entities with Laboratories

Subpart K is not applicable prior to April 1, 2010.

13. Episodic Generation

You cannot provide Episodic Generation information prior to June 01, 2017.

14. LQG Consolidation of VSQG Waste

You cannot provide LQG Consolidation of VSQG Waste information prior to June 01, 2017.

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

You cannot provide Notification of LQG Site Closure information prior to June 01, 2017.

17. Electronic Manifest Broker

You cannot indicate that you are a manifest broker prior to June 01, 2017.

18. Comments

Internal Comments

Public Comments

19. Certification

First Name	M.I.	Last Name	Title	Date Signed	Action

Back To Source Summary

File Copy

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

R 001023

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

9589 0710 5270 0477 0573 75

JUN 12 2024

Waste Management of Illinois, Inc.
ATTN: Ian Johnson
21233 West Laraway Road
Joliet, Illinois 60436-9525

Waste Management of Illinois, Inc.
ATTN: Doug Hopkins, District Manager
21233 West Laraway Road
Joliet, Illinois 60436-9525

Re: 1970450002 – Will County
Laraway Recycling and Disposal Facility
USEPA ILD074411745
Log No. B-141R-M-181
RCRA Permit File (24A)
Notice of Deficiency

Dear Mr. Johnson and Mr. Hopkins:

The Illinois EPA has completed its first technical review of your application for a revision to the cost estimate at the above referenced facility located at 21233 West Laraway Road. The application, dated May 8, 2024, and May 31, 2024, was received by the Illinois EPA on May 10, 2024, and June 5, 2024, respectively. This permit application was assigned a Log No. of B-141R-M-181 by the Illinois EPA.

Pursuant to 35 Illinois Administrative Code (IAC) 702.122 the first technical review has determined that the application has technical deficiencies as outlined in the attachment to this letter.

Deficiencies in the permit application are identified in the attached Notice of Deficiency (NOD). Each of the deficiencies must be addressed before the Illinois EPA can continue the technical review of your application. Revisions to the application to address these deficiencies must be submitted to the Illinois EPA and be postmarked no later than August 31, 2024.

Revisions to your application should include one original and three copies and be in a format which allows incorporation of the new information into the appropriate sections of your application. To allow for a proper review of this new information, the response to this NOD should include a table that lists each comment in the NOD, the response, and the location in the application that was revised in response to the comment. Each revised page or drawing must have the revision date identified on them for tracking purposes.

Responses should be mailed to the following address: R 001024

Illinois Environmental Protection Agency
Bureau of Land #33
Permit Section
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

All applications shall be signed in accordance with the requirements of 35 IAC 702.126 and be accompanied by a completed Illinois EPA Form LPC-PA23: RCRA Permit Application Instructions and Form which can be obtained from the Illinois EPA website.

Work required by this letter, 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.

If you have any questions concerning this matter, please contact John Roop, P.E., by email at john.roop@illinois.gov or by phone at 217/524-3071.

Sincerely,

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:jjr/0971250007-RCRA-C656M27-NOD-1.docx

Attachment: Notice of Deficiency

ATTACHMENT
NOTICE OF DEFICIENCY
1970450002 – Will County
Laraway Recycling and Disposal Facility
USEPA ILD074411745
Log No. B-141R-M-181

Below is a list of deficiencies identified by the Illinois EPA following a technical review of the above referenced RCRA Hazardous Waste Management Permit Application. Each of the deficiencies must be addressed before the Illinois EPA can continue the technical review of the application as required by 35 IAC 702.122.

1. For Table I-2, Post-Closure Cost Estimate, the Illinois EPA has calculated a different Total Post-Closure Cost than Waste Management of Illinois. This discrepancy appears to occur when the total cost is adjusted for inflation.

   - Please verify that the appropriate inflation factor of 1.036 has been applied.

2. For Table I-2, Post-Closure Cost Estimate, in the notes section, it states "...costs are provided through end of 2025". Therefore, the cost estimate is including two years of costs incurred.

   - Revise the number of events from one (1) occurrence to two (2) occurrences, to reflect the cost estimate covering two (2) years of costs incurred.

3. Table 13-1, Current Operating Areas Closure Cost Estimate, provided a total service costs of $9,524,326. When the Illinois EPA sums all service costs, it finds the total to be $9,254,328. There is a $2 discrepancy between the totals.

   - Review the total sum of all services and verify that there is no rounding error causing a $2 discrepancy.

4. For Table 13-1, Current Operating Areas Closure Cost Estimate, the following services have not been adjusted by an inflation factor of 1.036:

   a. Grading Layer Soil Placement (1.032)
   b. Construct Surface Water Diversion Ditches (1.032)
   c. Inspectors (1.026)
   d. Senior Engineer (1.033)

   - Adjust the unit price of each service by an inflation factor of 1.036 or provide a copy of a negotiated contract demonstrating the quote is valid for 2024.

5. For Table 13-2, Current Operational Areas Post-Closure Care Cost Estimate, using a Unit Price of $0.14 per gallon, the Illinois EPA calculates the cost of Leachate Transportation and Disposal to be $40,216. Waste Management of Illinois has calculated this cost to be $39,878, a difference of $338.

   - Please verify that the appropriate inflation factor of 1.036 has been applied.

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

R 001026

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

JUL 03 2024

9589 0710 5270 0389 7077 02

Waste Management of Illinois, Inc.
ATTN: Ian Johnson
21233 West Laraway Road
Joliet, Illinois 60436-9525

Waste Management of Illinois, Inc.
ATTN: Doug Hopkins, District Manager
21233 West Laraway Road
Joliet, Illinois 60436-9525

Re: 1970450002 – Will County
Laraway Recycling and Disposal Facility
USEPA ILD074411745
Log No. B-141R-M-181
RCRA Permit File – 24A
Notice of Deficiency

Dear Mr. Johnson and Mr. Hopkins:

The Illinois EPA has completed its second technical review of your application for a revision to the cost estimate at the above referenced facility located at 21233 West Laraway Road. The application, dated May 8, 2024, May 31, 2024, June 17, 2024, and June 24, 2024, was received by the Illinois EPA on May 10, 2024, June 5, 2024, June 20, 2024, and June 26, 2024, respectively. This permit application was assigned a Log No. of B-141R-M-181 by the Illinois EPA.

Pursuant to 35 Illinois Administrative Code (IAC) 702.122 the second technical review has determined that the application has technical deficiencies as outlined in the attachment to this letter.

Deficiencies in the permit application are identified in the attached Notice of Deficiency (NOD). Each of the deficiencies must be addressed before the Illinois EPA can continue the technical review of your application. Revisions to the application to address these deficiencies must be submitted to the Illinois EPA and be postmarked no later than August 31, 2024.

Revisions to your application should include one original and three copies and be in a format which allows incorporation of the new information into the appropriate sections of your application. To allow for a proper review of this new information, the response to this NOD should include a table that lists each comment in the NOD, the response, and the location in the application that was revised in response to the comment. Each revised page or drawing must have the revision date identified on them for tracking purposes.

Responses 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

All applications shall be signed in accordance with the requirements of 35 IAC 702.126 and be accompanied by a completed Illinois EPA Form LPC-PA23: RCRA Permit Application Form which can be obtained from the Illinois EPA website.

Work required by this letter, 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.

If you have any questions concerning this matter, please contact John Roop, P.E., by email at john.roop@illinois.gov or by phone at 217/524-3071.

Sincerely,

(for JMC)

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:jjr/1970450002-RCRA-B141RM181-NOD-2.docx
JJR bve TNH SDD
Attachment: Notice of Deficiency

ATTACHMENT
NOTICE OF DEFICIENCY
1970450002 – Will County
Laraway Recycling and Disposal Facility
USEPA ILD074411745
Log No. B-141R-M-181

Below is a list of deficiencies identified by the Illinois EPA following a technical review of the above referenced RCRA Hazardous Waste Management Permit Application. Each of the deficiencies must be addressed before the Illinois EPA can continue the technical review of the application as required by 35 IAC 702.122.

1. The Illinois EPA received the Additional Information from Laraway RDF dated June 24, 2024, on June 26, 2024. This submittal provided a revision of Table I-2 and a copy of the Master Service Agreement (MSA) from Environmental Monitoring and Technologies, Inc. There appears to be a discrepancy between Table I-2 and the MSA. In Table I-2, Groundwater Sampling and Analysis section, Analytical Costs Observation wells, it is stated that there are ten (10) wells on the semi-annual list, which cost $660 per well, and will be sampled for two (2) years, totaling $13,200. The MSA states that the RCRA Task 1.1 – Second Quarter Groundwater (sampling and analysis) costs $7,295, RCRA Task 1.2 – Fourth Quarter Groundwater (sampling and analysis) costs $7,295, and RCRA Task 2.1 and Task 2.2 – Second Quarter and Fourth Quarter RCRA Levels cost $25 per quarter, so $50 total. Summing all three values, $7,295, $7,295, and $50, the grand total is found to be $14,640. There is a discrepancy of $1,440 between the Table I-2 total and MSA total.

   The laboratory quote should clearly state that the quote is inclusive of two (2) years of sampling and analytical costs. The sampling and analysis cost quote, provided from the laboratory, should match the values provided in the cost estimate. Currently, one (1) quote has a discrepancy and three (3) quotes are not provided for. Please provide supporting documentation to justify the values provided in the Table I-2 cost estimate.

Item	Table I-2	MSA	Difference
Analytical Costs Observation Wells	$660 * 10 wells * 2 years = $13,200	$7,295 + $7,295 + $50 = $14,640	$14,640 - $13,200 = $1,440
Analytical Costs GMZ Wells	$670 * 27 wells * 2 years = $36,180	-	-
Sampling Costs (elevation only wells)	$440 * 40 wells * 2 years = $35,200	-	-
Sampling & Analysis – every year	$1,350 * 4 samples * 2 years = $10,800	-	-

MEMORANDUM

Date 5/12/2021

To: BOL File Room

From: Pamela Ketchum

Re: LPC# 1970450002 - Will County
LARAWAY RECYCLING & DISP FAC
RCRA / Permits 24A

The Annual 2020 RCRA Leachate Level Report for the above referenced facility was dated 5/6/2021 and was received by the Agency on 5/12/2021. A copy is attached.

cc: DesPlaines Regional Office - Donna Czech
Mark Crites

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 17 2021

REVIEWER: MED

Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: LARAWAY RDF Site ID #: 1970450002
Facility Address: 21233 W. LARAWAY RD., JOLIET, IL Fed ID #: ILD 074411745

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater

___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

Leachate

___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

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MAY 12 2021
IEPA-BOL
PERMIT SECTION

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

X Other (identify) ANNUAL 2020 RCRA LEACHATE LEVEL REPORT

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

MAY 17 2021

REVIEWER: MED

WASTE MANAGEMENT
29755 S Prairie View Drive
Wilmington, IL 60481
815 423 5120
815 423 5920 Fax

May 6, 2021

Mr. Kenneth Smith, P.E.
IEPA – Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62702

RECEIVED
MAY 12 2021
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
ILD#07441745, ID#1970450002 - Will County, Illinois
RCRA Log No. B-141R
2020 Annual Leachate Report

Dear Mr. Smith:

This letter and its attachments are being submitted as the 2020 RCRA unit leachate report for the Laraway RDF, in accordance with Section I.C.10.c. and Section IX of the Site's RCRA Part B Permit.

Leachate level and removal discussion:
Monthly leachate levels were taken at the thirteen leachate monitoring wells. Please refer to Attachment 1 for a summary of the levels at the leachate wells. In addition, refer to Attachment 1 for volumes removed from the site's measurable withdrawal points. Please note that although the CT and LCR points are listed as withdrawal points on the attached table, they are not leachate level compliance points per the permit. The CT points are actually underground leachate collection tanks. The CT points then pump into the above ground tank farm system. The LCR points are part of the leachate forcemain system and pump into the above ground leachate storage tank farm. From the tank farm, the leachate is then pumped into the tanker trucks for hauling to the treatment plant. Leachate levels in the PLER (perimeter leachate extraction risers) are also noted on the tables in Attachment 1. Withdrawal volumes are not tracked individually for each PLER point as they pump directly to the CT points where the volumes are then tracked.

Leachate Wells:
From review of the thirteen observation wells (LW-1R thru LW-13R), the average leachate levels from 2020 versus 2019 has decreased at 8 points and increased at 5 points. The 2020 decrease in leachate level over the 8 points as compared to 2019 averaged about 2.3 feet. The 2020 average increase in leachate level over the 5 points as compared to 2019 was about 3.7 feet. Pumping continues to be challenging at certain points in Area I as the associated leachate withdrawal points may be in isolated/perched zones. The withdrawal volume from the extraction points as listed in Attachment 1 was 953,905 gallons for 2020. The removal volume for 2019 was 995,018 gallons. The leachate collection system is functioning as designed, however, the site needs to continue to be aggressive in pumping the leachate from the co-disposal unit.

Sincerely,

Laraway Recycling and Disposal Facility

Ian C. Johnson, P.E.
Environmental Engineer

cc: Doug Tomczak

ATTACHMENT 1

LEACHATE LEVELS AND REMOVAL QUANTITIES

Laraway RDF - 2020 RCRA Piezometer leachate levels

Depth to Liquid (ft)

Well ID	Dec 2011 Total Depths	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
LW-1R	62.09	59.4	59.62	60.22	59.99	60.21	60.49	59.84	60.07	60.1	60.72	43.89	42.07	57.2
LW-2R	58.71	39.44	39.52	44.6	44.68	43.55	43.81	44.04	44.16	44.16	44.49	41	46.66	43.3
LW-3R	71.29	63.2	62.88	63.93	63.81	63.75	63.7	63.55	63.38	63.32	63.41	64.35	63.39	63.6
LW-4R	50.1	43.96	44.06	44.31	43.5	44.1	45.03	44.77	45.12	44.99	45.07	46.11	44.71	44.6
LW-5R	56.01	41.9	41.77	41.48	39.77	39.88	40.2	40.31	40.36	40.45	41	41.75	42.06	40.9
LW-6R	37.27	35.18	35.22	29.33	29.71	30.06	29.96	30.12	30.45	30.12	30.36	38.27	31.15	31.7
LW-7R	73.25	54.29	53.6	54.45	55.13	55.2	55.34	54.93	55.13	55.26	55.8	40.31	41.02	52.5
LW-8R	58.77	38.81	39.15	38.96	39.08	39.46	39.62	40.08	39.91	40	39.83	38.42	40.14	39.5
LW-9	61.75	53.05	52.93	52.43	52.15	52.32	52.57	52.5	52.64	52.71	53.17	56.6	53.7	53.1
LW-10R	79.05	36.68	36.79	36.23	35.85	36.23	36.4	36.57	36.7	36.38	36.69	57.1	57.43	39.9
LW-11R	58.72	40.37	39.51	41.61	41.33	41.98	42.27	42.62	43	42.84	43.35	43.75	41.18	42.0
LW-12R	67.85	38.76	38.66	30.05	29.69	29.87	30.03	29.83	28.29	28.37	28.77	22.79	35.43	30.9
LW-13R	63.52	63.32	63.32	53.33	54.16	53.85	54.75	55.11	55.47	55.63	56.11	63.35	63.69	57.7

Depth of Liquid in Point (ft)

IEPA ID	Well ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
L321	LW-1R	2.69	2.47	1.87	2.1	1.88	1.6	2.25	2.02	1.99	1.37	18.2	20.02	4.9
L322	LW-2R	19.27	19.19	14.11	14.03	15.16	14.9	14.67	14.55	14.55	14.22	17.71	12.05	15.4
L323	LW-3R	8.09	8.41	7.36	7.48	7.54	7.59	7.74	7.91	7.97	7.88	6.94	7.9	7.7
L324	LW-4R	6.14	6.04	5.79	6.6	6	5.07	5.33	4.98	5.11	5.03	3.99	5.39	5.5
L325	LW-5R	14.11	14.24	14.53	16.24	16.13	15.81	15.7	15.65	15.56	15.01	14.26	13.95	15.1
L326	LW-6R	2.09	2.05	7.94	7.56	7.21	7.31	7.15	6.82	7.15	6.91	-1	6.12	5.6
L327	LW-7R	18.96	19.65	18.8	18.12	18.05	17.91	18.32	18.12	17.99	17.45	32.94	32.23	20.7
L328	LW-8R	19.96	19.62	19.81	19.69	19.31	19.15	18.69	18.86	18.77	18.94	20.35	18.63	19.3
L329	LW-9	8.7	8.82	9.32	9.6	9.43	9.18	9.25	9.11	9.04	8.58	5.15	8.05	8.7
L330	LW-10R	42.37	42.26	42.82	43.2	42.82	42.65	42.48	42.35	42.67	42.36	21.95	21.62	39.1
L331	LW-11R	18.35	19.21	17.11	17.39	16.74	16.45	16.1	15.72	15.88	15.37	14.97	17.54	16.7
L332	LW-12R	29.09	29.19	37.8	38.16	37.98	37.82	38.02	39.56	39.48	39.08	45.06	32.42	37.0
L333	LW-13R	0.2	0.2	10.19	9.36	9.67	8.77	8.41	8.05	7.89	7.41	0.17	-0.17	5.8

Laraway RDF - 2020 Monthly Drum Trench Levels

Drum Trench	DTM total depth (ft)	Depth to Liquid (ft) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
DTM-1	24.55	12	12.55	13.03	12.86	12.54	13.08	13.19	13.29	13.4	14.1	13.47	13.5	13.08
DTM-2	24.35	16.44	16.5	16.32	17.05	17.19	16.87	17	16.84	17	17.33	9.57	16	16.18
DTM-3	20.52	11.32	12.1	15.93	16.00	15.63	16.48	16.12	16.36	16.51	16.79	16.41	16.79	15.54
DTM-4	19.32	3.6	3.22	2.71	2.53	2.24	2.35	2.03	2.72	2.38	3.11	19	14.53	5.04
DTM-5	20.8	5.67	5.43	3.64	3.72	3.56	3.19	3.08	3.19	2.95	4.04	6.8	6.99	4.36
DTM-6	25.6	11.63	12.06	11.09	10.88	11.28	11.15	10.97	11.02	10.82	11.08	10.76	11.35	11.17
DTM-7	47.1	32.02	32.27	34.13	34.37	35.16	35.22	35.83	36.11	36.79	37.22	34.82	35.11	34.92
DTM-8	35.98	29.82	30.14	29.62	29.91	28.75	30.04	30.26	30.4	31.04	31.56	30.73	30.12	30.20
DTM-9	28.55	25.64	25.69	25.5	25.08	25.57	25.72	26.1	25.83	26.19	27	19.7	25.56	25.30
DTM-10	21.17	13.4	13.76	10	9.22	8.62	10.38	10.35	10.27	12.45	13.15	16.18	16.1	11.99

IEPA designation	site designation	leachate level in point Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
L334	DTM-1	12.55	12	11.52	11.69	12.01	11.47	11.36	11.26	11.15	10.45	11.08	11.05	11.5
L335	DTM-2	7.91	7.85	8.03	7.3	7.16	7.48	7.35	7.51	7.35	7.02	14.78	8.35	8.2
L336	DTM-3	9.2	8.42	4.59	4.52	4.89	4.04	4.4	4.16	4.01	3.73	4.11	3.73	5.0
L337	DTM-4	15.72	16.1	16.61	16.79	17.08	16.97	17.29	16.6	16.94	16.21	0.32	4.79	14.3
L338	DTM-5	15.13	15.37	17.16	17.08	17.24	17.61	17.72	17.61	17.85	16.76	14	13.81	16.4
L339	DTM-6	13.97	13.54	14.51	14.72	14.32	14.45	14.63	14.58	14.78	14.52	14.84	14.25	14.4
L340	DTM-7	15.08	14.83	12.97	12.73	11.94	11.88	11.27	10.99	10.31	9.88	12.28	11.99	12.2
L341	DTM-8	6.16	5.84	6.36	6.07	7.23	5.94	5.72	5.58	4.94	4.42	5.25	5.86	5.8
L342	DTM-9	2.91	2.86	3.05	3.47	2.98	2.83	2.45	2.72	2.36	1.55	8.85	2.99	3.3
L343	DTM-10	7.77	7.41	11.17	11.95	12.55	10.79	10.82	10.9	8.72	8.02	4.99	5.07	9.2

Laraway RDF - 2020 Monthly PLER Levels

	PLER total depth (ft)	Depth to liquid (ft)												avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
PLER1	33.33	11.4	12.2	14.1	10.7	9.5	14	13.8	16	17.1	20.9	23.4	24.7	15.7
PLER2	38.75	20.1	19.6	20.1	19.4	18.3	22.5	22.8	21.2	26	29.5	31.6	31.6	23.6
PLER3	42.75	22.9	21.1	20.5	17.8	15	23.7	25.9	27.5	28.7	31.7	31.6	28.9	24.6
PLER4	24.58	4.1	4.8	4.5	4.1	3.1	3.4	3.3	6.2	7.6	10.9	14.6	16	6.9
PLER6A	39.5	23.5	23.8	24.3	23.1	22.6	23.1	23.2	24.3	24.7	25.9	25.5	26.4	24.2

IEPA designation	site designation	leachate level in point												avg
L344	PLER1	21.93	21.13	19.23	22.63	23.83	19.33	19.53	17.33	16.23	12.43	9.93	8.63	17.7
L345	PLER2	18.65	19.15	18.65	19.35	20.45	16.25	15.95	17.55	12.75	9.25	7.15	7.15	15.2
L346	PLER3	19.85	21.65	22.25	24.95	27.75	19.05	16.85	15.25	14.05	11.05	11.15	13.85	18.1
L347	PLER4	20.48	19.78	20.08	20.48	21.48	21.18	21.28	18.38	16.98	13.68	9.98	8.58	17.7
L348	PLER6A	16	15.7	15.2	16.4	16.9	16.4	16.3	15.2	14.8	13.6	14	13.1	15.3

Laraway 2020 RCRA Unit Leacahte Removal Gallons

RCRA LEACHATE POINT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD TOTALS
CTs	53227	46712	65860	61,075	48638	63803	50113	53231	56197	57220	61660	70103	687,839
LCR-1	1	0	0	0	0	0	2,827	7,280	3,526	7,902	7,839	7,336	36,711
LCR-2	526	1,045	136	0	0	0	1	171	57	25	0	0	1,961
LCR-3	0	7	0	0	53	2,705	12,602	10,142	5,063	3,925	80	555	35,132
DTM-1	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-2	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-3 (CID)	14,038	0	0	0	8,020	13,349	2,170	1,000	1,800	1,000	1,700	4,400	47,477
DTM-4 (CID)	940	13,727	5,196	5,593	5,002	713	8,034	5,591	4,427	2,935	2,337	3,990	58,485
DTM-5	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM 6 (CID)	2,000	0	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	12,000
DTM-10 (CID)	751	3,751	1,232	12,615	11,378	26,375	6,856	2,161	1,070	4,242	1,729	2,140	74,300
SUBTOTALS	71,483	65,242	73,424	80,283	74,091	107,945	83,603	80,576	73,140	78,249	76,345	89,524	953,905

MEMORANDUM

Date 4/22/2022

To: BOL File Room

From: Pamela Ketchum

Re: LPC# 1970450002 - Will County
LARAWAY RECYCLING & DISP FAC
RCRA / Permits 24A

The 2021 Annual Leachate Report for the above referenced facility was dated 4/21/2022 and was received by the Agency on 4/22/2022. A copy is attached.

cc: DesPlaines Regional Office - Donna Czech
Ed Wagner

IEPA - DIVISION OF RECORDS MANAGEMENT
RELEASABLE

JUL

RE

WASTE MANAGEMENT
29755 S Prairie View Drive
Wilmington, IL 60481
(815) 423-5120
(815) 423-5920 Fax

April 21, 2022

IEPA - DIVISION OF RECORDS MANAGEMENT
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JUL 10 2022

REVIEWER: MED

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APR 22 2022
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PERMIT SECTION

Mr. Kenneth Smith, P.E.
IEPA – Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62702

RE: **Laraway Recycling and Disposal Facility**
ILD#07441745, ID#1970450002 - Will County, Illinois
RCRA Log No. B-141R
2021 Annual Leachate Report

Dear Mr. Smith:

This letter and its attachments are being submitted as the 2021 RCRA unit leachate report for the Laraway RDF, in accordance with Section I.C.10.c. and Section IX of the Site's RCRA Part B Permit.

Leachate level and removal discussion:
Monthly leachate levels were taken at the thirteen leachate monitoring wells. Please refer to Attachment 1 for a summary of the levels at the leachate wells. In addition, refer to Attachment 1 for volumes removed from the site's measurable withdrawal points. Please note that although the CT and LCR points are listed as withdrawal points on the attached table, they are not leachate level compliance points per the permit. The CT points are actually underground leachate collection tanks. The CT points then pump into the above ground tank farm system. The LCR points are part of the leachate forcemain system and pump into the above ground leachate storage tank farm. From the tank farm, the leachate is then pumped into the tanker trucks for hauling to the treatment plant. Leachate levels in the PLER (perimeter leachate extraction risers) are also noted on the tables in Attachment 1. Withdrawal volumes are not tracked individually for each PLER point as they pump directly to the CT points where the volumes are then tracked.

Leachate Wells:
From review of the thirteen observation wells (LW-1R thru LW-13R), the average leachate levels from 2021 versus 2020 has decreased at 9 points and increased at 4 points. The 2021 decrease in leachate level over the 9 points as compared to 2020 averaged about 2.5 feet. The 2021 average increase in leachate level over the other 4 points as compared to 2020 was about 6.1 feet, which is primarily attributed to a greater increase at point LW-1R. Pumping continues to be challenging at certain points in Area I as the associated leachate withdrawal points may be in isolated/perched zones. The withdrawal volume from the extraction points as listed in Attachment 1 was 845,969 gallons for 2021. The removal volume for 2020 was 761,643gallons.

The leachate collection system is functioning as designed. The site needs to continue to be aggressive in pumping the leachate from the co-disposal unit.

Drum Trenches:

Area II trenches:

Levels within the Area II drum trenches (DTMs 1-6, and 10) was on average 1.3 feet lower than the levels in 2020. There were decreases or near zero changes in liquid levels at all 7 points as compared to 2020.

Area I trenches:

Average levels for 2021 within Area I drum trenches (DTM 7 thru DTM 9) were similar to the 2020 average levels. This is due to the highly viscous nature of these DTM leachates which makes it nearly impossible to pump. The site was unable to get liquid out of these three points in 2021 due to its high viscosity.

Drum Trench removal volumes for 2021 was 121,107 gallons and was 192,262 gallons in 2020. For all drum trench areas, the average leachate levels decreased at 5 locations and showed little change over the other 5 locations during 2021. The leachate collection system is functioning as designed, however, the site needs to continue to be aggressive in pumping the leachate from the drum trench units.

The leachate contained in drum trenches DTM 7, DTM 8, and DTM 9 is very viscous and almost impossible to pump. As stated in the RCRA renewal application, if points did not contain any pumpable leachate, no further action was required.

The parameter concentrations for certain drum trench leachate points continues to remain high, which has excluded all but remote treatment/disposal options. Currently, these liquids with higher concentrations would have to be transported to a WM facility in Ohio. A few of the drum trench points have lower parameter concentrations and are taken to CID for disposal/treatment.

Perimeter Leachate Extraction Risers (PLERs):

The average leachate levels in all the 5 PLERs has decreased since the 2020 report. The co-disposal area leachate has continued to go to the CID Biological Liquid Treatment Center, which is not expected to change in 2022. Leachate drawdown continues to be challenging, however, the retrofit leachate extraction system is working as designed.

Leachate analytical data:

In accordance with Section I.C.10.c., the 35 IAC 724, Appendix I sampling data from four representative leachate points from the co-disposal hill and the drum trenches. The samples were analyzed individually with no composting. The electronic files for the leachate lab data and levels, form LPC-592, and this letter were submitted electronically to the IEPA at: epa.BOL.gw-data@illinois.gov, in accordance with Section I.C.10.e.

The original and two copies of this report are being submitted. If you have any questions regarding this submittal, please contact me at 815-280-6301.

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 ensure 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 [35 IAC 702.126(d)]

Sincerely,

Laraway Recycling and Disposal Facility

Ian C. Johnson, P.E.
Environmental Engineer

cc: Doug Tomczak

ATTACHMENT 1

LEACHATE LEVELS AND REMOVAL QUANTITIES

Laraway RDF - 2021 Monthly PLER Levels

	PLER total depth (ft)	Depth to liquid (ft)												avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
PLER1	33.33	18.7	16	14.3	16.8	17.9	17.4	18.5	20.3	24.3	23.4	21	15	18.6
PLER2	38.75	27.6	24.3	24.3	25.7	26.1	26.3	26.6	28.5	31.9	32	28.9	23.4	27.1
PLER3	42.75	31.2	28.2	20.5	29	14	14.5	31.4	32.3	31.2	27.9	31	24	26.3
PLER4	24.58	10.4	12.1	12.6	13.6	15.6	13.7	14.4	11.2	15.2	15	14.8	12.1	13.4
PLER6A	39.5	24.7	25.7	25.2	25.6	24.4	24.9	24.8	24.3	25	25	24.2	23.9	24.8

IEPA designation	site designation	leachate level in point												avg
L344	PLER1	14.63	17.33	19.03	16.53	15.43	15.93	14.83	13.03	9.03	9.93	12.33	18.33	14.7
L345	PLER2	11.15	14.45	14.45	13.05	12.65	12.45	12.15	10.25	6.85	6.75	9.85	15.35	11.6
L346	PLER3	11.55	14.55	22.25	13.75	28.75	28.25	11.35	10.45	11.55	14.85	11.75	18.75	16.5
L347	PLER4	14.18	12.48	11.98	10.98	8.98	10.88	10.18	13.38	9.38	9.58	9.78	12.48	11.2
L348	PLER6A	14.8	13.8	14.3	13.9	15.1	14.6	14.7	15.2	14.5	14.5	15.3	15.6	14.7

Laraway RDF - 2021 Monthly Drum Trench Levels

Drum Trench	DTM total depth (ft)	Depth to Liquid (ft) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
DTM-1	24.55	13.79	13.17	13.36	14.44	14.95	16.7	15.17	14.9	14.95	14.71	14.85	15	14.67
DTM-2	24.35	15.81	15.33	16.36	16.27	16.32	16.18	16.3	16.16	16.22	15.62	16.38	16.06	16.08
DTM-3	20.52	17.14	16.85	16.71	16.10	16.07	16.5	16.2	15.9	16.03	16.15	16.31	15.65	16.30
DTM-4	19.32	12.67	10.71	13.96	9.79	14.55	8.7	4.28	5.16	5.62	1.79	4.36	5.28	8.07
DTM-5	20.8	6.05	4.96	5.32	6.25	7.07	7.38	4.63	5.76	6.2	1.12	5.55	6.47	5.56
DTM-6	25.6	11.54	11.7	11.63	11.91	11.9	11.77	11.24	11.42	11.09	9.8	11.72	11.61	11.44
DTM-7	47.1	34.93	32.28	35.31	32.85	35.77	35.47	34.71	34.9	35.54	32.3	35.67	35.1	34.57
DTM-8	35.98	32.42	31.59	30.52	28.09	30.25	30.4	30.7	30.3	30.17	29.93	30.65	30.45	30.46
DTM-9	28.55	23.7	22.34	25.5	25.46	25.46	26.58	25.68	25.35	25.87	25.4	25.16	25.49	25.17
DTM-10	21.17	16.69	15.12	13.55	15.41	15.38	14.45	15.68	14.65	15.85	11.25	13.27	14.9	14.68

IEPA designation	site designation	leachate level in point Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
L334	DTM-1	10.76	11.38	11.19	10.11	9.6	7.85	9.38	9.65	9.6	9.84	9.7	9.55	9.9
L335	DTM-2	8.54	9.02	7.99	8.08	8.03	8.17	8.05	8.19	8.13	8.73	7.97	8.29	8.3
L336	DTM-3	3.38	3.67	3.81	4.42	4.45	4.02	4.32	4.62	4.49	4.37	4.21	4.87	4.2
L337	DTM-4	6.65	8.61	5.36	9.53	4.77	10.62	15.04	14.16	13.7	17.53	14.96	14.04	11.2
L338	DTM-5	14.75	15.84	15.48	14.55	13.73	13.42	16.17	15.04	14.6	19.68	15.25	14.33	15.2
L339	DTM-6	14.06	13.9	13.97	13.69	13.7	13.83	14.36	14.18	14.51	15.8	13.88	13.99	14.2
L340	DTM-7	12.17	14.82	11.79	14.25	11.33	11.63	12.39	12.2	11.56	14.8	11.43	12	12.5
L341	DTM-8	3.56	4.39	5.46	7.89	5.73	5.58	5.28	5.68	5.81	6.05	5.33	5.53	5.5
L342	DTM-9	4.85	6.21	3.05	3.09	3.09	1.97	2.87	3.2	2.68	3.15	3.39	3.06	3.4
L343	DTM-10	4.48	6.05	7.62	5.76	5.79	6.72	5.49	6.52	5.32	9.92	7.9	6.27	6.5

Laraway RDF - 2021 RCRA Piezometer leachate levels

Depth to Liquid (ft)

Well ID	Dec 2011 Total Depths	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
LW-1R	62.09	41.36	41.59	34.51	34.33	33.65	34.82	34.02	34.04	34.43	33.92	34.62	34.85	35.5
LW-2R	58.71	45.13	43.66	47.07	43.96	46.8	47.1	47.4	47.47	47.73	43.38	48.34	47.19	46.3
LW-3R	71.29	60.22	59.52	63.92	63.47	63.58	62.79	65.2	64.05	63.47	64.72	65.02	64.8	63.4
LW-4R	50.1	45.1	44.31	44.93	45.3	45.52	44.7	45.15	45.28	45.51	45.5	46	46.1	45.3
LW-5R	56.01	42.39	41.75	41.98	42.14	42.33	42.3	41.63	42.47	42.81	42.6	44.59	42.55	42.5
LW-6R	37.27	31.7	32.08	30.19	29.82	29.29	29.33	29.33	29.21	29.55	29.9	31.09	30.08	30.1
LW-7R	73.25	40.85	40.14	55.38	55.33	55.9	54.9	56.26	56.05	55.67	55.15	57.44	56.05	53.3
LW-8R	58.77	41.08	39.9	40.84	40.76	41	41.2	41.39	41.47	41.1	40.64	43.37	44.61	41.4
LW-9	61.75	52.11	51.37	53.75	53.94	53.64	53.64	53.3	53.6	53.69	53.77	54.8	53.85	53.5
LW-10R	79.05	58.05	56.83	39.06	39.21	39.2	39.65	39.53	39.87	40	40.27	41.98	41.2	42.9
LW-11R	58.72	41.37	41.8	41.43	41.04	40.98	40.61	42.2	40.7	40.75	41.85	42.9	40.8	41.4
LW-12R	67.85	35.2	34.76	34.67	35.11	35.31	35.69	34.8	35.4	36.26	37.15	36.56	36	35.6
LW-13R	63.52	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.28	63.3

Depth of Liquid in Point (ft)

IEPA ID	Well ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
L321	LW-1R	20.73	20.5	27.58	27.76	28.44	27.27	28.07	28.05	27.66	28.17	27.47	27.24	26.6
L322	LW-2R	13.58	15.05	11.64	14.75	11.91	11.61	11.31	11.24	10.98	15.33	10.37	11.52	12.4
L323	LW-3R	11.07	11.77	7.37	7.82	7.71	8.5	6.09	7.24	7.82	6.57	6.27	6.49	7.9
L324	LW-4R	5	5.79	5.17	4.8	4.58	5.4	4.95	4.82	4.59	4.6	4.1	4	4.8
L325	LW-5R	13.62	14.26	14.03	13.87	13.68	13.71	14.38	13.54	13.2	13.41	11.42	13.46	13.5
L326	LW-6R	5.57	5.19	7.08	7.45	7.98	7.94	7.94	8.06	7.72	7.37	6.18	7.19	7.1
L327	LW-7R	32.4	33.11	17.87	17.92	17.35	18.35	16.99	17.2	17.58	18.1	15.81	17.2	20.0
L328	LW-8R	17.69	18.87	17.93	18.01	17.77	17.57	17.38	17.3	17.67	18.13	15.4	14.16	17.3
L329	LW-9	9.64	10.38	8	7.81	8.11	8.11	8.45	8.15	8.06	7.98	6.95	7.9	8.3
L330	LW-10R	21	22.22	39.99	39.84	39.85	39.4	39.52	39.18	39.05	38.78	37.07	37.85	36.1
L331	LW-11R	17.35	16.92	17.29	17.68	17.74	18.11	16.52	18.02	17.97	16.87	15.82	17.92	17.4
L332	LW-12R	32.65	33.09	33.18	32.74	32.54	32.16	33.05	32.45	31.59	30.7	31.29	31.85	32.3
L333	LW-13R	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.24	0.2

Laraway 2021 RCRA Unit Leachate Removal Gallons

RCRA LEACHATE POINT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD TOTALS
CTs	38094	8023	64452	60,696	58058	64466	70440	83549	75617	76414	82454	56430	738,693
LCR-1	8,509	3,319	15,472	11,748	5,492	2,744	1,427	5,222	1,712	1,177	1,320	1,360	59,502
LCR-2	0	0	0	214	1,003	526	498	201	265	187	534	427	3,855
LCR-3	1,301	709	1,089	3,334	11,484	13,413	5,455	1,637	1,696	1,724	584	1,493	43,919
DTM-1	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-2	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-3 (CID)	10,200	3,900	6,500	4,800	3,200	2,000	5,700	3,600	1,100	100	1,650	2,167	44,917
DTM-4 (CID)	3,238	1,754	4,674	4,644	5,425	5,106	5,626	4,294	2,499	2,408	7,132	2,166	48,966
DTM-5	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM 6 (CID)	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	0	1,000	2,000	1,000	12,000
DTM-10 (CID)	1,537	21	1,055	774	1,156	1,106	1,640	2,874	1,781	1,703	908	669	15,224
SUBTOTALS	63,879	18,726	94,242	87,210	86,818	90,361	91,786	102,377	84,670	84,713	96,582	65,712	967,076

MEMORANDUM

Date 5/31/2023

To: BOL File Room

From: Linda Marr

Re: LPC# 1970450002 - Will County
LARAWAY RECYCLING & DISP FAC
Subpart F

The Annual Leachate Report for the above referenced facility was dated 5/16/2023 and was received by the Agency on 5/31/2023. A copy is attached.

cc: DesPlaines Regional Office - Anthony Guido
Will County Land Use Department

IEPA-Division of Records Management
Releasable
JUN 20 2023
Reviewer KAP

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: Laraway RDF

Facility Address: 21233 W. Laraway Rd. Joliet, IL 60436

Site ID #: 1970450002 Fed ID #: ILD074411745

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

☐ LPC-160 Forms

Groundwater	Leachate
___ Quarterly - Enter: 1, 2, 3, or 4	___ Quarterly - Enter: 1, 2, 3, or 4
☐ Semi-Annual	☐ Semi-Annual
☐ Annual	☐ Annual
☐ Biennial	☐ Biennial

RECEIVED
MAY 31 2023
IEPA-BOL
PERMIT SECTION

☐ Groundwater Data (without LPC-160 Forms)

___ Quarterly - Enter: 1, 2, 3, or 4 ☐ Annual ☐ Semi-Annual ☐ Biennial

☐ Well Construction Information

- ☐ Well Construction Forms, Boring Logs and/or Abandonment Forms
- ☐ Well Survey Data (e.g., Stick-up Elevation Data)

☐ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

☐ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

☐ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

☐ Gas Monitoring Reports

☒ Other (identify)

ANNUAL LEACHATE REPORT

ERW

WM.

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

May 16, 2023

Ms. Jacki Cooperider, P.E.
IEPA – Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62702

RECEIVED
MAY 31 2023
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
ILD#07441745, ID#1970450002 - Will County, Illinois
RCRA Log No. B-141R
2022 Annual Leachate Report

Dear Ms. Cooperider:

This letter and its attachments are being submitted as the 2022 RCRA unit leachate report for the Laraway RDF, in accordance with Section I.C.10.c. and Section IX of the Site's RCRA Part B Permit.

Leachate level and removal discussion:
Monthly leachate levels were taken at the thirteen leachate monitoring wells. Please refer to Attachment 1 for a summary of the levels at the leachate wells. In addition, refer to Attachment 1 for volumes removed from the site's measurable withdrawal points. Please note that although the CT and LCR points are listed as withdrawal points on the attached table, they are not leachate level compliance points per the permit. The CT points are actually underground leachate collection tanks. The CT points then pump into the above ground tank farm system. The LCR points are part of the leachate forcemain system and pump into the above ground leachate storage tank farm. From the tank farm, the leachate is then pumped into the tanker trucks for hauling to the treatment plant. Leachate levels in the PLER (perimeter leachate extraction risers) are also noted on the tables in Attachment 1. Withdrawal volumes are not tracked individually for each PLER point as they pump directly to the CT points where the volumes are then tracked.

Leachate Wells:
From review of the thirteen observation wells (LW-1R thru LW-13R), the average leachate levels from 2022 versus 2021 has decreased or was the same at 5 points and increased at 8 points. The 2022 decrease in leachate level over the 5 points as compared to 2021 averaged about 0.6 feet. The 2022 average increase in leachate level over the other 8 points as compared to 2021 was about 1.8 feet. Pumping continues to be challenging at certain points in Area I as the associated leachate withdrawal points may be in isolated/perched zones. The withdrawal volume from the extraction points as listed in Attachment 1 was 824,265 gallons for 2022. The removal volume for 2021 was 845,969 gallons. The leachate collection system is functioning as

designed. The site needs to continue to be aggressive in pumping the leachate from the co-disposal unit.

Drum Trenches:

Area II trenches:

Levels within the Area II drum trenches (DTMs 1-6, and 10) was on average 1.4 feet higher than the levels in 2021. There were decreases in liquid levels at 3 points as compared to 2021 and 4 increases at the points.

Area I trenches:

Average levels for 2022 within Area I drum trenches (DTM 7 thru DTM 9) were about a foot lower compared to the 2021 average levels. The leachate in these points is highly viscous in nature which makes it nearly impossible to pump. The site was unable to get liquid out of these three points in 2022 due to its high viscosity.

Drum Trench removal volumes for 2022 was 140,476 gallons and was 121,107 gallons in 2021. For all drum trench areas, the average leachate levels increased at 6 locations and showed little change over the other 4 locations during 2022. The leachate collection system is functioning as designed, however, the site needs to continue to be aggressive in pumping the leachate from the drum trench units.

The leachate contained in drum trenches DTM 7, DTM 8, and DTM 9 is very viscous and almost impossible to pump. As stated in the RCRA renewal application, if points did not contain any pumpable leachate, no further action was required.

The parameter concentrations for certain drum trench leachate points continues to remain high, which has excluded all but remote treatment/disposal options. Currently, liquids with higher concentrations would have to be transported to a WM facility in Ohio. A few of the drum trench points have lower parameter concentrations and are taken to CID for disposal/treatment.

Perimeter Leachate Extraction Risers (PLERs):

The average leachate levels in all the 5 PLERs has increased since the 2021 report. The co-disposal area leachate has continued to go to the CID Biological Liquid Treatment Center, which is not expected to change in 2023. Leachate drawdown continues to be challenging, however, the retrofit leachate extraction system is working as designed.

Leachate analytical data:

In accordance with Section I.C.10.c., the 35 IAC 724 Appendix I sampling data from four representative leachate points from the co-disposal hill and the drum trenches. The samples were analyzed individually with no composting. The electronic files for the leachate lab data and levels, form LPC-592, and this letter were submitted electronically to the IEPA at: epa.BOL.gw-data@illinois.gov, in accordance with Section I.C.10.e.

The original and two copies of this report are being submitted. If you have any questions regarding this submittal, please contact me at 815-280-6301.

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 ensure 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 [35 IAC 702.126(d)]

Sincerely,

Laraway Recycling and Disposal Facility

Ian C. Johnson, P.E.
Environmental Engineer

cc: Doug Tomczak

ATTACHMENT 1

LEACHATE LEVELS AND REMOVAL QUANTITIES

Laraway RDF - 2022 RCRA Piezometer leachate levels

Depth to Liquid (ft)

Well ID	Dec 2011 Total Depths	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
LW-1R	62.09	35.28	34.1	34.1	33.85	33.60	33.16	33.30	34.19	33.63	34.43	35.64	35.52	34.2
LW-2R	58.71	27.71	41.37	40.68	37.90	39.85	45.82	40.35	40.75	46.44	47.02	47.44	47.44	41.9
LW-3R	71.29	65.20	63.8	58.18	64.26	63.92	62.83	61.20	59.85	65.01	65.19	60.29	60.62	62.5
LW-4R	50.1	46.21	45.45	45.4	45.45	45.55	45.30	45.18	45.18	44.92	45.15	44.99	44.93	45.3
LW-5R	56.01	44.04	42.81	42.33	42.48	42.39	42.20	42.50	42.65	43.54	43.25	43.12	43.01	42.9
LW-6R	37.27	38.62	37.52	29.11	30.04	28.74	28.61	28.81	28.61	28.62	29.97	29.66	29.63	30.7
LW-7R	73.25	56.75	54.75	55	34.08	56.50	53.59	53.72	54.09	54.22	54.45	53.54	53.63	52.9
LW-8R	58.77	39.64	40.8	40.82	39.62	39.68	39.70	39.80	40.11	40.34	40.42	40.68	40.46	40.2
LW-9	61.75	53.37	52.7	52.61	52.24	52.09	52.05	51.93	51.98	52.05	52.15	52.15	52.18	52.3
LW-10R	79.05	50.43	40.65	39.65	38.30	38.1	37.12	36.68	37.30	37.82	39.83	39.00	39.11	39.5
LW-11R	58.72	42.29	40.89	40.28	40.23	39.75	38.38	40.11	40.30	40.10	36.81	41.34	41.33	40.2
LW-12R	67.85	48.00	35.3	34.66	33.42	33.44	33.80	34.83	35.34	35.57	39.16	37.74	37.42	36.6
LW-13R	63.52	63.13	63.28	63.28	63.31	63.31	63.31	63.31	63.31	63.31	63.38	63.38	63.38	63.3

Depth of Liquid in Point (ft)

IEPA ID	Well ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
L321	LW-1R	26.81	27.99	27.99	28.24	28.49	28.93	28.79	27.9	28.46	27.66	26.45	26.57	27.9
L322	LW-2R	31	17.34	18.03	20.81	18.86	12.89	18.36	17.96	12.27	11.69	11.27	11.27	16.8
L323	LW-3R	6.09	7.49	13.11	7.03	7.37	8.46	10.09	11.44	6.28	6.1	11	10.67	8.8
L324	LW-4R	3.89	4.65	4.7	4.65	4.55	4.8	4.92	4.92	5.18	4.95	5.11	5.17	4.8
L325	LW-5R	11.97	13.2	13.68	13.53	13.62	13.81	13.51	13.36	12.47	12.76	12.89	13	13.2
L326	LW-6R	-1.35	-0.25	8.16	7.23	8.53	8.66	8.46	8.66	8.65	7.3	7.61	7.64	6.6
L327	LW-7R	16.5	18.5	18.25	39.17	16.75	19.66	19.53	19.16	19.03	18.8	19.71	19.62	20.4
L328	LW-8R	19.13	17.97	17.95	19.15	19.09	19.07	18.97	18.66	18.43	18.35	18.09	18.31	18.6
L329	LW-9	8.38	9.05	9.14	9.51	9.66	9.7	9.82	9.77	9.7	9.6	9.6	9.57	9.5
L330	LW-10R	28.62	38.4	39.4	40.75	40.95	41.93	42.37	41.75	41.23	39.22	40.05	39.94	39.6
L331	LW-11R	16.43	17.83	18.44	18.49	18.97	20.34	18.61	18.42	18.62	21.91	17.38	17.39	18.6
L332	LW-12R	19.85	32.55	33.19	34.43	34.41	34.05	33.02	32.51	32.28	28.69	30.11	30.43	31.3
L333	LW-13R	0.39	0.24	0.24	0.21	0.21	0.21	0.21	0.21	0.21	0.14	0.14	0.14	0.2

Laraway RDF - 2022 Monthly Drum Trench Levels

Drum Trench	DTM total depth (ft)	Depth to Liquid (ft) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
DTM-1	24.55	15.05	15.15	15.18	15.55	15.5	15.31	15.66	15.58	16.53	16.05	15.79	16.05	15.62
DTM-2	24.35	16.46	16.47	16	16.58	16.36	16.02	16.15	16.06	16.06	16.31	16	16.36	16.24
DTM-3	20.52	4.72	10	16.52	16.50	7	7.4	7.33	6.41	13.17	8.39	12.28	15.91	10.47
DTM-4	19.32	3.6	2.25	3.3	3.05	2.29	2.16	4.87	3.35	4.14	8.86	5.99	6.28	4.18
DTM-5	20.8	5.01	2.15	4.72	3.48	2.24	2.33	6.31	3	9.59	14.13	10.88	14.49	6.53
DTM-6	25.6	12.19	12.01	12.05	11.20	10.55	10.88	10.92	10.32	9.91	11.43	11.2	11.53	11.18
DTM-7	47.1	61.3	33.31	33.65	34.55	33.87	34.01	34.64	34.15	34.46	35.39	35.11	35.61	36.67
DTM-8	35.98	30.58	26.27	30.4	30.07	30.45	31.05	30.4	34.25	30.35	30.69	30.6	30.98	30.51
DTM-9	28.55	25.85	25.55	25.31	25.38	25.27	25.12	25.2	25.22	25.14	25.21	25.15	25.44	25.32
DTM-10	21.17	12.41	8.82	7.8	9.67	11.52	12.86	13.1	12.66	11.89	14.54	16.84	16.12	12.35

IEPA designation	site designation	leachate level in point Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
L334	DTM-1	9.5	9.4	9.37	9	9.05	9.24	8.89	8.97	8.02	8.5	8.76	8.5	8.9
L335	DTM-2	7.89	7.88	8.35	7.77	7.99	8.33	8.2	8.29	8.29	8.04	8.35	7.99	8.1
L336	DTM-3	15.8	10.52	4	4.02	13.52	13.12	13.19	14.11	7.35	12.13	8.24	4.61	10.1
L337	DTM-4	15.72	17.07	16.02	16.27	17.03	17.16	14.45	15.97	15.18	10.46	13.33	13.04	15.1
L338	DTM-5	15.79	18.65	16.08	17.32	18.56	18.47	14.49	17.8	11.21	6.67	9.92	6.31	14.3
L339	DTM-6	13.41	13.59	13.55	14.4	15.05	14.72	14.68	15.28	15.69	14.17	14.4	14.07	14.4
L340	DTM-7	-14.2	13.79	13.45	12.55	13.23	13.09	12.46	12.95	12.64	11.71	11.99	11.49	10.4
L341	DTM-8	5.4	9.71	5.58	5.91	5.53	4.93	5.58	1.73	5.63	5.29	5.38	5	5.5
L342	DTM-9	2.7	3	3.24	3.17	3.28	3.43	3.35	3.33	3.41	3.34	3.4	3.11	3.2
L343	DTM-10	8.76	12.35	13.37	11.5	9.65	8.31	8.07	8.51	9.28	6.63	4.33	5.05	8.8

Laraway RDF - 2022 Monthly PLER Levels

	PLER total depth (ft)	Depth to liquid (ft)												avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
PLER1	33.33	15.6	18	9.5	11.7	12.6	11.3	12.6	13	13.5	12.9	25.3	24.8	15.1
PLER2	38.75	24.5	26.5	19.6	20	21	19.9	20.3	21	21	20.9	33.5	32	23.4
PLER3	42.75	23.3	24	21.2	23.8	25.6	22.5	23.6	23.8	24.1	23.3	30.3	29.1	24.6
PLER4	24.58	10.6	12	5	6	8.4	6	7	6	8.6	7.3	15.6	14.1	8.9
PLER6A	39.5	24.4	25.2	22.7	22.8	22.9	22.8	23.1	23.5	23.8	23.1	25.3	24	23.6

IEPA designation	site designation	leachate level in point												avg
L344	PLER1	17.73	15.33	23.83	21.63	20.73	22.03	20.73	20.33	19.83	20.43	8.03	8.53	18.3
L345	PLER2	14.25	12.25	19.15	18.75	17.75	18.85	18.45	17.75	17.75	17.85	5.25	6.75	15.4
L346	PLER3	19.45	18.75	21.55	18.95	17.15	20.25	19.15	18.95	18.65	19.45	12.45	13.65	18.2
L347	PLER4	13.98	12.58	19.58	18.58	16.18	18.58	17.58	18.58	15.98	17.28	8.98	10.48	15.7
L348	PLER6A	15.1	14.3	16.8	16.7	16.6	16.7	16.4	16	15.7	16.4	14.2	15.5	15.9

Laraway 2022 RCRA Unit Leachate Removal Gallons

RCRA LEACHATE POINT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD TOTALS
CTs	33412	19630	63328	65,571	56,534	69,206	53,925	72,402	76,496	64,856	86,607	70,140	732,107
LCR-1	1,526	1,494	3,911	4,454	7,660	9,103	3,183	10,987	11,050	6	3	1	53,378
LCR-2	376	340	537	863	557	274	227	297	224	174	34	286	4,189
LCR-3	923	1,203	1,322	5,609	1,580	4,402	1,778	6,188	2,429	5,459	2,276	1,422	34,591
DTM-1	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-2	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-3 (CID)	1,095	3,500	5,100	6,400	4,200	4,500	1,100	5,500	4,100	1,200	1,600	1,500	39,795
DTM-4 (CID)	2,749	2,943	2,375	13,485	8,343	1,828	2,122	13,649	4,286	7,533	10,608	3,464	73,385
DTM-5	0	0	0	0	0	0	0	0	1,000	0	1,000	0	2,000
DTM 6 (CID)	1,000	0	1,000	1,000	1,000	1,000	0	1,000	1,000	1,000	1,000	0	9,000
DTM-10 (CID)	194	4	938	387	5,868	686	1,181	941	142	662	2,728	2,565	16,296
SUBTOTALS	41,275	29,114	78,511	97,769	85,742	90,999	63,516	110,964	100,727	80,890	105,856	79,378	964,741

MEMORANDUM

Date 5/15/2024

To: BOL File Room

From: Gretchen Lesle

Re: LPC# 1970450002 - Will County
LARAWAY RECYCLING & DISP FAC
[ ] Subpart F

The Annual Leachate Report for the above referenced facility was dated 5/9/2024 and was received by the Agency on 5/15/2024. A copy is attached.

cc: DesPlaines Regional Office - Anthony Guido
Will County Land Use Department

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
JUN 25 2024
REVIEWER: SAB

Illinois Environmental Protection Agency

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: Laraway RDF

Facility Address: 21233 W. Laraway Rd. Joliet, IL 60436

Site ID #: 1970450002 Fed ID #: ILD074411745

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

☐ LPC-160 Forms

Groundwater	Leachate
___ Quarterly - Enter: 1, 2, 3, or 4	___ Quarterly - Enter: 1, 2, 3, or 4
☐ Semi-Annual	☐ Semi-Annual
☐ Annual	☐ Annual
☐ Biennial	☐ Biennial

RECEIVED
MAY 15 2024
IEPA-BOL
PERMIT SECTION

☐ Groundwater Data (without LPC-160 Forms)

___ Quarterly - Enter: 1, 2, 3, or 4 ☐ Annual ☐ Semi-Annual ☐ Biennial

☐ Well Construction Information

- ☐ Well Construction Forms, Boring Logs and/or Abandonment Forms
- ☐ Well Survey Data (e.g., Stick-up Elevation Data)

☐ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

☐ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

☐ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

☐ Gas Monitoring Reports

☒ Other (identify)

RCRA LEACHATE REPORT

IEPA-DIVISION OF RECORDS MANAGEMENT
RELEASABLE
JUN 25 2024
REVIEWER: SAB

Prairie View
29755 S Prairie View Drive
Wilmington, IL 60481

May 9, 2024

Ms. Jacki Cooperider, P.E.
IEPA – Bureau of Land
1021 North Grand Avenue East
Springfield, Illinois 62702

RECEIVED
MAY 15 2024
IEPA-BOL
PERMIT SECTION

RE: **Laraway Recycling and Disposal Facility**
ILD#07441745, ID#1970450002 - Will County, Illinois
RCRA Log No. B-141R
2023 Annual Leachate Report

Dear Ms. Cooperider:

This letter and its attachments are being submitted as the 2023 RCRA unit leachate report for the Laraway RDF, in accordance with Section I.C.10.c. and Section IX of the Site's RCRA Part B Permit.

Leachate level and removal discussion:
Monthly leachate levels were taken at the thirteen leachate monitoring wells. Please refer to Attachment 1 for a summary of the levels at the leachate wells. In addition, refer to Attachment 1 for volumes removed from the site's measurable withdrawal points. Please note that although the CT and LCR points are listed as withdrawal points on the attached table, they are not leachate level compliance points per the permit. The CT points are actually underground leachate collection tanks. The CT points then pump into the above ground tank farm system. The LCR points are part of the leachate forcemain system and pump into the above ground leachate storage tank farm. From the tank farm, the leachate is then pumped into the tanker trucks for hauling to the treatment plant. Leachate levels in the PLER (perimeter leachate extraction risers) are also noted on the tables in Attachment 1. Withdrawal volumes are not tracked individually for each PLER point as they pump directly to the CT points where the volumes are then tracked.

Leachate Wells:
From review of the thirteen observation wells (LW-1R thru LW-13R), the average leachate levels from 2023 versus 2022 has decreased or was the same at 8 points and increased at 5 points. The 2023 decrease in leachate level over the 8 points as compared to 2022 averaged about 1 foot. The 2023 average increase in leachate level over the other 5 points as compared to 2022 was about 1 foot. Pumping continues to be challenging at certain points in Area I as the associated leachate withdrawal points may be in isolated/perched zones. The withdrawal volume from the extraction points as listed in Attachment 1 was 1,023,250 gallons for 2023. The removal volume for 2022 was 824,265 gallons. The leachate collection system is functioning as

designed. The site needs to continue to be aggressive in pumping the leachate from the co-disposal unit.

Drum Trenches:

Area II trenches:

Levels within the Area II drum trenches (DTMs 1-6, and 10) was on average 0.4 feet lower than the levels in 2022. There were decreases in liquid levels at 4 points as compared to 2022 and 3 increases at the points.

Area I trenches:

Average levels for 2023 within Area I drum trenches (DTM 7 thru DTM 9) were about a 0.5 feet higher compared to the 2022 average levels. The leachate in these points is highly viscous in nature which makes it nearly impossible to pump. The site was unable to get liquid out of these three points in 2023 due to its high viscosity.

Drum Trench removal volumes for 2023 was 146,144 gallons and was 140,476 gallons in 2022. For all drum trench areas, the average leachate levels decreased at 5 locations and showed little change over the other 5 locations during 2023. The leachate collection system is functioning as designed, however, the site needs to continue to be aggressive in pumping the leachate from the drum trench units.

The leachate contained in drum trenches DTM 7, DTM 8, and DTM 9 is very viscous and almost impossible to pump. As stated in the RCRA renewal application, if points did not contain any pumpable leachate, no further action was required.

The parameter concentrations for certain drum trench leachate points continues to remain high, which has excluded all but remote treatment/disposal options. Currently, liquids with higher concentrations would have to be transported to a WM facility in Ohio. A few of the drum trench points have lower parameter concentrations and are taken to CID for disposal/treatment.

Perimeter Leachate Extraction Risers (PLERs):

The 2023 leachate levels in all the 5 PLERs has decreased on average by 5 feet since the 2022 report. The co-disposal area leachate has continued to go to the CID Biological Liquid Treatment Center, which is not expected to change in 2024. Leachate drawdown continues to be challenging, however, the retrofit leachate extraction system is working as designed.

Leachate analytical data:

In accordance with Section I.C.10.c., the 35 IAC 724 Appendix I sampling data from four representative leachate points from the co-disposal hill and the drum trenches. The samples were analyzed individually with no composting. The electronic files for the leachate lab data and levels, form LPC-592, and this letter were submitted electronically to the IEPA at: epa.BOL.gw-data@illinois.gov, in accordance with Section I.C.10.e.

The original and two copies of this report are being submitted. If you have any questions regarding this submittal, please contact me at 815-280-6301.

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 ensure 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 [35 IAC 702.126(d)]

Sincerely,

Laraway Recycling and Disposal Facility

Ian C. Johnson, P.E.
Environmental Engineer

cc: Doug Tomczak

ATTACHMENT 1

LEACHATE LEVELS AND REMOVAL QUANTITIES

Laraway RDF - 2023 RCRA Piezometer leachate levels

Depth to Liquid (ft)

Well ID	Dec 2011 Total Depths	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
LW-1R	62.09	35.45	34.19	34.25	34.49	33.81	33.90	33.91	34.60	34.10	34.33	34.90	34.95	34.4
LW-2R	58.71	47.10	47.18	48.01	46.63	46.58	46.67	46.76	46.98	47.63	42.40	42.25	45.53	46.1
LW-3R	71.29	64.60	62.28	65.71	64.73	61.62	61.74	60.11	63.82	62.90	62.17	63.10	61.1	62.8
LW-4R	50.1	44.59	44.69	44.81	44.82	44.95	45.06	45.13	45.09	45.24	45.10	45.11	45.12	45.0
LW-5R	56.01	42.81	43.92	44.07	42.83	42.84	42.98	42.98	43.15	43.53	43.54	43.67	43.48	43.3
LW-6R	37.27	29.55	29.34	29.52	28.85	28.45	28.60	28.76	29.35	29.78	30.03	30.11	30.06	29.4
LW-7R	73.25	54.71	55.11	55.31	55.60	54.96	55.03	55.57	55.68	55.81	55.57	56.90	56.73	55.6
LW-8R	58.77	40.40	40.15	40.33	40.55	40.48	40.60	40.56	40.54	40.83	40.95	41.00	40.97	40.6
LW-9	61.75	51.95	51.59	51.67	51.41	51.23	51.31	51.24	51.35	51.53	51.65	51.71	51.7	51.5
LW-10R	79.05	39.05	39.2	38.6	37.95	36.85	39.91	36.89	37.39	37.91	38.44	39.03	39.1	38.4
LW-11R	58.72	41.57	29.83	30.51	40.05	39.73	39.85	36.30	40.33	40.75	40.90	41.05	40.55	38.5
LW-12R	67.85	37.82	35.19	33.3	34.59	35.20	35.29	35.86	36.81	37.87	38.70	39.22	39.43	36.6
LW-13R	63.52	63.38	63.32	63.32	63.32	63.32	63.32	63.32	63.32	63.32	63.32	63.32	63.32	63.3

Depth of Liquid in Point (ft)

IEPA ID	Well ID	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	avg
L321	LW-1R	26.64	27.9	27.84	27.6	28.28	28.19	28.18	27.49	27.99	27.76	27.19	27.14	27.7
L322	LW-2R	11.61	11.53	10.7	12.08	12.13	12.04	11.95	11.73	11.08	16.31	16.46	13.18	12.6
L323	LW-3R	6.69	9.01	5.58	6.56	9.67	9.55	11.18	7.47	8.39	9.12	8.19	10.19	8.5
L324	LW-4R	5.51	5.41	5.29	5.28	5.15	5.04	4.97	5.01	4.86	5	4.99	4.98	5.1
L325	LW-5R	13.2	12.09	11.94	13.18	13.17	13.03	13.03	12.86	12.48	12.47	12.34	12.53	12.7
L326	LW-6R	7.72	7.93	7.75	8.42	8.82	8.67	8.51	7.92	7.49	7.24	7.16	7.21	7.9
L327	LW-7R	18.54	18.14	17.94	17.65	18.29	18.22	17.68	17.57	17.44	17.68	16.35	16.52	17.7
L328	LW-8R	18.37	18.62	18.44	18.22	18.29	18.17	18.21	18.23	17.94	17.82	17.77	17.8	18.2
L329	LW-9	9.8	10.16	10.08	10.34	10.52	10.44	10.51	10.4	10.22	10.1	10.04	10.05	10.2
L330	LW-10R	40	39.85	40.45	41.1	42.2	39.14	42.16	41.66	41.14	40.61	40.02	39.95	40.7
L331	LW-11R	17.15	28.89	28.21	18.67	18.99	18.87	22.42	18.39	17.97	17.82	17.67	18.17	20.3
L332	LW-12R	30.03	32.66	34.55	33.26	32.65	32.56	31.99	31.04	29.98	29.15	28.63	28.42	31.2
L333	LW-13R	0.14	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Laraway RDF - 2023 Monthly Drum Trench Levels

Drum Trench	DTM total depth (ft)	Depth to Liquid (ft) Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
DTM-1	24.55	15.53	16.06	15.82	16.19	16.34	16.45	16.12	16.64	16.5	16.44	16.49	16.5	16.26
DTM-2	24.35	15.88	16.33	16.25	16.32	16.4	16.51	16.2	16.22	16.25	16.11	16.21	16	16.22
DTM-3	20.52	9.1	12.94	16.5	7.40	4.24	4.21	10.53	11.84	13.15	13.6	5.8	9.09	9.87
DTM-4	19.32	3.4	1.93	3.16	3.55	3.25	3.3	5.18	5.79	6.4	4	4.58	3.2	3.98
DTM-5	20.8	17.03	4.71	8.45	10.41	10.83	10.89	9.32	15.13	10.38	10.55	12.5	10.53	10.89
DTM-6	25.6	12.15	10.92	11.3	11.19	11.35	11.47	11.13	11.35	11.29	11.75	11.9	11.71	11.46
DTM-7	47.1	32.7	33.94	34.48	34.72	34.94	35.01	35.42	35.74	36.2	36.32	36.1	36.03	35.13
DTM-8	35.98	30.81	30.54	30.4	30.74	30.72	30.77	30.58	30.62	30.83	30.84	30.81	30.78	30.70
DTM-9	28.55	25.2	25.42	24.85	25.25	25.26	25.3	25.05	25.09	25.22	25.2	25.2	25.05	25.17
DTM-10	21.17	9.85	8.29	7.57	14.97	10.38	10.49	12.26	12.68	13.37	10.5	10.54	7.62	10.71

IEPA designation	site designation	leachate level in point Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Avg
L334	DTM-1	9.02	8.49	8.73	8.36	8.21	8.1	8.43	7.91	8.05	8.11	8.06	8.05	8.3
L335	DTM-2	8.47	8.02	8.1	8.03	7.95	7.84	8.15	8.13	8.1	8.24	8.14	8.35	8.1
L336	DTM-3	11.42	7.58	4.02	13.12	16.28	16.31	9.99	8.68	7.37	6.92	14.72	11.43	10.7
L337	DTM-4	15.92	17.39	16.16	15.77	16.07	16.02	14.14	13.53	12.92	15.32	14.74	16.12	15.3
L338	DTM-5	3.77	16.09	12.35	10.39	9.97	9.91	11.48	5.67	10.42	10.25	8.3	10.27	9.9
L339	DTM-6	13.45	14.68	14.3	14.41	14.25	14.13	14.47	14.25	14.31	13.85	13.7	13.89	14.1
L340	DTM-7	14.4	13.16	12.62	12.38	12.16	12.09	11.68	11.36	10.9	10.78	11	11.07	12.0
L341	DTM-8	5.17	5.44	5.58	5.24	5.26	5.21	5.4	5.36	5.15	5.14	5.17	5.2	5.3
L342	DTM-9	3.35	3.13	3.7	3.3	3.29	3.25	3.5	3.46	3.33	3.35	3.35	3.5	3.4
L343	DTM-10	11.32	12.88	13.6	6.2	10.79	10.68	8.91	8.49	7.8	10.67	10.63	13.55	10.5

Laraway RDF - 2023 Monthly PLER Levels

	PLER total depth (ft)	Depth to liquid (ft)												avg
		Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
PLER1	33.33	19.8	18.5	19	20	15.8	16	23.1	22.5	22.1	25.2	24	24.1	20.8
PLER2	38.75	28.2	26	27.4	28.4	24	24.5	32.2	31.4	31.2	34.6	33.4	33.4	29.6
PLER3	42.75	27.8	23.1	27	28	28.1	28.6	32	30.9	31	34.5	33.1	33.1	29.8
PLER4	24.58	15.2	15.8	15.5	16.5	12.8	13.1	14.8	13.5	13.8	17	15.8	16.1	15.0
PLER6A	39.5	24.8	23.1	23.9	24.9	23.7	24.2	25.1	24	24.1	27.1	26.1	26.1	24.8

IEPA designation	site designation	leachate level in point												avg
L344	PLER1	13.53	14.83	14.33	13.33	17.53	17.33	10.23	10.83	11.23	8.13	9.33	9.23	12.5
L345	PLER2	10.55	12.75	11.35	10.35	14.75	14.25	6.55	7.35	7.55	4.15	5.35	5.35	9.2
L346	PLER3	14.95	19.65	15.75	14.75	14.65	14.15	10.75	11.85	11.75	8.25	9.65	9.65	13.0
L347	PLER4	9.38	8.78	9.08	8.08	11.78	11.48	9.78	11.08	10.78	7.58	8.78	8.48	9.6
L348	PLER6A	14.7	16.4	15.6	14.6	15.8	15.3	14.4	15.5	15.4	12.4	13.4	13.4	14.7

Laraway 2023 RCRA Unit Leacahte Removal Gallons

RCRA LEACHATE POINT	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	YTD TOTALS
CTs	78982	83967	78141	72,797	84,875	82,388	84,586	99,165	80,366	84,393	74,374	57,897	961,931
LCR-1	1	2	2	1	1	1	3	0	0	3	0	0	14
LCR-2	542	528	1,041	463	458	176	172	138	197	172	460	567	4,914
LCR-3	3,778	4,535	8,245	8,733	9,300	6,466	4,420	1,837	2,335	4,420	1,965	357	56,391
DTM-1	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-2	0	0	0	0	0	0	0	0	0	0	0	0	0
DTM-3 (CID)	3,000	3,600	3,800	2,000	1,800	2,300	800	700	1,900	800	1,300	1,100	23,100
DTM-4 (CID)	0	11,900	3,780	1,135	2,260	2	2,086	33,687	28,060	2,086	5,898	10,033	100,927
DTM-5	1,000	1,000	1,000	1,000	1,000	1,000	0	1,000	1,000	0	1,000	0	9,000
DTM 6 (CID)	1,000	1,000	1,000	1,000	1,000	1,000	0	1,000	1,000	0	1,000	0	9,000
DTM-10 (CID)	12	556	1,419	982	313	38	86	2	347	86	269	7	4,117
SUBTOTALS	88,315	107,088	98,428	88,111	101,007	93,371	92,153	137,529	115,205	91,960	86,266	69,961	1,169,394

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

DEC 15 2016

OFFICE OF
SOLID WASTE AND
EMERGENCY RESPONSE

NOW THE
OFFICE OF LAND AND
EMERGENCY MANAGEMENT

MEMORANDUM

SUBJECT: Guidelines for Evaluating the Post-Closure Care Period for Hazardous Waste Disposal Facilities under Subtitle C of RCRA

FROM: Barnes Johnson, Director
Office of Resource Conservation and Recovery

TO: RCRA Division Directors, Regions 1-10
RCRA Enforcement Managers, Regions 1-10
Regional Counsels, Regions 1-10

Purpose

The purpose of this memorandum is to provide guidance to assist regulators in evaluating conditions at hazardous waste disposal facilities subject to Subtitle C of the Resource Conservation and Recovery Act (RCRA) that are approaching the end of the original 30-year post-closure care period, and in determining whether the post-closure care period should be adjusted or allowed to end. Any such determinations must ensure ongoing protection of human health and the environment. This guidance also provides information to assist facility owners and operators in preparing documentation to inform the regulators' evaluations.

This guidance has the additional benefit of helping regulated entities understand what may be necessary to ensure protection of human health and the environment at units subject to post-closure care requirements. This enables waste generators and handlers to have a better understanding of the costs associated with land disposal so they can better evaluate long-term waste management strategies, including waste minimization.

Introduction and Need for Guidance

The RCRA Subtitle C hazardous waste management regulations establish a post-closure care[1] period for certain hazardous waste treatment, storage and disposal facilities, and specify post-closure care activities. The post-closure care requirements apply to land disposal units (landfills, land treatment units,

[1] Post-closure care can be generally described as the period of time after closure during which owners and operators conduct specified monitoring and maintenance activities to preserve the integrity of the containment system and to continue to prevent or control releases of contaminants.

and surface impoundments) that leave hazardous waste in place after closure. Post-closure care also applies to some non-land-based units (*e.g.,* certain tanks or containment buildings) that cannot fully decontaminate or "clean close" [1] all equipment, structures, and soils. Post-closure care activities consist of two primary responsibilities: monitoring and reporting, and maintaining the integrity of the waste containment systems (see 40 CFR 264/265.117). Post-closure care for each hazardous waste management unit must begin after completion of closure of the unit and normally continue for 30 years after that date; the regulations also provide discretion to the permitting authority to adjust the length of the post-closure care period.

Many facilities around the country are approaching the end of the initial post-closure care period established in their RCRA permits or post-closure plans. Accordingly, questions have arisen about how to evaluate conditions at these facilities to determine whether the post-closure care period needs to be adjusted – that is, extended, or whether a 30-year post-closure care period is protective for a specific unit. In response, the Office of Resource Conservation and Recovery has developed this guidance recommending criteria to consider when evaluating facilities nearing the end of the post-closure care period [2] and thus ensure that human health and the environment will continue to be protected by the resulting determination. It also sets forth a recommended process for evaluating the post-closure care period in a timely fashion. Finally, this guidance discusses additional considerations that may be important for decision-makers when evaluating the adequacy of the post-closure care period.

This guidance supplements existing guidance on the post-closure care period, including the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[3]

Regulatory Overview of the Post-Closure Care Period

[1] The RCRA Subtitle C regulations generally provide for two types of closure: closure by removal or decontamination (referred to as "clean closure") and closure with waste in place. The premise of clean closure is that all hazardous wastes have been removed from a given RCRA unit and any releases at or from the unit have been remediated. More information on clean closure is available in *Memorandum: Risk-Based Clean Closure* from Elizabeth Cotsworth, Acting Director Office of Solid Waste, March 16, 1998.

[2] This document is solely intended to provide guidance to federal and state regulators on implementing the RCRA Subtitle C regulations and to provide policy advice and recommendations. As such, this document does not impose any legally binding requirements, and the use of such phrases as "guidance," "recommend," "may," "should," and "can," are not intended to impose or connote any legal obligations. Accordingly, this document does not change or substitute for any law, regulation, or any other legally binding requirement and is not legally enforceable. The policies described in this document may not apply to a particular situation based upon the circumstances, and EPA may deviate from or revise any of the policies described in this document without prior notice to the public. While EPA has made every effort to ensure the accuracy of the discussion in this document, the obligations of the regulated community are determined by statutes, regulations or other legally binding requirements. In the event of a conflict between the discussion in this document and any statute or regulation, this document would not be controlling.

[3] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10.

EPA regulations[4] require that the post-closure care period for each hazardous waste management unit subject to the requirements of 40 CFR 264/265.117 through 264/265.120 must begin after completion of closure of the unit and continue for 30 years after that date. Still, the regulations' identification of a default 30-year post-closure care period does **not** reflect a determination by EPA that 30 years of post-closure care is necessarily sufficient to eliminate potential threats to human health and the environment in all cases. Nor is the full 30-year period always necessary. In fact, the regulations provide for a permit authority to conduct a case-by-case review of the post-closure care period and establish arrangements to adjust the length of the post-closure care period on a facility or unit-specific basis, where the record supports a determination that the revised post-closure care period will remain protective of human health and the environment.[5]

The regulations provide that the decision to alter the length of the post-closure care period can be made at any time preceding *partial closure*[6] of a hazardous waste management unit subject to post-closure care; at any time preceding *final closure*[7] of a facility; or at any time during the post-closure care period for a particular unit. For permitted facilities, such a decision must be made through the permit renewal or modification procedures in parts 124 and 270 of the regulations. For interim status facilities, adjustment to the post-closure care period must be made in accordance with § 265.118(g).

According to § 264.117 the post-closure care period may be modified under certain circumstances provided the modifications are protective of human health and the environment:

- The post-closure care period may be shortened where "the reduced period is sufficient to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."

- The post-closure care period may be extended where "the extended period is necessary to protect human health and the environment (*e.g.*, leachate or ground-water monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health or the environment)."

The provisions for interim status facilities are similar [§§ 265.117 and 265.118(g)].

For more details on particularly relevant portions of the federal RCRA hazardous waste regulations, see Appendix A.

Criteria to Consider for Evaluating the Post-Closure Care Period

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[4] 40 CFR 264.117 (for permitted facilities) and 265.117 (for interim status facilities)

[5] EPA explained this approach early in the RCRA program. *See* 45 Fed. Reg. 33197 (May 19, 1980); *see also* 47 Fed. Reg. 32287-88 (July 26, 1982); 46 Fed. Reg. 2819 (Jan. 12, 1981).

[6] *Partial closure* is defined in 40 CFR 260.10 as "the closure of a hazardous waste management unit in accordance with the applicable closure requirements of parts 264 and 265 of this chapter at a facility that contains other active hazardous waste management units. For example, partial closure may include the closure of a tank (including its associated piping and underlying containment systems), landfill cell, surface impoundment, waste pile or other hazardous waste management unit, while other units of the same facility continue to operate."

[7] *Final closure* is defined in 40 CFR 260.10 as "the closure of all hazardous waste management units at the facility in accordance with all applicable closure requirements so that hazardous waste management activities under parts 264 and 265 of this chapter are no longer conducted at the facility unless subject to the provisions in § 262.34."

An overarching consideration in determining whether to extend the post-closure care period, or allow it to end, is the inherent uncertainty associated with the long-term presence of hazardous waste in the unit. Because many hazardous wastes degrade slowly or do not degrade under containment in these units, the continued presence of hazardous waste in the unit (*i.e.*, any case other than clean closure) indicates the potential for unacceptable impacts on human health and the environment in the future if post-closure care is not maintained. For instance, there are often uncertainties in whether controls will continue to function as planned and whether future activities will lead to unplanned exposures to human and environmental receptors. Even if there is no current evidence of actual releases from the facility, significant factors can change over time. For example, groundwater flow can change direction due to the sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences. Landfill components, such as caps and liners (which have a finite design life), can degrade over time, especially if maintenance is discontinued. Exposure pathways that have been eliminated by means of an engineered control may be reopened (*e.g.*, if animals burrow through the cap). Thus, continued monitoring and maintenance activities may be appropriate unless or until it can be demonstrated that site-specific conditions adequately minimize the risk that contaminants will migrate from the unit (*e.g.*, site geology/hydrogeology) or that, in the event the engineering controls fail, a release would not pose an unacceptable risk to human health and the environment. This section provides recommended criteria that can be used to evaluate site-specific conditions and associated risks or remaining uncertainties in determining whether to adjust the post-closure care period.

These criteria can also be periodically used to evaluate whether activities in the post-closure plan should be amended. For instance, if the regulator determines it is necessary to extend the post-closure care period, these criteria can be used to determine if the frequency of one or more post-closure care monitoring requirements could be reduced during that extended timeframe. Each criterion is not necessarily applicable for every unit in post-closure care, for example, the "Gas Collection System Integrity" criterion would not apply to units without a gas collection system. The questions provided under each criterion are intended to help identify potential threats to human health and the environment. However, they do not all need to be answered in order to make a decision concerning the appropriate post-closure care period and the monitoring/maintenance activities.

Waste Treatment: Knowing whether the hazardous waste was disposed prior to the effective date of the Land Disposal Restrictions (LDR) program is an important piece of information when evaluating site-specific conditions. Hazardous waste treatment that destroys harmful contaminants or reduces toxicity of the waste before placement in a land disposal unit provides a more lasting form of groundwater protection than waste containment alone. Similarly, through a process called stabilization or immobilization, metal contaminants – that cannot be treated – can be chemically and physically solidified or bound into the wastes that contain them (*e.g.,* through chemical fixation). Thus, reducing the mobility or leachability of hazardous constituents in a waste is another means of achieving LDR's groundwater protection goal. Relevant questions for this criterion include:

- Were all the wastes pre-treated in accordance with the treatment standards of the LDR program or does the unit contain wastes that were placed on the land prior to the effective dates of the LDR rules?

EPA recommends reviewing the waste analysis data for treated wastes in the land disposal unit.

Nature of Hazardous Wastes Remaining in the Unit: The current properties of the hazardous waste (*e.g.,* degradation, solubility, liquid-to-solid ratio) provide an important indication of the waste's ability to migrate or disperse in the environment.

- What is the degree of risk (*e.g.*, exposure pathways, probability of exposure) presently associated with the wastes in the unit?
    - Are the wastes highly toxic?
    - Do they degrade into substances that are more or less toxic, or non-toxic?
    - Are there indications that the waste might become incompatible with the liner?
- What is the potential for adverse impacts from releases based on the current understanding of contaminant fate and transport considerations (*e.g.,* presence of persistent, bioaccumulative contaminants, as compared to biodegradable contaminants; constituent speciation(s); and leaching profiles)?
- Is the waste in a stable state? Are there indications that the waste may become unstable?

EPA recommends that current data from regulatory standards be used for comparison to facility-specific performance goals articulated in the post-closure plan, and that, as necessary, the plan be updated to account for any new information on toxicity and carcinogenicity. EPA also recommends reviewing and possibly updating the list of constituents to analyze, since scientific understanding of constituents of concern may change over time. In addition, the data gathered should include an analysis of potential degradation products as well as of the types of wastes known to have been placed in the unit(s).

Unit Type/Design: The main objective of the disposal units is the containment of the hazardous waste. Thus, emphasis should be placed on the unit's ability to contain hazardous wastes over the long term.

- Is the unit, for example, a landfill, a surface impoundment, or a closed tank with residual contamination?
- Does the unit meet the minimum technology requirements (*e.g.,* double liners, leachate collection system)? Or was the unit already in existence at the time these requirements were promulgated and closed before retrofitting?
- To what extent does the overall design and construction of the unit minimize the need for long-term maintenance, resist the generation of leachate and emissions, and contain any remaining waste in perpetuity?

It is recommended that the permitting authority consider any unit-specific design, in concert with applicable closure and post-closure care requirements, when evaluating whether adjustment of the post-closure care period is warranted to protect against any potential impact on human health and the environment. There can be circumstances in which continuing to maintain unit-specific controls may be necessary to protect human health and the environment, particularly if the unit pre-dated the minimum technology requirements; this could support a decision to extend the post-closure care period. Conversely, there might be circumstances where the overall design and construction of the unit minimize the need for long-term maintenance and could support a decision to shorten or end the post-closure care period.

Leachate: The leachate collection and removal system controls leachate build-up on the liner, working in conjunction with the liner's barrier system to minimize the potential for groundwater contamination.

Monitoring for leachate generation serves as the most effective way of examining the integrity of the waste management unit (*e.g.,* it can suggest a cover or liner failure when leachate is detected late in the post-closure care period). [8]

- Will the integrity and functionality of the leachate collection system, leachate generation rate, and leachate quality remain adequate to prevent harm to human health or the environment in the absence of post-closure care?
- Can the facility owner or operator show through monitoring/modeling and/or statistical analysis that the leachate would not pose a threat to human health and the environment because it would not exceed applicable standards at compliance or exposure points?
- Is it likely those standards will be exceeded in the future, for example, through formation and release of degradation products? Do the data demonstrate that there are no increasing trends in the concentration of leachate constituents?
- Can the facility owner or operator demonstrate that maintenance and operation of the leachate collection system can be ceased without posing a threat to human health and the environment?

EPA recommends that potential impacts from changes in leachate characteristics and generation rate that could result from discontinued maintenance be considered.

Groundwater: Groundwater monitoring serves as the primary means of detecting leachate releases and groundwater contamination. It is important that groundwater analytical results, adequacy and reliability of the groundwater-monitoring network, and groundwater-monitoring well integrity be evaluated before the post-closure care period nears its end.

Groundwater should not exceed risk-based concentrations for a reasonable exposure scenario (or point of exposure) using currently acceptable risk assessment methods and up-to-date risk-based levels and scenarios. If the evaluation determines that unacceptable risk exists, these risks should be addressed. The risk evaluation should consider reasonable current or future groundwater use in the general area of the site (*e.g.*, if a drinking water source is located nearby).

Review of the groundwater monitoring system should have been done as part of operation and maintenance inspections over time. Evaluation of the groundwater monitoring network should refer to the most recent operation and maintenance inspection. The well network evaluation should look at groundwater flow direction, well construction, and placement relative to groundwater flow direction.

[8] "If leachate is generated late in the post-closure care period, this could suggest a cover or liner failure warranting an extension of the post-closure care period." See page B-13 of the RCRA Guidance Manual for Subpart G Closure & Post-Closure Care Standards and Subpart H Cost Estimating Requirements, EPA/530-SW-87-010 (January, 1987).

- Is groundwater quality in compliance with current standards?
- Have there been changes or are changes anticipated in land use/groundwater use that could change the applicable standards (*e.g.,* introduction of agricultural irrigation to an area) or the directional flow (*e.g.,* sequencing of dry and wet years, pumping at municipal water supply or other well fields, or shifting gradients resulting from seasonal variations or tidal influences)?
- Do the data indicate any trend in the concentration of analytes in groundwater?
- Has an expanded list of analytes (*e.g.,* selected from Appendix VIII of 40 CFR part 261) been considered for analysis within a reasonable time frame?
- Have the monitoring wells been maintained to provide valid data, for example, no well screen occlusion?

Siting and Site Geology/Hydrogeology: Relevant facility location characteristics (which might have changed since the post-closure plan was approved) may include proximity to vulnerable areas such as residential areas and surface and drinking water sources. The current and reasonably anticipated future land use of the facility and surrounding properties may also be relevant. Location in potentially vulnerable areas increases the likelihood and potential severity of releases. For example, if units are located in areas prone to flooding or with a high water table, it may be appropriate for reviewers to consider the potential for continuing risks to surface water in evaluating whether to modify the post-closure care period. Conversely, units located in areas not prone to flooding, or at great distance from the water table, might have less need for long-term maintenance. Additional hydrologic and geologic conditions such as wetlands and earthquake zones, unstable soils, and areas at risk for subsurface movement could have changed since a unit first entered post-closure care and might also need to be taken into account. Proximity to residential areas can also present unique considerations. It is also appropriate to consider whether facility conditions minimize the potential for adverse impacts on local populations if there is a release from the unit. [9]

[9] If a unit managing vapor-forming chemicals has releases to the environment, it creates the potential for vapor intrusion issues to neighboring communities due to migrating plumes of contaminated groundwater or migrating soil gases, even when the community is some distance away. Consider evaluating risks from subsurface intrusion of toxic constituents (*e.g.,* vinyl chloride from aerobic degradation of perchloroethylene/trichloroethylene), or landfill gases such as methane and hydrogen sulfide, into buildings or structures located near the unit in post-closure care. See the *Technical Guide for Assessing and Mitigating the Vapor Intrusion Pathway from Subsurface Vapor Sources to Indoor Air*, June 2015.

- Does the site geology include subsurface strata that might contain or retard migration?
- What is the distance to the groundwater table, bearing in mind seasonal fluctuations, and the proximity of any useable aquifers?
- Is the unit located in a dry climate that provides minimal precipitation?
- Is the pattern of land use changing or likely to change in the future in a way that would bring people closer to or farther away from the facility?
- Have zoning laws changed?
- Is there a sizable buffer zone around the facility that could limit human activity near the site into the future?
- What is the distance to sensitive receptors for groundwater flow and emissions?
- Could the distance to sensitive receptors change under reasonably foreseeable future conditions, as reflected, for example, in land use development plans for the area?
- Is there the potential for impact on surface water quality?
- Have new potential exposure pathways been identified and evaluated? For example, vapor intrusion had not been identified as a potential exposure pathway at the time many permits were issued.[11]

In addition, EPA recommends that the potential effects of climate change be taken into account in making these assessments.[10] For example, flooding from more intense and frequent storms and sea-level rise may lead to contaminant releases from units subject to post-closure care requirements by transport of contaminants through surface soils, groundwater, surface waters and/or coastal waters. Saltwater intrusion and increased groundwater salinity in coastal aquifers may increase the permeability of clay liners installed at waste sites, such as landfills. Changes in precipitation patterns and temperature may also adversely affect the performance and efficacy of engineering controls.

Facility History: All waste management units (during active life or in post-closure care) must be adequately managed to prevent releases of contaminants to the environment. A well-managed facility is more likely to maintain its structural integrity. Good compliance records, routine maintenance and inspections, emergency procedures to handle natural disasters, and prompt and efficient response to spills and other incidents, are some of the management practices that help demonstrate whether the unit has been adequately managed.

[10] For more information on climate change adaptation consult the "Climate Change Adaptation Technical Fact Sheet: Landfills and Containment as an Element of Site Remediation," EPA 542-F-14-001 (May 2014).

- From the facility records (including frequency of all maintenance activities), to what extent did the unit closure design and activities described in the closure plan and closure certification minimize the need for ongoing monitoring and maintenance?
- Has past noncompliance with regulatory requirements contributed to present environmental conditions that warrant an extension of the post-closure care period (*e.g.*, non-compliance with current LDR standards)?
- Is there a history of any releases and what are current contaminant levels?
- If a release did occur, have corrective measures been successfully implemented and has subsequent monitoring shown no evidence of a recurrence?
- Are analyses being conducted for the correct parameters?
- How complete and accurate is the facility operating record?
- Is there confidence that the record accurately reflects spills, releases, lapses in maintenance or other events that may have a bearing on potential facility impacts?
- To what extent have closure activities minimized or eliminated escape of hazardous waste, hazardous constituents, leachate, contaminated runoff, or hazardous waste decomposition products to the ground, surface waters or the atmosphere during the post-closure care period?

In order to fully understand the facility history, EPA recommends that the permit authority also review the closure plan and certification of closure. [11]

Gas Collection System Integrity: For units that have a landfill gas collection system, it is important to analyze the extent to which it is capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility. In addition, because gas emissions can increase or decrease over time, it is recommended that statistical or graphical analysis of the data be used to identify any significant changes in gas emissions.

- To what extent is the gas collection system capable of being modified or shut down at the end of the post-closure care period without exceeding emission levels that are consistent with applicable regulatory standards and with public safety at the facility?

Integrity of Cover System: A viable cover is the most important mechanism in preventing leachate generation and, ultimately, releases of contaminants. Cracks, burrows from animals, and other problems are likely to occur after termination of post-closure care. If testing and inspection end, problems can go undetected and releases could occur. Thus, it is vital to evaluate the performance of the cover system during the post-closure care period.

[11] For further information on closure performance standards, see 40 CFR 264.111 and 265.111.

- Has the cover system been designed and maintained to minimize migration of water into the management unit and to prevent contaminants from escaping into the environment?
- Has periodic testing or inspection been conducted to identify and assure any necessary repairs? Potential concerns include differential settlement, problems with cover integrity (cracks, burrows, etc.), cover drainage, and the adequacy of the diversion or drainage system. Even where such problems have not occurred, are they likely to arise without long-term care, *e.g.*, will the cover system remain intact without mowing to prevent growth of trees?
- Is the remaining waste likely to be so benign that even with a compromised cover system release of hazardous constituents is unlikely?
- To what extent will the integrity of the cover system be preserved in the absence of long-term care or with reduced maintenance requirements?

For alternative covers, it is recommended that the potential effects of climate change (*e.g.,* increasing frequency and intensity of weather events) be taken into account to the extent practical. For example, will the vegetation remain viable under altered precipitation patterns?

Long-Term Care: The concept of long-term care (also known as long-term stewardship) generally includes the establishment and maintenance of physical and legal controls that are necessary to prevent unacceptable exposure to hazardous waste or contaminated environmental media left in place at a site or closed facility. As a general matter, the RCRA post-closure care requirements (for example, monitoring and cap maintenance) fall under the umbrella of long-term care. When considering whether to adjust the post-closure care period, permitting authorities should evaluate any continuing need to maintain engineering controls (ECs),[12] particularly those specified in the RCRA post-closure care regulations.

- How will the potential for human exposure to contamination be minimized in the absence of RCRA post-closure care?
- How is the integrity of the entire containment system going to be preserved over time?
- Can maintenance and monitoring activities cease or be reduced without causing an adverse impact to human health and the environment?

A further need to maintain ECs could justify an extension of the post-closure care period. This may be the case even if the frequency of some activities could be adjusted (*e.g.,* some activities may be needed more frequently in the early years of the post-closure care period and less frequently later).

The RCRA post-closure care regulations provide for the imposition of institutional controls (ICs)[13] as well. For example, §§ 264/265.117(c) provides that post-closure uses of a property where hazardous wastes remain after final or partial closure must never be allowed to disturb the integrity of the containment system or the functioning of the monitoring system, with limited exceptions. In addition, §§ 264/265.119(b)(1)(ii) provide that the owner or operator must record a notation, in accordance with state law, 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, among other things, the property's use is restricted under the RCRA closure/post-closure regulations. States can

[12] Engineering controls are the engineered physical barriers or structures (*e.g.*, caps, impermeable liners, mitigation barriers, or fencing) designed to monitor and prevent exposure to the contamination.
[13] Institutional controls are administrative or legal instruments (*e.g.*, deed restrictions/notices, easements, restrictive covenants, zoning) intended to minimize the potential for human exposure to contamination by limiting land or resource use.

choose to supplement or support such deed restrictions under state law, *e.g.*, by setting up a deed restriction tracking system, ensuring that deed restrictions remain in place, or ensuring that information on existing ICs is available to interested parties.

Even in cases where the post-closure care period need not be extended to protect human health and the environment, the permitting authority may want to ensure that some long-term ICs, such as an easement that provides access to the property, are continued. EPA recommends that any ICs (under state or local authority) needed beyond the post-closure care period be in place before the post-closure care period ends. EPA expects that the permit authority would typically need to assess the availability and adequacy of other potential mechanisms for overseeing ICs as part of evaluating whether any modification to the post-closure care period was warranted.

EPA also recommends that consideration be given as to whether a funding source is available to support any necessary ECs and ICs in the future (see Appendix B for a list of ICs resources.) This could be done, for example, as part of an anticipated future use (or end-use strategy) that generates revenue, so that protective controls at the unit can be continued while supporting beneficial reuse of the land into the future.

Recommended Approach for Reviewing Hazardous Waste Management Units Approaching the End of the Post-Closure Care Period

EPA believes that, at a minimum, it is important to make a decision about the length of the post-closure care period, and to document such decision, well before that period nears its end. Therefore, EPA recommends that regulators assess the overall status of all the units under post-closure care, and plan to evaluate the adequacy of their post-closure care periods well in advance of their anticipated conclusions. EPA also recommends that the results from the evaluation of the post-closure care period be included in the regulator's administrative record for the facility.

As stated before, the federal RCRA hazardous waste regulations provide discretionary authority to the permitting authority to extend or shorten the length of the post-closure care period. However, the facility owner or operator is responsible for providing the information necessary to support this decision (see, for example, 40 CFR 270.30(h), Duty to provide information). A lack of relevant and complete information may justify a conclusion by the regulatory authority that extension of the post-closure care period is necessary to protect human health and the environment until such information is provided.

EPA's recommendations for evaluating units approaching the end of the post-closure care period are discussed in more detail below.

Timing: Regulators should track permit terms and dates of all post-closure permits and have a strategy for when they will begin looking at whether to adjust the post-closure care period, allowing enough time for the necessary steps to take place prior to the 30-year expiration:

- Identify and gather necessary information
- Evaluate information
- Decide whether to adjust the post-closure care period
- Incorporate tentative decision into permit renewal (or modification) process.

For units with operating permits, EPA recommends starting the process at least 18 months before the expiration of the post-closure permit or post-closure care period, whichever comes first. It is important to keep in mind that in accordance with § 270.1(c) units subject to post-closure care must have post-closure permits or an enforceable document in lieu of a post-closure permit and, under § 270.50, permits can be issued for no longer than ten years. Consequently, over the course of a 30-year post-closure care period, the permit would normally need to be renewed at least twice (unless the post-closure care period has been modified). In addition, for a permitted land disposal facility, the length of the post-closure care period is an important component of the five-year review required under § 270.50(d). The facility owner or operator may also initiate the post-closure care evaluation and/or modification process by submitting a permit modification. Similarly, regulators should evaluate petitions to end or shorten the post-closure care period in a timely manner.

For facilities conducting post-closure care under interim status, regulators might want to adopt time frames for review similar to those of permits (*e.g.*, every ten years) to initiate the process of identifying and gathering relevant information. At a minimum, they should evaluate the adequacy of the post-closure care period well in advance of its end date. The facility owner or operator may also initiate the process by submitting a revision to their post-closure plan, including a petition in accordance with § 265.118(g)(1).

Post-Closure Plan: When considering adjusting or ending the post-closure care period, regulators should request a copy of the most current version of the approved post-closure plan, along with any proposed revisions provided by the owner or operator. Under §§ 264.118(b) and 265.118(c), the post-closure plan identifies certain activities (and their frequency) that must be conducted during the post-closure care period (*e.g.*, monitoring and maintenance). The post-closure plan may also identify performance standards or performance goals, which should be updated to account for any new information on toxicity and carcinogenicity. The post-closure plan thus provides an important starting point for the review. The project file should have a history of permit modifications including those made to the post-closure plan. It is also important that the results of the post-closure period assessment be incorporated into a revised post-closure plan (and the permit), as appropriate.

Relevant Information: As part of the review of the post-closure plan and any relevant historical information, regulators should determine whether they possess the information necessary to adequately evaluate the conditions at the unit so that a decision about the post-closure care period can be made. Relevant information may include monitoring reports, results from testing or inspections of the cover system, information concerning land use and institutional controls, and any other information that would be helpful in determining whether post-closure care continues to be needed for the unit. The absence of adequate information (*e.g.*, to address unresolved risk issues), including failure of the permittee to provide necessary information, will make it difficult for the permitting authority to conclude that allowing the post-closure period to end or shortening the post-closure care period meets the regulatory standard. The permitting authority can conclude that an extension of the post-closure care period is necessary to protect human health and the environment until the information necessary to make a final determination is available. Any proposal to adjust the post-closure care period should be supported by adequate data and analysis to demonstrate the anticipated long-term performance of the unit. To account for cyclical fluctuations in weather and hydrology, EPA recommends that multiple-year performance data be considered (*e.g.,* ten years).

The recommended criteria outlined in the previous section are also relevant to inform deliberations on whether and what additional information about the facility is necessary.

If information becomes available indicating changing circumstances that might necessitate the need to revisit the post-closure care (*e.g.,* monitoring results show leaching) it is recommended that the regulator immediately request any additional information needed from the facility owner or operator to inform a decision about adjusting the post-closure care period. This can be accomplished through various means, including under the facility's permit terms (*e.g.,* under § 270.30(h), the permit holder has a duty to provide relevant information and records; under § 270.30(k)(4), monitoring results must be reported at intervals specified in the permit); through enforcement of the relevant interim status regulations; or through inspections or studies required pursuant to RCRA sections 3007 or 3013.

Expiration/Renewal of Post-Closure Permits: Permits are issued for a fixed term not to exceed ten years, which means post-closure permits will need to be renewed periodically throughout the post-closure care period (*e.g.,* a 30 year period could span three permit terms). Renewal applications must be submitted 180 days before the expiration date of an effective permit (see § 270.10(h)). Frequently, facility owners or operators do not submit a renewal application as they approach the permit's expiration date because they believe they will submit an acceptable certification that they have completed post-closure care for the unit(s). If, towards the end of the permit term, the permitting authority has not received a permit renewal application from the facility or if the permitting authority anticipates that there may be any issues regarding the acceptability of the certification of completion of post-closure care, EPA recommends that the regulatory authority remind the owner or operator that the regulations require the facility to provide the required certification or reapply for a permit, and request submission of the permit renewal application (see §§ 270.10(h) and 270.30(b)). Timely submission of an application for permit renewal will ensure that a valid permit is in effect (pursuant to § 270.51) pending a resolution. If a facility owner or operator does not submit a timely renewal application, and the permit is not administratively continued, the regulator may consider initiating an enforcement action or issuing a new permit (see § 270.51(c)).

Public Participation: Any potential adjustments to the length of the post-closure care period are subject to requirements for involving the public. For permitted facilities, extensions to the post-closure care period would be processed as a Class 2 modification, and reductions would be Class 3. In both cases, the regulator must provide public notice, hold a public meeting, and allow an opportunity for written comments to be submitted. Similarly, for adjustments in the length of the post-closure care period at interim status facilities, the regulator must provide public notice and an opportunity for written comments. Although there is no specific provision in the regulations to notify the public when a post-closure care period ends, we recommend that the regulatory authority consider providing notice to the local community when they release a facility owner or operatory from their post-closure care obligation.

Financial Assurance Requirements: Finally, permitting authorities should keep in mind that an adjusted post-closure care period may also necessitate revisions to the associated post-closure cost estimate and financial assurance.

Additional Considerations

Benefits of Post-Closure Permits: Permits are site-specific legal documents that establish the technical and administrative conditions to which a facility must adhere, in order to ensure that monitoring and maintenance activities are performed to prevent and address releases that could potentially threaten

public health and the environment and lead to cleanup obligations.[14] Thus, it is critical that any modifications to the permit are made, as necessary, to ensure they are complete and current. Permits are issued in, at most, ten-year increments to ensure they are periodically reviewed and requirements are updated as necessary. Additionally, facility owners and operators may request modifications to a permit. Although there are resources associated with permit maintenance, permits provide numerous benefits and protections such as:

- Basic Permitting Requirements – Permits are subject to the regulations governing facility permitting as set forth in 40 CFR part 270, which covers basic EPA permitting requirements, such as application requirements, standard permit conditions (*e.g.,* duty to comply, duty to reapply, duty to provide information), and monitoring and reporting requirements (*e.g.,* annual monitoring reports, compliance schedules).

- Unit-Specific Informational Requirements – Where applicable, owners or operators of a permit must submit information including detailed plans and engineering reports under § 270.14(b)(13).

- Financial Assurance – The owner or operator of a permitted unit must establish and maintain financial assurance. At facilities with units in post-closure, requirements include financial assurance for post-closure care in accordance with the approved post-closure plan for the facility, for as long as the unit remains subject to RCRA post-closure care requirements, including the post-closure permit requirement (§ 264.145).

- Corrective Action – Section 264.101 requires that all permits include requirements for facility-wide corrective action as necessary to protect human health and the environment.

- Enforceability – The permitting authority can enforce RCRA permit requirements including through facility inspections, record reviews, and other means. Section 270.28 provides that the permittee shall allow the regulatory authority to perform inspections at the facility.

- Public Participation – The permitting process of 40 CFR parts 270 and 124, and the permit modifications procedures in § 270.42 provide for public involvement. The public has the opportunity to comment on a facility's closure and post-closure plans as part of the initial permitting process and any amendments made to the plans as part of the permit modification procedures.

- Additional Conditions – Section 3005(c)(3) of RCRA (codified at 40 CFR 270.32(b)(2) and commonly referred to as the "omnibus authority"), allows for additional site-specific permit conditions to be incorporated into RCRA permits, should such conditions be necessary to protect human health and the environment.

- When permits incorporate the technical requirements contained in parts 264, 266, and 267 of the regulations, those permit conditions are not subject to challenge (*i.e.,* a number of permit conditions are required by the regulations themselves).

- Permit requirements cannot be terminated merely by sale of the property or bankruptcy of the owner or operator.

Relationship of Subpart F Corrective Action and Post-Closure Care: Corrective action and post-closure care requirements for a regulated unit may be linked, for example, in the case of groundwater

[14] Owners and operators of units subject to post-closure care, must have post-closure permits, "unless they demonstrate closure by removal or decontamination as provided under § 270.1(c)(5) and (6), or obtain an enforceable document in lieu of a post-closure permit, as provided under paragraph (c)(7) of this section" (see §270.1(c)).

monitoring and/or corrective action for releases from closed regulated units being handled pursuant to 40 CFR 264.90–264.100. In many cases, it may be desirable (either by the facility owner/operator, the regulatory agency, or both) to coordinate the post-closure care and monitoring/corrective action requirements. EPA recommends that the regulatory agency consider extending the post-closure care period (and associated permits or other enforceable documents) when corrective action continues beyond the original post-closure care period (see §§ 264.90(c)(3) and 264.96(c)).

Post-Closure Rule:[15] This rule amended the regulations applicable to facilities with land disposal units in two areas. First, it modified the requirement for a post-closure permit to provide EPA and the authorized states discretion to use a variety of authorities to address the post-closure period at non-permitted facilities. In addition, it amended the regulations governing closure of land-based units to allow EPA and the authorized states to address those units through the corrective action program in certain situations where regulated units and other solid waste management units have contributed to a release.

Scope of Guidance and Relationship to Existing Guidance: This document is not intended to provide guidance on decisions to extend or shorten the post-closure care period for *non-hazardous* waste units (*i.e.,* units regulated under RCRA Subtitle D), nor is it intended to replace existing guidance concerning establishment and attainment of remedial goals at contaminated facilities addressed under RCRA Subtitle C authority. This guidance is meant to supplement any existing guidance on the post-closure care period, and should be used in concert with the Technical Evaluation Criteria and Site-Specific Factors to Consider in Determining the Length of the Post-Closure Care Period, presented in the Appendix B of the *RCRA Guidance Manual for Subpart G Closure and Post-Closure Care Standards and Subpart H Cost Estimating Requirements* of January 1987.[16] This document provides additional considerations and factors that are not included in the 1987 guidance, such as vapor intrusion, updated toxicity values, and climate change considerations – although the updates presented in this guidance are not intended to be comprehensive.

Relationship to State Authorities: Under RCRA, states may apply to, and receive from EPA, authorization of a state program to operate in lieu of the federal RCRA hazardous waste program. *These state programs may be broader in scope or more stringent than EPA's RCRA hazardous waste regulations, and requirements can vary from state to state*. Members of the regulated community are encouraged to contact their state agencies for the particular post-closure care requirements that apply to them in any particular state.

For additional information, feel free to contact me, or your staff may contact Lilybeth Colon (colon.lilybeth@epa.gov, 703-308-2392) or Tricia Buzzell (buzzell.tricia@epa.gov, 703-308-8622).

[15] See *Standards Applicable to Owners and Operators of Closed and Closing Hazardous Waste Management Facilities: Post-Closure Permit Requirement and Closure Process*; Final Rule, October 22, 1998 (63 FR 56710).

[16] OSWER Policy Directive #9476.00-5, EPA/530-SW-87-10. Appendix B of this guidance presents technical factors to consider in determining the length of the post-closure care period as well as a number of hypothetical scenarios illustrating how site-specific information might be used to support an extension or reduction in the length of the period.

Appendix A: Overview of Federal Regulatory Provisions

Regulations governing RCRA post-closure care are set forth in 40 CFR part 264 subpart G for permitted facilities and part 265 subpart G for interim status facilities. Additional requirements for post-closure care of specific types of units are included in the regulations for those units. See §§ 264/265.197 (Tank Systems); §§ 264/265.228 (Surface Impoundments); §§ 264/265.258 (Waste Piles); §§ 264/265.280 (Land Treatment Units); §§ 264/265.310 (Landfills); § 264.603 (Miscellaneous Units); §§ 264/265.1102 (Containment Buildings); and §§ 264/265.1202 (Hazardous Waste Munitions and Explosives Storage).

Regulations governing financial assurance for post-closure care are set forth in 40 CFR part 264 subpart H for permitted facilities and part 265 subpart H for interim status facilities.

Regulations governing facility permitting are set forth in 40 CFR part 270.

> *Post-Closure Care* – Sections 264.117(a) and 265.117(a) establish general requirements for post-closure care and a 30-year post-closure care period. However, the regulations also allow the permitting authority to shorten the 30-year post-closure care period if the reduced period is sufficient to protect human health and the environment, or to extend it, if necessary (see the *Post-Closure Plan Amendment* section for more details). Sections 264.117(a)(2)(i) and 265.117(a)(2)(i) provide the following examples for shortening the post-closure care period: "...(*e.g.*, leachate or groundwater monitoring results, characteristics of the hazardous wastes, application of advanced technology, or alternative disposal, treatment, or re-use techniques indicate that the hazardous waste management unit or facility is secure)."
>
> Sections 264.117(a)(2)(ii) and 265.117(a)(2)(ii) provide the following example for extending the post-closure care period: "...(*e.g.,* leachate or groundwater monitoring results indicate a potential for migration of hazardous wastes at levels which may be harmful to human health and the environment)."
>
> *Post-Closure Plan* – Under §§ 264.118 and 265.118, the owner or operator of specified units must have a written post-closure plan. The plan must identify monitoring and maintenance activities that will be carried out after closure, and their frequency, to assure compliance with the requirements of specific subparts, including subparts F, K, L, M, N and X, where applicable. For permitted facilities (§ 264.118(a)), the post-closure plan must be submitted with the permit application and approved by the permitting authority as part of permit issuance procedures. The approved post-closure plan becomes a condition of any RCRA permit issued (see the *Post-Closure Plan Amendment* section for more details). For interim status facilities (§ 265.118), the owner or operator must submit the post-closure plan to the permitting authority within specified time frames, and the regulations provide for making the post-closure plan available to the regulatory authority.
>
> *Procedures for Post-Closure Plan Amendment* – For permitted facilities*,* the process for making changes to the post-closure plan is through permit modification (permit modification procedures are set forth in § 270.42). Under § 264.118(d)(1), the owner or operator may submit a written notification or request for a permit modification to amend the post-closure plan. Under § 264.118(d)(2), the owner or operator must submit a written notification of the permit modification or request for a permit modification to authorize a change in the approved post-closure plan under certain circumstances. Specific reasons set forth in the regulations include changes in operating plans or facility design that affect the approved post-closure plan, and

events occurring during the active life of the facility that affect the approved post-closure plan. For interim status facilities, § 265.118(d) prescribes procedures for amending the post-closure plan. The permitting authority may also request modifications to the post-closure plan under §§ 264.118(d)(4) and 265.118(d)(4).

Procedures for Post-Closure Care Period Adjustment – Adjustments to the post-closure care period may be initiated at any time preceding partial or final closure or at any time during the post-closure care period of a particular unit. For interim status facilities, § 265.118(g) prescribes a process for extending or shortening the post-closure care period that includes provisions for public involvement. For permitted facilities, § 264.117(a)(2) provides for shortening or extending the post-closure care period in accordance with the permit modification provisions in parts 124 and 270.

Section 270.41 provides for Agency-initiated permit modifications. EPA may modify a permit for the following reasons: if there have been material and substantial alterations or additions to the facility; there is new information that was not available at the time of permit issuance; new statutory or regulatory requirements were promulgated; EPA has cause to initiate a compliance schedule under § 270.33; or as necessary to assure that the facility continues to comply with the currently applicable requirements in parts 124, 260 through 266, and 270, when a permit for a land disposal facility is reviewed by the Director under § 270.50(d).

Section 270.42 contains the regulations that apply to the modification of a permit at the request of the permittee. For all modifications, the permittee submits information to EPA that describes the exact change to be made to the permit conditions, identifies whether the modification is Class 1, 2, or 3, and provides the applicable permit application information.

The process for extending the post-closure care period is a Class 2 modification, while the process for shortening the post-closure care period is a Class 3 modification (§ 270.42, Appendix I, E2 and E3). These procedures include provisions for public involvement. The post-closure care period can also be modified through permit renewal under § 270.32(d).

Financial Assurance for Post-Closure Care – EPA's regulations under parts 264/265 subpart H establish requirements for financial assurance, including financial assurance requirements for post-closure care (see §§ 264.140 and 265.140). Under §§ 264.144 and 265.144, the owner or operator is required to have detailed written cost estimates for post-closure monitoring and maintenance in accordance with the applicable post-closure care requirements. Under §§ 264.145 and 265.145 generally, the owner or operator is required to establish financial assurance for post-closure care in an amount equal to the current post-closure cost estimate.

Certification of Completion of Post-Closure Care and Release of Owner and Operator from Financial Assurance Requirements – Under §§ 264.120 and 265.120, the owner or operator must submit certification that the post-closure care for the unit(s) was performed in accordance with the approved post-closure plan; the certification must be sent by registered mail to the permitting authority. This certification must be submitted no later than 60 days after the completion of the post-closure care period for each hazardous waste disposal unit. The certification must be signed by the owner or operator and a qualified professional engineer. Documentation supporting the professional engineer's certification must be furnished to the permitting authority upon request until the permitting authority releases the owner or operator from the financial assurance requirements for post-closure care under §§ 264.145(i) and 265.145(h).

Under §§ 264.145(i) and 265.145(h), within 60 days of receipt of certification from the owner or operator and a qualified professional engineer that the post-closure care has been completed for a hazardous waste disposal unit in accordance with the approved plan, the permitting authority will notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care for that unit. If the permitting authority has reason to believe that post-closure care has not been in accordance with the approved post-closure plan, the permitting authority must provide the owner or operator a detailed written statement of any such reason.

Scope of the Post-Closure Permit Requirements – Under § 270.1(c), owners and operators of surface impoundments, landfills, land treatment units, and waste pile units that received waste after July 26, 1982, or that certified closure (according to § 265.115) must have post-closure permits, unless they demonstrate closure by removal or decontamination, or obtain an enforceable document in lieu of a post-closure permit as provided under § 270.1(c)(7). Under § 270.10(h), if a permittee has an effective permit and they want to renew it, they must submit a new application at least 180 days before the expiration date of the effective permit.

Monitoring and Records – Under § 270.30(j)(2), the permittee must retain records of all monitoring information for a period of at least three years from the date of sample, measurement, report, or certification, unless extended by request of the permitting authority at any time. Records from all groundwater monitoring wells and associated groundwater surface elevations must be maintained for the active life of the facility, and for disposal facilities for the entire post-closure care period.

Compliance with an Expiring Permit – Under § 270.51(c), if the permittee is not in compliance with the conditions of the expiring or expired permit, the permitting authority may issue a new permit under part 124, initiate enforcement action, or take other actions authorized by the RCRA regulations.

Appendix B: Institutional Controls (ICs) Resources

The following resources may be helpful in implementing and maintaining ICs throughout the post-closure care period and beyond.

- EPA guidance on *Ensuring Effective and Reliable Institutional Controls at RCRA Facilities* (Matt Hale, Director, Office of Solid Waste, and Susan Bromm, Director Office of Site Remediation and Enforcement, June 14, 2007) sets forth guiding principles and recommendations that can help EPA and state decision makers on the use of ICs at RCRA facilities, and EPA resources for additional information and assistance.

- *Institutional Controls: A Site Manager's Guide to Identifying, Evaluating, and Selecting Institutional Controls at Superfund and RCRA Corrective Action Cleanups* guidance provides some discussion about how ICs can be used at post-closure care facilities. (p.3 text box) EPA 540-F-00-005, OSWER 9355.0-74FS-P, September 2000, https://www.epa.gov/fedfac/institutional-controls-site-managers-guide-identifying-evaluating-and-selecting-institutional

- *Institutional Controls: A Guide to Preparing Institutional Control Implementation and Assurance Plans at Contaminated Sites* provides information and recommendations that should be useful for planning, implementing, maintaining and enforcing ICs, and offers an overview of EPA's policy regarding the roles and responsibilities of the parties involved in the various life-cycle stages of ICs. Final, December 2012. OSWER 9200.0-77, EPA-540-R-09-002, https://www.epa.gov/fedfac/institutional-controls-guide-preparing-institutional-control-implementation-and-assurance

- *Institutional Controls: A Guide to Planning, Implementing, Maintaining, and Enforcing Institutional Controls at Contaminated Sites* guidance also discusses how ICs could be used at RCRA post-closure care facilities. (Section 2.3) Final, December 2012. OSWER 9355.0-89, EPA-540-R-09-001, https://www.epa.gov/fedfac/institutional-controls-guide-planning-implementing-maintaining-and-enforcing-institutional

- *Long-Term Stewardship: Ensuring Environmental Site Cleanups Remain Protective over Time* report identifies long-term stewardship challenges and opportunities for improvement, and makes recommendations for how EPA and its state, tribal, and local partners should proceed in addressing them. This report also includes a definition of long-term stewardship, why long-term stewardship is important, and what EPA and others are currently doing to address long-term stewardship issues. Final, September 2005, EPA 500-R-05-001, https://nepis.epa.gov/Exe/ZyNET.exe/P100119V.TXT?ZyActionD=ZyDocument&Client=EPA&Index=2000+Thru+2005&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5Czyfiles%5CIndex%20Data%5C00thru05%5CTxt%5C00000015%5CP100119V.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1&SeekPage=x&ZyPURL

ASTSWMO, Providing Pathways to Our Nation's Environmental Stewardship Since 1974

ASTSWMO POSITION PAPER
POST-CLOSURE CARE BEYOND 30 YEARS AT RCRA SUBTITLE C FACILITIES

BACKGROUND

Regulations promulgated under the authority of Subtitle C of the Resource Conservation and Recovery Act (RCRA), include provisions regarding the post-closure care of hazardous waste land disposal units. The Subtitle C regulations establish a 30-year post-closure care period as the default requirement (See 40 CFR § 264.117).

These regulations include provisions allowing the 30-year period to be extended or shortened. The 30-year period may be extended if the Environmental Protection Agency (EPA) Regional Administrator (RA) or Director of an authorized State program "finds that the extended period is necessary to protect human health and the environment" and may be shortened if the RA or State Director finds that a reduced period is sufficient to protect human health and the environment. After completion of the established post-closure care period, the owner or operator is required to certify that the post-closure period was performed in accordance with the approved post-closure plan. Similar provisions are found in regulations for nonhazardous waste disposal units promulgated under the authority of Subtitle D of RCRA.

Facilities around the country are approaching or have already arrived at the end of the initial 30-year post-closure period, and many States are grappling with the issue of how to address this situation. ASTSWMO raised several questions and asked EPA to address a number of issues regarding this topic in its October 17, 2012 Position Paper.

While EPA's December 15, 2016 Memorandum addressed several of ASTSWMO's requests, and provides guidance on this issue, it does not fully address all of ASTSWMO's concerns and the situations faced by the States with disposal units at the end of the 30-year post closure period cited in the regulations. Failure to address these concerns may lead to hazardous waste disposal units exiting post-closure care without sufficient controls (including land use restrictions) in place. If this occurs, ASTSWMO is concerned that unregulated development, or even simple neglect of these units will result in the release of hazardous wastes and hazardous constituents. This will ultimately lead to those units/facilities being regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

ASTSWMO members agree that controls need to remain in place in perpetuity if wastes are present in the disposal units. These controls must be required even if the unit has met all the requirements of its post-closure permit and there is currently no groundwater contamination associated with the unit.

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ASTSWMO POSITION PAPER
POST-CLOSURE CARE BEYOND 30 YEARS AT RCRA SUBTITLE C FACILITIES

ISSUES

The Hazardous Waste Subcommittee's Corrective Action and Permitting (CAP) Task Force has highlighted the following as key issues:

- A clear statement is needed from the EPA that there is a presumption that a Subtitle C post-closure care obligation remains as long as hazardous waste remains in a closed land disposal unit, even if there is no evidence of a release after 30 years of post-closure care (although a facility may be able to rebut this presumption on a case-by-case basis),

- The need for a clear statement identifying facility financial assurance obligations during an extended post-closure period, that ensures cost estimates are periodically updated and that financial assurance instruments are maintained to ensure adequate coverage,

- If an alternate enforceable document (such as an order or environmental covenant under the Unified Environmental Covenant Act) can be used in place of a post-closure permit, identification of the minimum controls and restrictions that need to be included in this document or order, and

- Guidance addressing the addition of an emerging or newly listed contaminant to monitoring requirements.

POSITION

The ASTSWMO Board of Directors recommends that EPA either revise the RCRA regulations for post-closure or issue supplemental guidance on the implementation of the post-closure regulations under Subtitle C of RCRA. Such guidance should be congruent with the key issues highlighted in the issues section of this position paper. ASTSWMO remains ready to work with EPA to achieve a mutually satisfactory outcome on this very important issue.

Approved by the ASTSWMO Board of Directors on July 20, 2022 in Park City, UT.

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.

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
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JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

217/524-3301

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

SEP 26 2023

7022 1670 0001 4386 2511

James P. Hrusovsky
Alton Steel, Inc.
5 Cut Street
Alton, Il. 62002

RE: 1190100004 – Madison County
Alton Steel, Inc.
ILD006280606
Log No. B-160R2
RCRA Administrative Record
Permit Approval

Dear Mr. Hrusovsky:

Enclosed is a final renewed Resource Conservation and Recovery Act (RCRA) Post-Closure Permit for Alton Steel, Inc. 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 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 Renewed RCRA Post-Closure Permit were from Alton Steel, Inc. Illinois EPA's responses to these comments are attached to this letter.

This action shall constitute 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 Illinois Environmental Protection Act by filing a petition for a hearing within thirty-five (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 ninety (90) days by written notice from the applicant and the Illinois EPA within the initial 35-day appeal period. If the applicant 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
Attn: Land Enforcement Unit Manager
1021 North Grand Avenue East
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, Clerk
State of Illinois Center
100 West Randolph, Suite 11 500
Chicago, IL 60601
312/814-3620

Any questions regarding groundwater issues, please contact Paula Stine at 217/557-8770. For all other question, please contact Kelly Huser at 217/524-3867.

Sincerely,

Jacqueline M Cooperider

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC: KDH:1190100004-RCRA-B160R2-Approval.docx
KDH & TNH
Attachment: Illinois EPA's Response to ASI's Comments
Renewed RCRA Post-Closure Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Emily Keener, U.S. EPA – Region V
Matt Gill, Alton Steel, Inc.

ILLINOIS EPA'S RESPONSE TO COMMENTS
Alton Steel, Inc.
Draft RCRA Renewal Post-Closure Permit
Dated 06/12/23

The responses below address comments received from Alton Steel, Inc. (ASI) dated July 27, 2023, and received by Illinois EPA on August 2, 2023 pertaining to the draft renewal permit for Alton Steel, Inc. issued June 12, 2023.

ASI Comment 1:

Page II-3 of II-9 (Section C.1.): *This paragraph should be deleted. Pursuant to 35 IAC 724.217(a)(2)(B), the post-closure care period can only be extended past 30 years by Illinois Pollution Control Board action by an adjusted standard issue to protect human health and the environment (e.g. groundwater monitoring results indicate a potential for migration of hazardous wastes at levels that may be harmful to human health and the environment). Groundwater monitoring results at the site have not shown any significant migration of hazardous wastes. No Board action on an adjusted standard has been suggested or initiated.*

The Draft Permit suggests that ongoing corrective action activities at the site are a reason to require extending the post-closure care period, however the corrective action activities are well outside of the area containing the CWP CAMU. Groundwater monitoring at the perimeter of the plant boundaries is on-going and would detect any migration of constituents of concern in the corrective action areas.

None of the codes or sections of the Act cited in the Draft Permit authorizes the Agency to extend the post-closure care period.

Illinois EPA Response to Comment 1:

ASI claims that none of the codes of sections of the Environmental Protection Act (Act), 415 ILCS 5/, provide Illinois EPA with authority for its determination to extend the post-closure care period of the closed hazardous waste consolidated waste pile corrective action management unit (CWP CAMU), yet Illinois EPA has broad regulatory authority under the Act to require permit conditions that it finds are necessary to protect human health and the environment. Specific to hazardous waste, Illinois EPA has primacy to implement portions of the federal Resource Conservation and Recovery Act (RCRA) through its promulgated regulations. In addition, Illinois EPA utilizes in its decision-making processes guidelines from the United States Environmental Protection Agency (USEPA) intended to provide guidance to federal and state regulators on implementing the RCRA Subtitle C regulations and to provide policy advice and recommendations.

Pursuant to Section 39(g) of the Act:

> The Agency shall include as a condition upon all permits issued for hazardous waste disposal sites such restrictions upon the future use of such sites as are necessary to protect public health and the environment, including permanent prohibition of the use of such sites for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Agency shall file such restrictions of record in the Office of the Recorder of the County in which hazardous waste disposal site is located.

The comments raised by ASI do not respond to this statutory provision. With specific regard to condition II.C.3. of the Draft Permit, Illinois EPA provided a paraphrase of Section 39(g) of the Act. (See: p. II-4 of II-9 of Draft Permit).

Additionally, 35 Ill. Adm. Code 724.217(c) was not addressed in the comments provided by ASI, as condition II.C.4 of the Draft Permit is also a paraphrase of that section of the State's RCRA regulations.

Pursuant to 35 Ill. Adm. Code 703.241 Establishing Permit Conditions (emphasis added):

a) General Conditions:

> 1) In addition to the conditions established pursuant to 35 Ill. Adm. Code 702.160(a), each RCRA permit must include permit conditions necessary to achieve compliance with each of the applicable requirements specified in 35 Ill. Adm. Code Parts 724 and 726 through 728. In satisfying this provision, the Agency may incorporate applicable requirements of 35 Ill. Adm. Code Parts 724 and 726 through 728 directly into the permit or establish other permit conditions that are based on these Parts;
>
> **2) Each RCRA permit issued pursuant to Section 39(d) of the Environmental Protection Act [415 ILCS 5/39(d)] must contain terms and conditions that the Agency determines are necessary to adequately protect human health and the environment; and**
>
> 3) If, as the result of an assessment or other information, the Agency determines that conditions, in addition to those required under subpart EEE of 40 CFR 63 or 35 Ill. Adm. Code Parts 724 or 726, are necessary to ensure adequate protection of human health and the environment, the Agency must include those terms and conditions in a RCRA permit for a hazardous waste combustion unit.

In sum, Illinois EPA may: 1) impose permanent prohibitions pursuant to Section 39(g) of the Act; 2) require that the integrity of the final cover must never be allowed to be disturbed pursuant to 35 Ill. Adm. Code 724.217(c); and 3) require that each RCRA permit contain terms and conditions that Illinois EPA determines are necessary to adequately protect human health and the environment pursuant to 35 Ill. Adm. Code 703.241.

As noted above, the Illinois EPA also utilizes guidance documents provided by the USEPA to inform its decisions. One such document is titled Guideline for Evaluating Post-Closure Care Period, dated December 15, 2016. This guidance provides that (emphasis in the original text): "EPA regulations require that the post-closure care period for each hazardous waste management unit subject to the requirements of 40 CFR 264/265.117 through 264/265.120 must begin after completion of closure of the unit and continue for 30 years after that date. Still, the regulations' identification of a default 30-year post-closure care period does **not** reflect a determination by EPA that 30 years of post-closure care is necessarily sufficient to eliminate potential threats to human health and the environment in all cases. Nor is the full 30-year period always necessary. In fact, the regulations provide for a permit authority to conduct a case-by-case review of the post-closure care period and establish arrangements to adjust the length of the post-closure care period on a facility or unit-specific basis, where the record supports a determination that the revised post-closure care period will remain protective of human health and the environment." (page 3)

The guidance also states, "According to 40 CFR 264.117 the post-closure care period may be modified under certain circumstances provided the modifications are protective of human health and the environment (emphasis added):

- The post-closure care period may be extended where ***the extended period is necessary to protect human health and the environment.***" (page 3)

Additionally, guidance explains, "An overarching consideration in determining whether to extend the post-closure care period, or allow it to end, is the inherent uncertainty associated with the long-term presence of hazardous waste in the unit. Because many hazardous wastes degrade slowly or do not degrade under containment in these units, the continued presence of hazardous waste in the unit (*i.e.*, any case other than clean closure) indicates the potential for unacceptable impacts on human health and the environment in the future if post-closure care is not maintained." (page 4) Such long term post-closure care also should continue to be carried out under a RCRA permit while the facility implements corrective action at the site to provide additional protections in accordance with the guidance.

Pursuant to the Act, 35 Ill. Adm. Code Parts 703 and 724, and the above-referenced guidelines, Illinois EPA evaluated ASI's post-closure care for the CWP CAMU and found that this unit continues to manage a listed hazardous waste, electric arc furnace dust (K061), which presents an inherent risk to human health and the environment as long as the waste remains in place. As a result, Illinois EPA has determined that continued post-closure care management of the CWP CAMU at ASI is necessary to protect human health and the environment.

ASI Comment 2:

Page II-3 of II-9 (Section C.2.): *This paragraph should be deleted. The post-closure care period should not be extended another 30 years based on the comments on Section C.1. above.*

Illinois EPA Response to Comment 2:

See Illinois EPA response to Comment 1.

ASI Comment 3:

Page II-9 of II-9 (Section G.2.): *This paragraph should be revised to state that costs are determined by multiplying annual costs by the higher of either 10 years or the remainder of the post-closure care period. In the past, the Agency has allowed the annual cost estimates to be reduced as the remaining post-closure period decreases, up to a minimum of 10 years. There is no underlying requirement in either the Illinois Administrative Code or the Act to determine costs based on 30 years when the post-closure period is less than 30 years.*

Illinois EPA Response to Comment 3:

In accordance with 35 Ill. Adm. Code 724.244 and 724.217(a)(1), the post-closure cost estimate is determined by the annual post-closure cost multiplied by the number of years for post-closure care required. For a closed hazardous waste landfill, with hazardous waste being left in place, post-closure care is required to be maintained 30 years. Regulations provided under 35 Ill. Adm. Code 724.245 outline the financial assurance mechanisms required and available to RCRA facilities. Moreover, guidance from USEPA provides that "an adjusted post-closure care period may also necessitate revisions to the associated post-closure cost estimate and financial assurance" (page 13). Illinois EPA has evaluated this requirement and has determined that a reduction of financial assurance is not appropriate. See also Illinois EPA's Response to Comment 1 above.

A RCRA-permitted facility shall maintain financial assurance for 30 years for the entire post-closure care period unless it has completed a post-closure activity or changed the frequency of an activity, that would cause a reduction in the post-closure cost estimate. If a post-closure activity is completed or a change in frequency of an activity is approved, the facility may submit a request for a reduced post-closure cost estimate to Illinois EPA. All facilities with a closed hazardous waste landfill will be required to maintain financial assurance for 30 years of post-closure care until such time the facility can certify completion of post-closure care. The Permittee must adjust the post-closure cost estimate for inflation each year.

ASI Comment 4:

Page III-A-4 of III-A-11 (Section D.1.): *Three indicator parameters were added to the semi-annual groundwater sampling: 4-methylphenol (p-Cresol), Polychlorinated biphenyls, and Total Petroleum Hydrocarbons (as motor oil Method PA-2). These parameters were previously only sampled annually, and have not shown any significant increases, therefore should remain sampled only annually.*

Illinois EPA Response to Comment 4:

The final permit will be revised to sample 4-methylphenol (p-Cresol), Polychlorinated biphenyls, and Total Petroleum Hydrocarbons (as motor oil Method PA-2) annually. Conditions III-A.D.1, III-A.E.1, and III-A.E.4 have been revised to reflect annual sampling.

ASI Comment 5:

Page IV-9 of IV-15 (Section F.1.): *"...the Permittee must implement a Corrective Measures Program (CMP) for such SWMUs in general accordance with the procedures set forth in attachment E to this permit." Attachment E is a Cost Estimate Summary and does not contain any procedures with respect to a CMP. Please clarify where CMP procedures can be found.*

Illinois EPA Response to Comment 5:

Attachment I, Corrective Measures Program Requirements, was inadvertently left out of the draft permit. Attachment I has been added to the final permit. The references in Conditions IV.F.1 and IV.F.3 have been changed to Attachment I.

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
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JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

HAZARDOUS WASTE MANAGEMENT RCRA POST-CLOSURE PERMIT

1190100004 -- Madison County
Alton Steel, Inc.
ILD006280606
Permit Log No. B-160R2
RCRA Administrative Record

Issue Date: September 26, 2023
Effective Date: October 31, 2023
Expiration Date: October 31, 2033

PERMITTEE

Alton Steel, Inc.
5 Cut Street
Alton, Illinois 62002

A RCRA Post-Closure permit is hereby granted to Alton Steel, Inc. (ASI) as Owner, Operator and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act, and Title 35 Illinois Administrative Code Subtitle G (35 Ill. Adm. Code).

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires ASI to conduct the following hazardous waste activities in accordance with the approved permit application and conditions of this permit.

Post-Closure Care of a closed landfill (CWP CAMU) (D80)
Groundwater Monitoring Detection Monitoring and Perimeter Observation Monitoring
Corrective Action for several Solid Waste Management Units (SWMUs)

This permit consists of the conditions contained herein and those in the 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 Ill. Adm. Code Parts 702, 703, 705 and 720 through 729 in effect on the effective date of this permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment D of this permit and any subsequent amendments. Any inaccuracies found in this information provided in the permit application may be grounds for the termination or modification of this permit (see 35 Ill. Adm. Code 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

Jacqueline M. Cooperide

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC: KDH:1190100004-RCRA-B160R2-Approval.docx
KDH TNH RS JLP

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9511 Harrison Street, Des Plaines, IL 60016 (847) 294-4000
595 S. State Street, Elgin, IL 60123 (847) 608-3131
2309 W. Main Street, Suite 116, Marion, IL 62959 (618) 993-7200
412 SW Washington Street, Suite D, Peoria, IL 61602 (309) 671-3022
4302 N. Main Street, Rockford, IL 61103 (815) 987-7760

RCRA POST-CLOSURE PERMIT

ISSUED TO

ALTON STEEL, INC.

ALTON, ILLINOIS

STATE ID # 1190100004

ILD006280606

LOG # B-160R2

RCRA POST-CLOSURE PERMIT
B-160R2

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SECTION I: GENERAL FACILITY DESCRIPTION

1. OWNER AND OPERATOR

The facility is owned and operated by Alton Steel, Inc., herein referred to as the "Permittee." (35 Ill. Adm. Code 702.121, 702.123 & 703.181)

Alton Steel, Inc.
5 Cut Street
Alton, Illinois 62002

2. LOCATION

1. Location of Facility

The Alton Steel, Inc. facility is in Alton, Illinois. Alton Steel owns approximately 400 acres at this location with approximately 238 acres devoted to the management of hazardous waste. The Alton Steel, Inc. facility is located at:

Alton Steel, Inc.
5 Cut Street
Alton, Illinois 62002

The facility contact is the Director of Environmental Compliance and can be reached at 618-374-3570.

2. Facility Map

The location of the closed Consolidated Waste Pile (CWP CAMU) (D80) within the ASI facility is shown on the facility drawing in Attachment G of this permit.

3. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

As part of its steel manufacturing process, ASI generates electric arc furnace dust which is a listed hazardous waste (K061). ASI is a generator of K061 and recycles this waste at an off-site recycling facility in which several of the metals in the dust are recovered, primarily zinc.

There were three hazardous waste management units at the Laclede facility that managed the K061 dust. These units were identified as the CWP CAMU, Rod Patenting Building, and Pelletizer Area. Under conditions of the RCRA Post-Closure permit, hazardous waste, including contaminated soil, has been removed from the Pelletizer Area and Rod Patenting Building and placed in the CWP CAMU. The CWP CAMU was capped and closed in accordance with Laclede's RCRA Post-Closure permit on December 22, 1997.

SECTION II: POST-CLOSURE CARE

A. SUMMARY

For this RCRA Post-Closure permit, the ASI facility is comprised of approximately 238 acres of property owned by ASI, with its principal gate at 5 Cut Street in Alton, Illinois. Attachment G of this permit defines the boundaries of the ASI facility covered by this permit. The boundaries of the permitted facility include the contiguous land and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. Adjacent properties that are owned by ASI and located outside the facility boundaries covered by this permit do not have any structures, appurtenances, or improvements used for treating, storing, or disposing of hazardous waste, and do not contain any Solid Waste Management Units (SWMUs) required to be addressed by the corrective action provisions of this permit.

For the purpose of implementing remedies under 35 Ill. Adm. Code 724.201, the Illinois EPA is designating the Consolidated Waste Pile as a Corrective Action Management Unit (CWP CAMU), as defined in 35 Ill. Adm. Code 720.110. The operation of the CWP CAMU must be conducted in accordance with the requirements contained in this section and the regulations contained in 35 Ill. Adm. Code 724, Subpart S.

Hazardous waste management units where waste is left in place must receive post-closure care for at least 30 years after the date the certification of closure is approved in writing by the Illinois EPA's Division of Land Pollution Control (DLPC). The CWP CAMU was certified closed on December 22, 1997. Activities required during post-closure care include but are not limited to (1) maintenance of final cover, (2) monitoring of the groundwater, (3) providing financial assurance for post-closure activities pursuant to 35 Ill. Adm. Code Part 724.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the following hazardous waste management unit, as described in the approved permit application, subject to the terms and conditions of this permit:

Unit Designation	Capacity	Surface Area Dimensions of Unit (Acres)	Description of Waste and Hazardous Waste No.
Consolidated Waste Pile (CWP CAMU) (D80) Closed	90,000 Cubic Yards	6 acres (approximate)	Emission control dust/sludge from the primary production of steel in electric furnaces (K061)

2. Additional waste from the Rod Patenting Building, the Pelletizer Area, and certain on-site SWMUs that contained waste similar in composition to the electric arc furnace dust were deposited in the CWP CAMU.

3. The location and horizontal extent of the closed CWP CAMU is identified in Attachment G of this permit. The lowest elevations of the CWP CAMU ranges from 424.1 ft msl (mean sea level) and 431.5 ft msl. The highest elevation of the final cover system for the closed CWP CAMU is at or below 466 ft msl. The slope of the final cover on the CWP CAMU was constructed at a 4:1 slope.

4. The closed CWP CAMU is located on top of a portion of the Solid Waste Landfill (SWMU #4) and does not have an engineered liner or leachate collection system. The CWP CAMU is underlain by approximately 10-20 feet of "Fill/Slag" overlaying 15-20 feet of silty clay.

5. The cover system on top of the closed CWP CAMU is constructed of the following layers, described from the top to bottom:

    - 6 inches of topsoil
    - 30 inches of borrow soil
    - HDPE geonet between two layers of non-woven geotextile filter fabric
    - 3 feet of compacted clay soil

6. A survey plat indicating the location and dimensions of the closed CWP CAMU with respect to permanently surveyed benchmarks was prepared and certified by a professional land surveyor. The notes on the Plat of Survey state the owner's and operator's obligation to restrict disturbance of the closed CWP CAMU in accordance with the applicable 35 Ill. Adm. Code 724, Subpart G regulations. These notes state:

    a. The waste materials contained in the CWP CAMU are considered RCRA hazardous wastes. They include, slag, scrap steel, electric arc furnace (EAF) baghouse dust, and materials or debris impacted by EAF dust that were generated during closure activities. The EAF dust is a listed hazardous waste (K061).

    b. Any material removed from the CWP CAMU during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code 724 Subtitle G: Waste Disposal.

    c. The use of this area is restricted.

7. The Plat of Survey (PIN 23-1-08-20-00-000-003) and Drawing A1-439F were filed with the Madison County Recorder's Office in Edwardsville, IL on March 18, 1998. The record data is Document No. 2363-8, Book 4215, Pages 0013-0018.

   The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during a title search that will in perpetuity notify any potential purchaser of the property that:

   a) The waste material in the CWP CAMU is considered a RCRA hazardous waste;

   b) Use of the area is restricted; and

   c) A survey plat and record of the type, location and quantity of waste material in the CWP CAMU was filed with the Illinois EPA and the County Recorder.

8. The Permittee shall develop a scaled topographic drawing of each unit identified in Condition II.B.1 to determine the vertical and horizontal dimensions of each unit at least every 10 years. If a topographic drawing of a unit has not been developed in the 10 years prior to the date of this permit, it must be developed and submitted within 60 days of the effective date of the permit and every 10 years thereafter. The topographic drawings shall be maintained as part of the operating record.

   Each scaled topographic drawing shall be compared to the permitted dimensions for that unit. If a difference in elevation of more than 2 feet exists at any location on the unit, the Permittee shall notify the Illinois EPA Bureau of Land Permit Section of this finding within 30 days of the most recent survey. The notification must include the most recent survey and scale drawings of the permitted dimension for the unit, a discussion of why the difference exists, and a plan that includes a schedule for repairing the cover system to its permitted dimensions. Repairs to the cover system, and/or its components, may be considered a permit modification.

C. POST-CLOSURE CARE PERIOD

1. The post-closure care period for the CWP CAMU began on December 22, 1997, the date of completion of closure of the unit listed in Condition II.B.1 of this permit. December 22, 2027 marks the minimum requirement of 30 years after the date post-closure care began.

   Hazardous waste remains in the CWP CAMU, and corrective action activities are ongoing at the site. Due to these conditions and pursuant to 35 Ill. Adm. Code 703.241, 724.131, 724.410 as well as Section 12(a), 21(n), and 39(g) of the Environmental Protection Act, the Permittee must continue to provide post-closure care for the CWP CAMU beyond the initial 30 years of post-closure care (i.e., December 22, 2027). Post-closure care shall be extended for an additional 30 years

or until such time as no unacceptable risks to human health and the environment are present at the CWP CAMU, as determined by the Illinois EPA.

2. On or prior to December 22, 2026 (1-year before December 22, 2027), the Permittee must submit a Class 2 Permit Modification request to Illinois EPA in accordance with 35 Ill. Adm. Code 703.241(a)(2) and 35 Ill. Adm. Code 703 Appendix A.E.2 to extend the post-closure care of the CWP CAMU for an additional thirty (30) years or until such time as no unacceptable risks to human health and the environment are present at the CWP CAMU, as determined by Illinois EPA, as required in Condition II.C.1 above.

3. The Illinois EPA may include restrictions upon the future use of the site if necessary, to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste, remaining in place, is located.

4. The Permittee shall not allow the property where the unit identified in Condition II.B.1 is located to be used in a way that could disturb the integrity of the final cover, liners, any components of the containment system, or function of the facility's monitoring systems unless the Illinois EPA finds, by way of a permit modification, that such use is necessary for either of the following reasons:

    a) It is necessary to the proposed use of the property, and will not increase the potential hazard to the public health or the environment, or

    b) It is necessary to reduce a threat to human health or the environment.

5. The Illinois EPA may require the continuation of any of the security requirements during part or all of the post-closure period.

D. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the inspection schedule in Attachment A and the conditions in this permit. The form in Attachment A shall be used to document inspections and any repairs done at the facility.

2. The Permittee shall inspect the CWP CAMU at least semi-annually and within 72 hours of any rainfall event of 3 or more inches in a 24-hour period for evidence of any of the following:

a. Deterioration, malfunctions, or improper operation of run-on and run-off systems.

b. The deterioration of the cover systems.

3. Appropriate corrective action shall be taken if problems, including erosion, blockage of the channels, slope failure, etc. are observed at any time. If corrective action is taken, the area involved shall be reinspected one month following completion of the work to ensure the corrective actions have adequately corrected the problem(s) noted.

4. The Permittee shall inspect the benchmarks used to identify the location of the CWP CAMU within 60 days of the effective date of this permit and thereafter in accordance with the Inspection Schedule in the approved permit application. Benchmarks shall be repaired and resurveyed whenever an inspection of the benchmarks indicates they have been damaged. The inspection results, repairs, and surveys of the benchmarks shall be maintained as part of the operating record.

5. Results of all inspections and a description of any remedial actions taken shall be documented in the Repair Log in the Operating Record and maintained for the entire post-closure period.

E. MONITORING, MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall keep and maintain a written operating record that includes all the records, reports, notification, monitoring data, testing or analytical data, and corrective action data required by 35 Ill. Adm. Code 724.173 and the conditions in this permit, for the entirety of the post-closure care period. The operating record shall be kept onsite at the facility and available for Illinois EPA review.

2. The Permittee shall maintain and monitor the groundwater monitoring system and comply with the other applicable regulations of 35 Ill. Adm. Code 724 Subpart F (Groundwater Protection) during the post-closure period.

3. The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, and other events.

4. The Permittee shall prevent run-on from eroding or otherwise damaging the final cover. At a minimum the run-on control system shall be capable of preventing flow onto the CWP CAMU during peak discharge from a 25-year storm event.

5. The Permittee shall prevent run-off from eroding or otherwise damaging the final cover. At a minimum, the run-off management system shall be capable of collecting and controlling the volume of water resulting from a 24-hour, 25-year storm event.

6. The Permittee shall comply with the requirements for landfills described in the approved permit application and the conditions of this permit. Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed and if gas, odor, vegetative or vector problems arise, if leachate popouts or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such vegetation.

F. NOTICES AND CERTIFICATION

1. A request to change the Post-Closure Plan must be submitted in the form of a permit modification request. This request must be in accordance with applicable requirements of 35 Ill. Adm. Code Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.

2. If the Permittee or any subsequent owner or operator of the land upon which the CWP CAMU listed in Condition II.B.1 above is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, they must request a modification to this RCRA Post-Closure permit in accordance with the applicable requirements in 35 Ill. Adm. Code, Parts 703, 705 and 724. The owner or operator must at a minimum demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 Ill. Adm. Code 724.217(c).

3. If the Permittee seeks to demonstrate that they should be allowed to end the post-closure care period (e.g., all waste has been removed, and leachate and groundwater monitoring results do not indicate a potential for migration of waste at levels which may be harmful to human health and the environment), the Permittee shall submit an Environmental Covenant (EC) for the future land use and management of the property on which the CWP CAMU is located. The EC shall be submitted at least one year prior to the date the Permittee expects to submit the Certification of Completion of Post-Closure.

   Pursuant to 39(g) of the Environmental Protection Act, the purpose of the EC is to place restrictions upon the future use of the site necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The EC shall be pursuant to a consent order between the Permittee and the State of Illinois and in the form and format specified by Illinois EPA.

4. If the Permittee seeks to exit post-closure care, the Permittee shall submit the following documents to the Illinois EPA Bureau of Land Permit Section by registered mail no later than sixty (60) days after completion of the established post-closure care period for the CWP CAMU listed in Condition II.B.1 of this permit.

a. A properly completed Certification of Completion of Post-Closure Form provided in Appendix H to this permit that states the post-closure care for the CWP CAMU was performed in accordance with the specifications in the approved Post-Closure Plan in the approved permit application and the conditions in this permit. The owner, operator and a qualified Professional Engineer registered in the State of Illinois must sign the Certification Form.

b. A Post-Closure Documentation Report that documents the post-closure conditions and activities at the facility during the post-closure period. The Post-Closure Documentation Report must include the following:

    i. Background information about the facility and the unit subject to the post-closure certification. Describe the facility and RCRA permit history of the unit.

    ii. A detailed description of the unit subject to the post-closure care certification that includes:

        1. The unit's design, including liner system, sumps, leachate collection, leak detection, & gas systems, and cover system including stormwater run-off & run-on controls. Provide this information in narrative form, and scale drawings.

        2. How it was operated, and how it was closed.

        3. When it was operated, and when it was closed.

        4. The wastes disposed of in the unit (including waste codes).

        5. The amount of leachate pumped each year from each sump in the unit's leachate collection and leak detection systems during the post-closure period. Provide this information in both a table and graphically. Demonstrate the unit has met the requirements of 35 Ill. Adm. Code 724.410(b)(2).

        6. A scaled map showing location of the unit within the facility. Include all wells in the groundwater monitoring system for the unit on this map.

        7. Scaled drawings (plan view and cross-section) showing the horizontal and vertical extent of the unit at the time it was certified closed, every 10 years after it was closed, and the time the Post-Closure Documentation Report is submitted (e.g., at the end of the post-closure period). The scale of the plan view should be 1 inch =

200 feet. All design components of the unit must be shown on the drawings.

When the drawings are compared; if difference in elevation of more than 2 feet exists at any location on the unit, the Post-Closure Documentation Report needs to indicate the reason for the change in elevation, and why it would not be a concern in the future.

8. A survey of the unit when it was certified closed and at the time the Post-Closure Documentation Report is submitted (e.g., when the post-closure period ended). The surveys must be certified by a professional land surveyor.

iii. A general discussion on the inspection and maintenance of, and repairs to, the cover system, leachate collection, leak detection, gas collection, stormwater run-off & run-on controls, and wells in the groundwater monitoring system. Describe any problems and/or repairs to these systems that were addressed over the post-closure care period in chronological order. Show the locations of each of the repairs to these systems during post-closure care on a scaled drawing of the unit.

iv. A discussion on the groundwater monitoring program, including any corrective measures that were completed during the post-closure care period and a summary of the three (3) most recent years of groundwater data. Identify the horizontal and vertical extent of any groundwater contaminant plume from the unit that existed at the beginning of the post-closure period and every 5 years after that. The facility must have complied with all requirements of 35 Ill. Adm. Code Parts 620 and 724 in order to certify completion of post-closure care activities.

v. Colored photos of unit(s) at post-closure completion. Photo documentation of the unit should include at least one aerial(satellite) photo and photos of all design features of the unit.

vi. Completed Illinois EPA LPC-PA23 and 39i Forms.

c. Documentation that the EC required by Condition II.F.3 above has been placed on the deed to the property on which the CWP CAMU is located has been filed with the County Recorder's Office.

5. The certification of completion of post-closure care shall not be approved by the Illinois EPA until the Permittee demonstrated that the EC required by Condition II.F.3 above has been properly filed with the appropriate governmental office (e.g., State of Illinois, or County Recorder's Office).

6. Within sixty (60) days after receiving certifications from the owner or operator and a qualified professional engineer that the post-closure care period has been completed for the CWP CAMU listed in Condition II.B.1 of this permit in accordance with the approved Post-Closure Plan, the Illinois EPA shall notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care of that unit unless the Illinois EPA determines that post-closure care has not been in accordance with the approved Post-Closure Plan. The Illinois EPA shall provide the owner or operator with a detailed written statement of any such determination that post-closure care has not been in accordance with the approved Post-Closure Plan.

G. FINANCIAL ASSURANCE

1. The Permittee shall maintain financial assurance for post-closure care of the closed CWP CAMU listed in Condition II.B.1 of this permit of at least the amount of $578,380 (2021 dollars) until such time as it is required to be modified pursuant to Special Condition V.B.1.a. A summary of the cost estimate for post-closure care of this facility is shown in Attachment E to this permit. The financial assurance maintained by the facility shall be sufficient to meet the requirements of 35 Ill. Adm. Code 724 Subpart H.

2. Post-closure care costs are determined by multiplying annual costs by the full 30-year post-closure care period.

SECTION III: GROUNDWATER DETECTION MONITORING PROGRAM

A. SUMMARY

Groundwater parameters monitored in the Uppermost Aquifer below the CWP CAMU indicate that, at the present time, no groundwater impacts have occurred. Therefore, a Groundwater Detection Monitoring Program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented at the facility.

The ASI facility has six (6) existing wells to monitor groundwater in the Upper Silty Clay Unit (Uppermost Aquifer) and three (3) piezometers to monitor groundwater elevation in the Lower Sand and Gravel Unit that are utilized for the Groundwater Detection Monitoring Program. The Groundwater Detection Monitoring Program will therefore consist of two (2) upgradient wells, four (4) Point of Compliance wells and three (3) piezometers for determining groundwater surface elevation only.

B. DEFINITIONS

As used herein, the words or phrases set forth below shall have the following definitions:

1. "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 the aquifer in the vicinity of the facility. The Uppermost Aquifer in the vicinity of the Alton Steel facility consists of silty clay deposits and has been designated as 35 Ill. Adm. Code 620, Class II Groundwater.

2. "Permit" refers to the RCRA Post-Closure permit.

3. "ASI" shall refer to Alton Steel, Inc.

4. "Site" or "Facility" shall refer to the location as defined in Section I.A of the Permit.

5. "Permittee" refers to the Facility.

6. "Illinois EPA" refers to the Illinois Environmental Protection Agency.

7. "RCRA" shall mean the Resource Conservation and Recovery Act as defined by Section 3.425 of the Environmental Protection Act, 415 ILCS 5/3.90(2007).

8. "Point of Compliance" refers to the vertical surface located at the hydraulically downgradient limits of the CWP CAMU extending down into the Uppermost Aquifer underlying the regulated unit.

9. "Ft-bgs" refers to the number of feet below the ground surface.

10. "Ft-MSL" refers to the elevation referenced to mean sea level datum.

11. "Detected" shall mean a concentration equal to or above the PQL listed in the latest version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)" for the applicable analytical methods specified in the approved Sampling and Analysis Plan, which are incorporated by reference in Condition II.H of the Permit.

12. "Stick-up" refers to the height of the referenced survey datum. This point is determined within ± 0.01 foot in relation to mean sea level, which in turn is established by reference to an established National Geodetic Vertical Datum.

C. IMPLEMENTATION

1. The Permittee shall implement the Groundwater Detection Monitoring Program, upon the effective date of this Permit. On that date, the groundwater monitoring requirements set forth in this Permit shall supersede those previously established.

2. The Permittee shall carry out the detection monitoring specified in this Permit on the groundwater beneath the ASI CWP CAMU in Alton, Illinois. The Uppermost Aquifer beneath the CWP CAMU has been identified as the silty clay layer and is underlain by unconsolidated sediment layers consisting of sand, and sand and gravel extending to a lower confining layer within the bedrock. For the purpose of this Permit and in accordance with 35 Ill. Adm. Code Part 620 regulations, the Uppermost Aquifer has been designated a Class II: General Resource Groundwater.

3. The Point of Compliance is delineated by the wells identified as the Point of Compliance wells in Condition III.D.1.

D. WELL LOCATIONS AND CONSTRUCTION

1. The Permittee shall maintain the groundwater monitoring wells and piezometers at the locations identified in the table below to allow for the collection of groundwater samples and elevations from the Uppermost Aquifer and groundwater elevations from the Lower Sand and Gravel Unit. The location of these wells and piezometers are specified in Section C of the approved permit application.

IEPA Well No.	Facility Well No.	Well Depth (Ft-bgs)	Well Depth Elevation (Ft MSL)	Well Screen Interval (Ft-bgs)
Upgradient Well				
R005	MW-5A	15.3	408.63	5.85-15.30
G006	MW-6	35	398.66	25-35
Point of Compliance Wells				
G106	MW-B4	35	389.93	15-25
R007	R007	29.9	398.09	19.8-29.9
G008	MW-8	35	397.85	25-35
G009	MW-9	32	401.38	22-32
Piezometers				
P101	P-1	61	372.58	54-59
P102	P-2	100	332.80	45-50
P103	P-3	45	388.34	40-45

2 Construction of any new monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment C to this Permit unless otherwise approved by the Illinois EPA. Any new monitor wells/piezometers to be installed must be continuously sampled and logged on Illinois EPA boring logs which can be found on the Illinois EPA website.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III.D.1 above are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is installed and monitoring data has been obtained and verified, unless the well is extremely damaged and 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.

4. Should any well become consistently dry or unserviceable; a replacement well shall be installed within ten (10) feet of the existing well. This well shall monitor the same geologic 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 placed. A replacement 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.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets from the 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. Any additional 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

6. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be equipped with bumper guards.

7. All groundwater monitoring wells and piezometers not utilized in the groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code Part 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition III.D.5.

E. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at groundwater monitoring wells identified in Condition III.D.1 at both upgradient and Point of Compliance locations semi-annually during the active life (including closure and post-closure care period) of the CWP CAMU. Samples collected during the semi-annual sampling events of each year shall be analyzed for the field parameters and the waste constituents below. Total (unfiltered) values shall be used for comparison with groundwater quality standards. Dissolved (filtered) shall be used for statistical analysis.

Semi-Annual Groundwater Sampling

Field Parameters	Storet Numbers	BGQ/Reporting Units
pH	00400	6.30-13.71 s.u.
Specific Conductance	00094	3200 umhos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Ft

Depth to Water (below measuring point)	72109	Ft
Elevation of Bottom of Well#	72020	Ft MSL
Elevation of Groundwater Surface	71993	Ft MSL
Elevation of Measuring Point (Top of casing)##	72110	Ft MSL

#Shall be determined during the first semi-annual sampling event as required by Condition III.G.3.

##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.G.2.

Indicator Parameters	Storet Numbers	BGQ/Reporting Units
Cadmium (Total)	01027	2.5 ug/L
Cadmium (Dissolved)	01025	1.4 ug/L
Chloride (Total)	00940	480 mg/L
Chloride (Dissolved)	00941	450 mg/L
Chromium (Total)	01034	33 ug/L
Chromium (Dissolved)	01030	23 ug/L
Fluoride (Total)	00951	8.9 mg/L
Fluoride (Dissolved)	00950	9 mg/L
Iron (Total)	01045	32000 ug/L
Iron (Dissolved)	01046	27000 ug/L
Lead (Total)	01051	100 ug/L
Lead (Dissolved)	01049	96 ug/L
Manganese (Total)	01055	2800 ug/L
Manganese (Dissolved)	01056	2400 ug/L
Nickel (Total)	01067	110 ug/L
Nickel (Dissolved)	01065	59 ug/L
Nitrate - Nitrogen	00620	3.1 mg/L
Sulfate (Dissolved)	00946	240 mg/L
Total Dissolved Solids	70300	1700 mg/L
Zinc (Total)	01092	130 ug/L
Zinc (Dissolved)	01090	85ug/L

NOTE: All parameters with the "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter. All other parameters shall be determined from unfiltered samples.

2. Background Groundwater Quality (BGQ) values for those constituents listed above in Condition III.E.1 were previously established using a minimum of four (4) quarters of monitoring data.

3. Alternate concentration limits may be established where the Permittee can determine a constituent will not pose a substantial hazard to human health and the environment.

    a. Where a hazardous constituent has a standard in 35 Ill. Adm. Code Part 620, the facility must apply for an adjusted standard as outlined in Section 28.1 of the Environmental Protection Act.

    b. For those hazardous constituents without a 35 Ill. Code Part 620 standard, the alternative concentration limit(s) proposed by the facility must be approved by the Illinois EPA.

F. DETECTION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each monitoring well at the Point of Compliance well identified in Condition III.D.1 semi-annually during the active life of a regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e., means, variances, etc.).

2. The Permittee shall determine the groundwater flow rate and direction in the Uppermost Aquifer semi-annually and report at least annually from the monitoring wells identified in Condition III.D.1.

3. The Permittee shall determine whether there is a statistically significant increase (or decrease in the case of pH) over the background values established for each parameter identified in Condition III.E.1 each time groundwater quality is determined at the Point of Compliance. In determining whether such a change has occurred, the Permittee must compare the groundwater quality at each monitoring well identified in Condition III.D.1 to the background values derived in accordance with the statistical procedures specified in Section C of the approved permit application.

G. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition III.J.3.

2. The Permittee shall determine the surveyed evaluation of "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five (5) years or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III.J.5.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually. The mandatory measurement shall be taken during the first semi-annual sampling event in accordance with Condition III.J.6.

H. SAMPLING AND ANALYSIS PROCEDURES

1. The Permittee shall use the techniques and procedures described in Appendix C-4 of the approved permit application except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition III.D.1 above:

   a. Samples shall be collected by the techniques described in Appendix C-4 of the approved permit application.

   b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Appendix C-4 of the approved permit application.

   c. Samples shall be analyzed in accordance with the procedures specified in Appendix C-4 of the approved permit application.

   d. Samples shall be tracked and controlled using the chain of custody procedures specified in Appendix C-4 of the approved permit application.

2. Sampling will be conducted first from upgradient wells, proceeding to non-contaminated downgradient wells, then proceed to the downgradient wells which are known to be contaminated, if any.

3. Purging of groundwater must continue until measurements of field parameters (pH, specific conductance and temperature) have stabilized within approximately 10% over at least two measurements collected over three to five minute intervals. If field parameters are not stable after three well volumes have been removed, up to two additional well volumes will be purged. If a well is purged to dryness or is purged such that the full recovery exceeds two hours, the well should be sampled as soon as sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

4. All purged groundwater must be collected, containerized, and disposed of properly. Water collected during purging activities must be collected then stored in appropriate containers for immediate disposal to the on-site Wastewater Treatment Plant or collected then stored in appropriate containers until analytical results are available, at which time proper arrangements for disposal or treatment must be made.

5. Analytical methods to be utilized by the facility must be in accordance with the latest version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)" Third Edition, Final Update III, Revision 4.

6. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all sampling and analysis efforts. In addition, sample collection, handling, preservation, preparation, and analysis must be conducted in accordance with the procedures set forth in SW-846.

I. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Section III.F, the Permittee shall use the following procedures:

1. The statistical methods to be used shall be as specified in Section C of the approved permit application.
2. Analytical data shall be compared to the Class II, Groundwater Quality Standards and BGQ (interwell) values. Background Groundwater Concentrations (intrawell) shall be developed for parameters which exceed both Class II, Groundwater Quality Standards and BGQ values as described in Section C of the approved permit application.
3. Data exceeding the Class II, Groundwater Quality Standards, interwell, and intrawell shall be further evaluated using Shewart CUSUM Control Charts using all available data.
4. A statistically significant increase occurs when an analyzed parameter exceeds the Class II, Groundwater Quality Standards, interwell values, intrawell values, and Shewart CUSUM Control Limits.
5. If any parameter exceeds: (1) both interwell and intrawell data; (2) the Class II, Groundwater Quality Standards; or (3) Shewart CUSUM Control Charts, the Permittee may resample within thirty (30) days of the date that the apparent exceedance is determined.

J. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Sections III.E, III.F, III.G, III.H and III.I into the operating record. The data must include all computations and results of statistical test.
2. Samples collected to meet the requirements of the groundwater monitoring program described in Sections III.E, III.F, III.G, and III.I shall be collected and reported as identified in the table below. All additional information required by the groundwater

monitoring program as specified in Sections III.E, III.F, III.G, III.H and III.I shall also be submitted to the Illinois EPA at the address listed in Condition III.D.5 in accordance with this schedule:

Sampling Event of Calendar Year	To be Sampled During the Months of	Results Submitted to the Illinois EPA by the Following Date
First semi-annual	April - June	July 15
Second semi-annual	October - December	January 15

3. Groundwater surface elevation measured pursuant to Condition III.G.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in the table in Condition III.J.2.

4. The Permittee shall report the groundwater flow rate and direction in the Uppermost Aquifer, as required by Condition III.F.2 during the first semi-annual reporting of each year.

5. The Permittee shall report the surveyed elevation, as required by Condition III.G.2, of the top of the well casing "stick-up", referenced to MSL, in accordance with the following schedule:

   a. For the wells identified in Condition III.D.1 every five (5) years (during the first 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 first semi-annual sampling event) or at the request of the Illinois EPA or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well (Storet 72020) identified in Condition III.D.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the first semi-annual sampling event in accordance with Condition III.G.3.

7. Information required by Conditions III.J.2, III.J.3, III.J.5 and III.J.6 must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in Attachment C of this Permit, in accordance with the schedule found in Condition III.J.2. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA website.

8. 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 Permit for identification purposes. Only one copy of the LPC-592 must accompany the submittal. However, the Permittee must submit one (1) original and (excluding the groundwater leachate monitoring results submitted in an electronic format) a minimum of two (2) copies of each notice or report submitted to the Illinois EPA. The form is not to be used for Permit Modification requests.

9. 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 texts (as necessary) to accurately describe the information contained in the submittal.

10. If the Permittee determines, pursuant to Condition III.F.3 that there is a statistically significant increase for any of the parameters specified in Condition III.E.1 at any monitoring well at the Point of Compliance, the Permittee shall:

    a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.

    b. Sample the groundwater in all wells listed in Condition III.D.1 and determine the concentration of all constituents of the approved subset of Appendix I of 35 Ill. Adm. Code Part 724, located in Attachment C of this Permit (hereinafter Appendix I), such that the results will accompany the permit modification required by Condition III.J.10.d.

    c. For any of the approved subset of Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If the results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during this initial approved subset of Appendix I analysis will form the basis for compliance monitoring.

    d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. Furthermore, the application must include the following information:

        i. An identification of the concentration of any 35 Ill. Adm. Code Part 724, approved subset of Appendix I constituents found in the groundwater at each monitoring well at the Point of Compliance;

ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199;

iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of Section 724.199; and

iv. For each hazardous constituent found at the Point of Compliance, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternative concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentration of all hazardous constituents identified under Condition III.J.10.b are listed in 35 Ill. Adm. Code 620.420 and their concentrations do not exceed the respective Groundwater Quality Standard or the Permittee has sought an alternative concentration limit under III.J.10.d.iv for every hazardous constituent identified under Condition III.J.10.b. This plan must be submitted to the Illinois EPA within 180 days of the date that the increase is discovered.

f. Submit to the Illinois EPA all data necessary to justify any alternative concentration limit for a hazardous constituent sought under Condition III.J.10.d.iv. This data shall be submitted to the Illinois EPA within 180 days of the date that the increase is discovered.

11. If the Permittee determines, pursuant to Condition III.F.3, that there is a statistically significant increase above the BGQ values for the parameters specified in Condition III.E.1 above, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition III.J.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling-analysis or evaluation and the Illinois EPA concurs.

To make this demonstration the Permittee shall:

a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in

sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.

c. Submit to the Illinois EPA an application to make any appropriate changes to the Groundwater Detection Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered.

d. Continue to monitor in accordance with the Groundwater Detection Monitoring Program at the facility.

K. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the Groundwater Detection Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section 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 issuance, and new regulations.

SECTION III-A:
PERIMETER GROUNDWATER OBSERVATION MONITORING PROGRAM

A. SUMMARY

In addition to the Groundwater Detection Monitoring Program utilized to monitor the Uppermost Aquifer at the CWP CAMU, ASI has eleven (11) existing wells to monitor groundwater in the shallow groundwater zone (Upper Silty Clay Unit) and four piezometers to monitor groundwater elevations in the deep groundwater zone (Lower Sand and Gravel Unit) at the perimeter of the ASI facility. These groundwater monitoring wells are intended to detect and prevent any groundwater contamination from extending beyond the perimeter of the facility as required by the Settlement Agreement.

B. IMPLEMENTATION

1. The Permittee shall implement the Perimeter Groundwater Observation Monitoring Program upon the effective date of this Permit. On that date, the groundwater monitoring requirements set forth in this Permit shall supersede those previously established.

2. The Permittee shall carry out the groundwater monitoring specified in this Permit on the groundwater beneath the Alton Steel, Inc. facility in Alton, Illinois located on the portion of the facility where manufacturing occurs.

C. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells and piezometers at the locations identified in the table below to allow for the collection of groundwater samples and elevations from the shallow groundwater zone and groundwater elevations from the deep groundwater zone:

IEPA Well No.	Facility Well No.	Well Depth (Ft-bgs)	Well Depth Elevation (Ft-MSL)	Well Screen Interval (Ft-bgs)
Upgradient Well				
G111	PS-01	8.9	415.75	4.0-8.5
G112	PS-02	14.5	414.07	4.5-139
G113	PS-03	14.5	414.72	4.6-14.1
G114	PS-04	26.4	411.00	16.7-25.6
G115	PS-05	29.0	405.12	19.2-28.2

Downgradient Wells

G121	PS-11	26.7	397.51	9.0-26.5
G122	PS-12	29.7	398.64	11.0-29.5
R123	R123	30.49	398.07	10.22-29.93
G124	PS-14	30.6	399.24	15.8-30.3
G125	PS-15	32.1	402.83	16.9-32.0
G126	PS-16	37.2	394.29	21.4-37.1

Piezometers

G117	PS-07	54.6	377.36	44.6-54.0
P113	P-1-13	39.0	386.26	28.9-38.6
P213	P-2-13	43.5	385.93	34.4-43.2
P313	P-3-13	19.78	419.00	14.7-19.61
P413	P-4-13	20.07	414.14	9.8-19.72
	P01S	26.36	402.44	16.23-26.01
	P02S	36.78	402.23	26.65-36.43
	P01D	57.75	370.87	52.62-57.40
	P02D	68.26	370.19	63.14-67.94

2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the diagram contained in Attachment C to this Permit unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed must be continuously sampled and logged on Illinois EPA boring logs which can be found on the Illinois EPA website.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition III-A.C.1 above are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this notification. The well shall not be plugged until the new well is installed and monitoring data has been obtained and verified, unless the well is extremely damaged and 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.

4. Should any well become consistently dry or unserviceable; a replacement well shall be installed 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.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets 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. Any additional 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

6. All wells shall be equipped with protective caps and locks. Monitoring wells located in high traffic areas must be protected with bumper guards.

7. All wells not utilized in the groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code Part 920 regulations. Monitoring wells that are improperly constructed must be abandoned in accordance with Condition III-A.C.5.

D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at groundwater monitoring wells identified in Condition III-A.C.1, semi-annually and annually. Samples collected during the semi-annual sampling events of each year shall be analyzed for the parameters listed below.

Semi-Annual Groundwater Sampling

Field Parameters	Storet Units	BGQ/ Reporting
pH	00400	6.39-7.71 s.u.
Specific Conductance	00094	1599 umhos/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 Bottom of Well#	72020	Ft-MSL
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

Shall be determined during the first semi-annual sampling event each year as required by Condition III-A.F.3.

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-A.F.2.

Indicator Parameters	Storet	BGQ/ Reporting Units
Cadmium (Total)	01027	3 ug/L
Cadmium (Dissolved)	01025	1 ug/L
Chromium (Total)	01034	71 ug/L
Chromium (Dissolved)	01030	15 ug/L
Lead (Total)	01051	43 ug/L
Lead (Dissolved)	01049	1 ug/L
Zinc (Total)	01092	154 ug/L
Zinc (Dissolved)	01090	21 ug/L

NOTE: All parameters with "(Dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter. All other parameters shall be determined from unfiltered samples.

Annual Groundwater Sampling

4-methylphenol (p-Cresol)	77146	10 ug/L
Polychlorinated biphenyls	39516	2.5 ug/L
Total Petroleum Hydrocarbons (as motor oil Method PA-2)	03870	400 ug/L

NOTE: annual samples shall be collected and reported during the first semi-annual sampling event in accordance with Condition III-A.I.2.

2. BGQ for these constituents listed in Condition III-A.D.1 above were previously established for the wells identified in Condition III-A.C.1 using a minimum of four (4) quarters of monitoring data.

E. PERIMETER GROUNDWATER OBSERVATION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each well identified in Condition III-A.C.1 semi-annually and annually for the constituents listed in

Condition III-A.D.1. The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).

2. The Permittee shall evaluate the results of analysis required by Condition III-A.D.1 and identify:

   a. The concentration of any constituent detected which was not detected in the previous sampling event.

   b. The concentration of any constituent detected which exhibits a progressive increase over four (4) consecutive sampling events.

3. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the BGQ values established for each parameter identified in Condition III-A.D.1 each time groundwater quality is determined at each well. In determining whether such a change has occurred, the Permittee must compare the groundwater quality at each groundwater monitoring well identified in Condition III-A.C.1 to the BGQ value derived in accordance with the statistical procedures specified in Section C of the approved permit application.

4. The Permittee shall perform the evaluations described in Conditions III-A.E.1, III-A.E.2, and III-A.E.3 above within sixty (60) days after completion of semi-annual and annual sampling.

F. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to mean sea level (MSL) at each well each time groundwater is sampled in accordance with Condition III-A.I.3.

2. The Permittee shall report the surveyed elevation of "stick-up" referenced to MSL when the well is installed (with as-built diagrams) and every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition III-A.I.4.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (Storet 72020), is to be reported at least annually. The mandatory measurement shall be taken during the first semi-annual sampling event in accordance with Condition III-A.I.5.

G. SAMPLING AND ANALYTICAL PROCEDURES

1. The Permittee shall use the techniques and procedures described in Appendix C-4 of the approved permit application, except as modified below, when obtaining and

analyzing samples from the groundwater monitoring wells described in Condition III-A.C.1.

a. Samples shall be collected using the techniques described in Appendix C-4 of the approved permit application.

b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in Appendix C-4 of the approved permit application.

c. Samples shall be analyzed in accordance with the procedures specified in Appendix C-4 of the approved permit application.

d. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Appendix C-4 of the approved permit application.

2. Purging of groundwater must continue until field parameters (pH, specific conductance and temperature) have stabilized within approximately 10% over at least two measurements collected over three to five minute intervals. If a well is purged to dryness or is purged such that the full recovery exceeds two hours, the well should be sampled as soon as sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

3. All purged groundwater must be collected, containerized and disposed of properly. Water collected during purging activities must be collected then stored in appropriate containers for immediate disposal to the on-site Wastewater Treatment Plant or collected then stored in appropriate containers until analytical results are available, at which time proper arrangements for disposal or treatment must be made.

4. Analytical methods to be utilized by the facility must be in accordance with the latest version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (SW-846)" Third Edition, Final Update III, Revision 4.

5. Quality assurance/quality control procedures which meet the requirements of SW-846 must be implemented during all sampling and analysis efforts. In addition, sample collection, handling, preservation, preparation, and analysis must be conducted in accordance with the procedures set forth in SW-846.

H. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Section III-A.E, the Permittee shall use the following procedures:

1. The statistical methods to be used shall be as specified in Section C of the approved permit application.

2. Analytical data shall be compared to the Class II, Groundwater Quality Standards and BGQ (interwell) values. Background Groundwater Concentrations (intrawell) shall be developed for parameters which exceed both Class II, Groundwater Quality Standards and BGQ values as described in Section C of the approved permit application.

3. Data exceeding the Class II, Groundwater Quality Standards, interwell, and intrawell shall be further evaluated using Shewart CUSUM Control Charts using all available data.

4. A statistically significant increase occurs when an analyzed parameter exceeds its applicable Ill. Adm. Code 620, Class II, Groundwater Quality Standards, interwell values, intrawell values, and Shewart CUSUM Control Limits.

5. If any parameter exceeds: (1) both interwell and intrawell data; (2) the Class II, Groundwater Quality Standards; or (3) Shewart CUSUM Control Charts, the Permittee may resample within thirty (30) days of the date that the apparent exceedance is determined.

6. The facility must resubmit BGQ values that are developed utilizing interwell analysis from a pooled dataset to develop Prediction Limits. Resubmission of the BGQ values must be submitted as a Class 1* permit modification request within forty-five (45) days from the date of this permit modification.

I. REPORTING AND RECORDKEEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Sections III-A.D, III-A.E, III-A.F, III-A.G and III-A.H. in the operating record. The data must include all computations and results of statistical test.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Sections III-A.D, III-A.E, III-A.F and III-A.H shall be collected and reported, as identified in the table below. All additional data collected for the groundwater monitoring program (as specified in Sections III-A.D, III-A.E, III-A.F and III-A.H) shall also be submitted to the Illinois EPA at the address listed in Condition III-A.C.5 in accordance with this schedule.

Sampling Event of Calendar Year	To be Sampled During the Months of	Results Submitted to the Illinois EPA by the Following Date
First semi-annual	April -June	July 15
Second semi-annual	October - December	January 15

3. Groundwater surface elevation measured pursuant to Condition III-A.F.1 shall be collected semi-annually and submitted to the Illinois EPA as identified in the table in Condition III-A.I.2.

4. The Permittee shall report the surveyed elevation, as required by Condition III-A.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-A.C.1, every five (5) years (during the first 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 first semi-annual sampling event), or whenever the elevation changes.

5. Elevation of the bottom of each monitoring well (Storet 72020) identified in Condition III-A.C.1, as referenced to MSL, is to be reported at least annually. This measurement shall be taken during the first semi-annual sampling event each year in accordance with Condition III-A.F.3.

6. Information required by Conditions III-A.I.2, III-A.I.3, III-A.I.4 and III-A.I.5 must be submitted in an electronic format. The information is to be submitted, as fixed-width text files formatted as found in Attachment C of this Permit, in accordance with the schedule found in Condition III-A.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA website.

7. A RCRA Facility Groundwater, Leachate and Gas Reporting Form (LPC-592) must accompany all reports and forms submitted for RCRA regulated facilities, for identification purposes, to the Illinois EPA.

8. 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.

9. If the Permittee determines, pursuant to Condition III-A.E.3 that there is statistically significant increase for any of the parameters specified in Condition III-A.D.1 at any monitoring well in Condition III-A.C.1 the Permittee shall:

a. Notify the Illinois EPA in writing indicating what parameters and wells have shown is statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.

b. Sample the groundwater in all wells listed in Condition III-A.C.1 and determine the concentration of all constituents of the approved subset of Appendix I, located in Attachment C to this Permit, such that the results will accompany the permit modification required by Condition III-A.I.9.d.

c. For any of the approved subset of Appendix I compounds found in the analysis pursuant to this Condition, the Permittee may resample within one month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during the initial Appendix I analysis will form the basis for compliance monitoring.

d. Submit to the Illinois EPA an application for a permit modification to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the exceedance is discovered. Furthermore, the application must include the following information:

    i. An identification of any of the approved subset of 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well;

    ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;

    iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and

    iv. For each hazardous constituent found, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition III-A.I.9.b are listed in 35 Ill. Adm. Code 620.420 and their concentrations do not exceed the respective

Groundwater Quality Standards or the Permittee has sought an alternate concentration limits under Condition III-A.I.9.d.iv for every hazardous constituent identified under Condition III-A.I.9.b. This plan must be submitted to the Illinois EPA within 180 days of the date the increases are discovered.

f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition III-A.I.9.d.iv. This plan must be submitted to the Illinois EPA within 180 days of the date the increases are discovered.

10. If the Permittee determines, pursuant to Condition III-A.E.3, that there is a statistically significant increase above the BGQ values for the parameters specified in Condition III-A.D.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification application in accordance with Condition III-A.I.9.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.

c. Submit to the Illinois EPA an application to make any appropriate changes to the Perimeter Groundwater Observation Monitoring Program. This application must be submitted within ninety (90) days of the date that the increase is discovered.

d. Continue to monitor in accordance with the Perimeter Groundwater Observation Monitoring Program at the facility.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the Perimeter Groundwater Observation Monitoring Program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit an application for a permit

modification to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section 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 issuance, and new regulations.

SECTION IV: CORRECTIVE ACTION

A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 Ill. Adm. Code 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 constituents from any Solid Waste Management Unit (SWMU) at its facility. This section contains the conditions which must be followed to ensure these requirements are met.

2. The Permittee must develop and implement a Corrective Measure Program to protect human health and the environment from any of the SWMUs of concern at the facility.

3. The original RCRA permit was issued by Illinois EPA to Laclede Steel for this facility on June 28, 1996; Section I.B (RCRA Closure) of that permit contained closure requirements for two Hazardous Waste Management Units (HWMUs) (the Pelletizer Area and the Rod Patenting Building). The Permittee has completed closure of a former interim-status hazardous waste storage unit and waste pile in and around the Rod Patenting Building. The Permittee has also completed closure of a former interim-status hazardous waste treatment unit and waste pile at the Pelletizer Area. The locations of these HWMUs are shown on Figure B-5 of the approved permit application. This section describes the closure efforts that have been completed.

4. Alton Steel acquired the facility from Laclede's bankrupt estate in May 2003. The Illinois EPA issued a renewal permit to Alton Steel on December 4, 2009. Thus, this facility is also the subject of a Settlement Agreement filed in the United States Bankruptcy Court for the Eastern District of Missouri, Eastern Division, Case No. 01-48321. All requirements of the Settlement Agreement including but not limited to those which deal with closure, corrective action, investigation, monitoring, remediation, financial assurance, or transfer of property are incorporated herein by reference and must be carried out in accordance with the terms of that agreement and this permit.

5. Both the previous and current Permittee have conducted a substantial amount of corrective action activities to date to meet the requirements of the previous RCRA permits for the facility. The locations of all the SWMUs discussed in this permit are shown on Figures B-2E and B-2W of the approved permit application.

Section IV.C of this permit describes the corrective action efforts which have been completed at the units which have received No Further Action (NFA) letters or do not require corrective action efforts at this time.

6. This permit requires the Permittee to implement a corrective action program by completing or having completed the corrective action at the facility. Section IV.D of this permit describes the corrective action efforts which must still be completed at this area.

7. 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.

8. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs; or (2) future releases for existing SWMUs.

9. The requirements of 35 Ill. Adm. Code 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 Ill. Adm. Code 724.201.

10. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of the Illinois Environmental Protection Act.

11. All documents submitted to Illinois EPA regarding corrective action efforts must be accompanied by a completed RCRA Corrective Action Certification Form. This form can be found on Illinois EPA's website.

B. CORRECTIVE ACTION REQUIREMENTS

To date, the Permittee has conducted a substantial amount of investigation at the SWMUs of concern at this facility. Section IV.C. includes the facility's corrective action efforts that have been completed to date. Section IV.D. includes the required corrective action that still must be completed at the facility.

In general, the RCRA Facility Investigation (RFI) must be carried out in accordance with the following requirements:

1. The following nine (9) HWMUs and SWMUs that have been identified as units to be addressed by the facility's corrective action program at the facility:

SWMU	Name
#2	Rod Patenting Building

#3	Pelletizer Area
#4	Solid Waste Landfill
#5	Wastewater Treatment Plant Area and Surface Impoundments
#6	HTMR (High Temperature Metal Recovery)
#7	Baghouse Dust Accumulation Area
#8	Former Waste Oil Tank
#9	Dowel Assembly Building
#12	Pre-RCRA Waste Pile

2. Conduct additional investigation and remediation, as necessary, to address any on-site contamination and off-site contamination, which has migrated beyond the property boundaries from the former operation of the facility;

3. Obtain NFA determinations from the Illinois EPA for the units and any other impacted areas identified during the RFI, where the contamination has migrated off-site from the former operation of the facility, when sufficient information has been provided by the Permittee that the media of interest has been adequately remediated for the SWMUs and other identified areas of concern.

4. As required by Section III-A of the permit, the Permittee has eleven (11) existing wells to monitor groundwater in the Uppermost Aquifer (Upper Silty Clay Unit) and four (4) piezometers to monitor groundwater elevations in the deep groundwater zone (Lower Sand and Gravel Unit) at the perimeter of the ASI facility. These groundwater monitoring wells are intended to detect and prevent any groundwater contamination from extending beyond the perimeter of the facility as required by the Settlement Agreement.

C. CLOSURE AND CORRECTIVE ACTION EFFORTS COMPLETED TO DATE

1. The table below identifies the current status of corrective action completed at each SWMU to date. It also identifies the SWMUs which have received NFA determinations from the Illinois EPA.

   Note that the following abbreviation is used in the table below:
   ELUC = Environmental Land Use Control

SWMU # & Name	Description of Key Actions
#2 - Rob Patenting Building (RPB)	The RPB has been investigated and remediated. In a letter dated July 3, 2007, the Illinois EPA required that an engineered barrier and institutional control be established to complete closure of this unit. An engineered barrier consisting of an asphalt layer on top of the original concrete floor was installed in late 2008. This unit was closed with an approved, recorded ELUC per Illinois EPA letter dated June 2, 2009 (B-160-CA-47). The ELUC and associated

SWMU # & Name	Description of Key Actions
	documentation were filed with the Madison County Recorder's Office on April 7, 2009, as Document Number 2009R17047. No further closure efforts are required for this unit other than continued compliance with the subject ELUC.
#3 – Pelletizer Area (PA)	The PA has been dismantled, investigated, and remediated. A barrier (approximately three feet of clean fill used to backfill the excavated soil) was completed in August 1998. This unit was closed with an approved, recorded Environmental Land Use Control (ELUC) per Illinois EPA letter dated October 19, 2005 (Log No. B-160-CA-27). The ELUC and associated documentation were filed with the Madison County Recorder's Office on May 2, 2005, as Document Number 2005R22653. (This is same ELUC as used for the Pre-RCRA Waste Pile.) No further closure efforts are required for this unit other than continued compliance with the subject ELUC.
#4 – Solid Waste Landfill (SWL)	The SWL was certified closed by Illinois EPA on October 6, 1994. The Permittee is required to continue the post-closure care of this unit in accordance with the October 6,1994 Illinois EPA letter (Log No. 1994-324). The CWP CAMU is on top of a portion of this landfill.
#6 -- High Temperature Metals Recovery (HTMR)	The HTMR building was damaged in an explosion in 1997. It was not repaired and is inactive. The building is locked. No further corrective action is required unless operation of the unit is restarted. If restarted, corrective action would include removing wastes in a timely manner, monthly inspections and repairing any cracks or deterioration, etc. observed in the secondary containment system.
#7 -- Baghouse Dust Accumulation Area (BDAA)	Some investigation and remediation efforts have been completed at this unit, mainly in response to a release of EAF dust on March 31, 2000. A plan to conduct an additional soil investigation effort and to establish an engineered barrier (and associated institutional control) over a portion of this area was approved by Illinois EPA on August 19, 2008 (Log No. B-160-CA-40). An engineered barrier was constructed over the soils beneath BDAA. An ELUC was approved, recorded and filed in Madison County Recorder's Office on December 7, 2012, as Document Number 2012R52154. Illinois EPA approved the recorded ELUC in a letter dated February 21, 2013 (Log No. B-160R-CA-4). No further action efforts are required at the BDAA other than continued compliance with the subject ELUC.

SWMU # & Name	Description of Key Actions
#8 -- Former Waste Oil Tank (WOT)	The WOT was emptied, cleaned, and dismantled in 2004. Soil and groundwater investigations were completed in the vicinity of the WOT. An asphalt engineered barrier was constructed over the footprint of the WOT and some surrounding area. An ELUC was approved, recorded and filed in Madison County Recorder's Office on September 27, 2006, as Document Number 2006R51294. Illinois EPA determined no further action was required in a letter dated August 1, 2008 (Log No. B-160-CA-38). No further corrective action efforts are required at the WOT other than continued compliance with the subject ELUC.
#9 – Dowel Assembly Building (DAB)	The DAB was cleaned and swept in 2003 as required by the original RCRA permit. The building was inspected by Illinois EPA and no further corrective action is required at this unit per an Illinois EPA letter dated June 18, 2004 (Log No. B-160-CA-16). No additional corrective action is required at this unit. The dismantling of this building was completed in May 2013.
#12 Pre-RCRA Waste Pile (PRWP)	The PRWP has been investigated and remediated. A barrier (approximately ten feet of clean fill to backfill the excavated contaminated soil) was completed in August 1998. This unit was closed with an approved, recorded and filed ELUC per Illinois EPA letter dated October 19, 2005 (Log No. B-160-CA-27). The ELUC and associated documentation was filed with the Madison County Recorder's Office on May 2, 2005, as Document Number 2005R22653. (ELUC for PRWP also covers Pelletizer Area.) No further corrective action efforts are required for this unit other than continued compliance with the subject ELUC.

2. The Permittee has also completed two other corrective action activities associated with the acquisition of the facility by ASI. Illinois EPA has reviewed the reports for these activities and found them to adequately document the completion of the two projects. These two waste remedial activities were (1) clean-up of dust and repairs at the Electric Melt Shop Building and the Baghouse area; and (2) collection, inventory, and disposal of containerized waste left by Laclede Steel.

3. The following ELUC(s) have 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 for Alton Steel Inc.

Area Name	Size (Acres)	Date of NFA Letter	County Recorder's No. /Date Recorded	PIN/TAX ID
SWMU #2 Rod Patenting Bld. (RPB)	.918	06/02/09	2009R17047/ 04/07/09	23-1-08-18-00-000-011 (Part)
SWMU #3 &#12 Pelletizer Area (PA) &Pre-RCRA Waste Pile (PRWP)	61.9	10/19/05	2005R22653 05/02/05	23-1-08-18-00-000-011.T00
SWMU #7 Baghouse Dust Accumulation Area (BDAA)	.0523	2/21/13	2012R52154 12/7/12	23-1-08-10-00-000-011 (Part)
SWMU #8 Former Waste Oil Tank (WOT)	61.9	08/01/08	2006R1294 09/27/06	23-1-08-18-00-000-011.T00

4. ELUCs have been established in accordance with 35 Ill. Adm. Code Part 742 as part of the completed corrective action efforts at this facility for PIN 23-1-08-00-000-011.T00 as summarized in Condition IV.C.3 above. The ELUCs place the following restrictions on future activities at the facility.

   a. The property may only be used for industrial/commercial activities;

   b. Potable use of groundwater at the Property is restricted;

   c. A site safety plan to address possible worker exposure to the soil beneath the engineered barrier must be developed and implemented for any future excavation or construction activities in this area and any soil that is removed or excavated from this area must be handled in accordance with all applicable laws and regulations;

   d. Any soil removed from the affected areas will be managed in accordance with 35 Ill. Adm. Code, Subtitle G: Waste Disposal; and

   e. Maintain and inspect engineered barriers as follows:

      i. Approximately 3 feet of clean fill placed over the PA as a barrier and approximately 10 feet of clean fill placed over the PRWP.

      ii. Barrier meeting the requirement of 35 Ill. Adm. Code Part 742 must be in place over the Former WOT and the BDAA.

iii. Approximate 2.5 inches think compacted asphalt barrier over the entire concrete floor of the RPB.

5. Failure to comply with the limitations or requirements of an ELUC may result in voidance of an Illinois EPA no further action/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.

6. The limitations or requirements of the ELUC apply in perpetuity or until:

   a. The Illinois EPA issues a new no further action/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.

7. 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 NFA determination is obtained from Illinois EPA and subsequently recorded in accordance with 35 Ill. Adm. Code Part 742.

   a. 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 Ill. Adm. Code Part 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.

8. A summary of overall corrective action efforts carried out at this facility, based on Illinois EPA's approval letters regarding workplans or reports associated with these efforts, is provided in Attachment F.

D. CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

1. Corrective action activities at SWMU #5 must be completed to meet the following requirements and to obtain a NFA determination for this unit by Illinois EPA. The SWMU #5 is the Wastewater Treatment Plant (WWTP) Area and surface impoundments located directly south of the 14-inch Mill and the former Wire Mill.

a. Wastewater Treatment Plant (WWTP) Area (SWMU #5) includes both current and historical WWTP, the sewer system, the Crown House, the Serpentine Lagoon, two historical underground storage tanks (USTs), three emergency sludge holding lagoons, and the wastewater drainage system (i.e., surface impoundments and interconnecting channels) located directly south of the 14-inch Mill extending westward to the former Wire Mill. Parts of this unit are still active.

   A RCRA Facility Investigation (RFI) Phase I was completed for this unit. Illinois EPA required submittal of an RFI Phase II Work Plan in a letter dated October 18, 2000. A Phase II Work Plan for this unit was submitted April 10, 2007. The work plan proposed additional sampling and analyses for this unit. Illinois EPA approved the Phase II RFI Work Plan with conditions and modifications in a letter dated May 28, 2009 (B-160-CA-36). Illinois EPA approved the Phase II RFI investigation report, with conditions and modifications, and the proposed additional sampling in a letter dated May 4, 2017 (B-160R-CA-2).

b. Corrective action efforts for this unit must continue to be carried out in accordance with: (1) the afore-mentioned Settlement Agreement; (2) 35 Ill. Adm. Code 724.201 and 742; (3) plans and reports approved by Illinois EPA; and (4) this Permit.

c. The end result of corrective action efforts at this unit must meet the requirements of 35 Ill. Adm. Code 724.201 and Part 742.

d. The Permittee may request that changes be made to the approved corrective action program for this unit by submitting requests to modify this approved program to Illinois EPA for review and approval. Such requests must contain detailed information about the modification being requested and justification for the change.

2. The aforementioned Settlement Agreement for this facility requires, among other items, that: (1) a health and safety plan (HASP) meeting the requirements of 29 CFR be developed and implemented for any construction or excavation effort carried out at the facility; (2) any material excavated during these efforts be managed in accordance with 35 Ill. Adm. Code, Subtitle G and applicable federal law; and (3) the Permittee will implement a corrective action program to prevent groundwater contamination from extending beyond the perimeter of the facility in accordance with plans and reports approved by the Illinois EPA (known as the Perimeter Groundwater Observation Monitoring Program and is discussed further in Section III-A of this permit).

E. GROUNDWATER SPECIFIC CORRECTIVE ACTION

1. Section III-A of the Permit implements the regulatory requirements of 35 Ill. Adm. Code Part 724, Subpart F and outlines the groundwater monitoring requirements necessary to determine if groundwater impacts have extended at or beyond the perimeter of the ASI facility. The Perimeter Groundwater Observation Monitoring Program has eleven (11) existing wells to monitor groundwater in the Uppermost Aquifer at the perimeter of the ASI facility. In addition, the Perimeter Groundwater Observation Monitoring Program includes four (4) piezometers that monitor groundwater movement in the Lower Sand and Gravel Unit. This unit is located vertically beneath the Uppermost Aquifer.

F. CORRECTIVE MEASURES

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 I to this permit. The corrective measures implemented by the Permittee must be sufficient to ensure the appropriate requirements of 35 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code Part 742);

   d. Establishing institutional controls to restrict activities at the facility, as necessary, to support remediation objectives established in accordance with 35 Ill. Adm. Code Part 742.

3. The Corrective Measures Program described in Attachment I to this permit consists of five 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) set forth a path to allow for an orderly progression of necessary corrective measures; and (2) allow for Illinois EPA oversight and approval throughout the entire process. The Permittee shall 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. For units closed as landfills:

a. The Phase II report must include a plan for the construction of a final cover system as well as a post-closure care plan (the post-closure care plan must include provisions for (1) inspecting the final cover; (2) monitoring the groundwater, leachate, and soil gas; and (3) taking corrective action if any problems are observed during the inspection/monitoring effort.

b. The Phase III report must document the construction of the approved final cover system and any other systems required for closure of the unit.

c. During Phase IV, quarterly reports must be submitted documenting the results of the inspection/monitoring efforts as well as any corrective measures taken in response to problems observed during these efforts.

The Permittee shall submit plans to the Illinois EPA for review and approval to address any groundwater quality or gas migration problems.

d. The Phase V report will not be submitted until the post-closure care/ corrective measures monitoring period has been completed. This report must demonstrate that all applicable post-closure requirements have been met and that the groundwater at the site meets the applicable standards.

7. 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.

8. The Illinois EPA's action on all Corrective Measures Program submittals shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

G. REQUIREMENTS FOR ADDRESSING NEWLY- IDENTIFIED SWMU(s) AND AREAS OF CONCERN AOC(s)

1. The Permittee shall notify the Illinois EPA in writing of any newly-identified SWMU or Area of Concern (AOC) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30) calendar days after discovery. The notification shall provide the following information, as available:

   a. The location of the newly-identified SWMU or AOC in relation to other SWMUs or AOCs 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 or 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 information submitted demonstrates a potential for a release of hazardous waste or hazardous 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)/AOC(s). 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 discovered SWMU(s)/AOC(s) to the environment.

3. Within ninety (90) calendar days after receipt of the Illinois EPA's request for a SWMU Assessment Plan, the Permittee shall submit a SWMU Assessment Plan.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions, or disapprove the Plan in writing. If the Plan is approved, or approved with conditions, the Permittee shall begin to implement the Plan within forty-five (45) calendar days of receiving such written notification. 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 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 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 SWMU in accordance with 35 Ill. Adm. Code Part 742; such objectives are subject to Illinois EPA review and approval.

7. The Permittee must implement a Corrective Measures Program, as necessary, to properly address any contamination encountered during the assessment which exceeds the approved remediation objectives for the SWMU. It must also be necessary to implement a Corrective Measures Program to support the approved remediation objectives (such as the establishment of any required engineered barriers or institutional controls).

8. All efforts carried out at newly identified SWMUs must meet the requirements of 35 Ill. Adm. Code 724.201.

H. 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 IV.F.1. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedures set forth in Section IV.G. The results of all corrective action efforts required by this condition must meet the requirements of 35 Ill. Adm. Code 724.201.

I. INTERIM MEASURES

At any time during the course of this permit, 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 waste constituents. It shall not be necessary to conduct all phases of an investigation prior to implementing an interim measure if the Illinois EPA and the Permittee agree that a problem can be corrected, or a release mitigated, without additional study and/or without a formal Corrective Measures Study (CMS).

1. 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. The objectives of the interim measure, including 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. The design, construction, and maintenance requirements;

   c. A schedule for design and construction; and

   d. A schedule for progress reports.

2. 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 shall not affect the schedule for implementation of any other portion of the Permit.

3. 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.

J. FINANCIAL ASSURANCE

35 Ill. Adm. Code 724.201 requires that financial assurance be established for completing required corrective actions at SWMUs:

1. At this time, there are no closure efforts required at the facility; and therefore, there are no required cost estimates for closure activities. The currently approved corrective action cost estimate for the SWMUs and the Perimeter Groundwater Observation Monitoring Program is $479,389 in 2021 dollars. A more detailed breakdown of these cost estimates is provided in Attachment E.

2. The cost estimate for completing corrective action at the Wastewater Treatment Plant (SWMU 5) must be updated if additional investigation and/or remediation work is eventually required at this unit.

3. The Permittee shall prepare updated cost estimates each year for the completion of any closure or corrective action required under this permit, in order to provide financial assurance for completion of corrective action, as required under 35 Ill. Adm. Code 724.201(b). Such a cost estimate must be based upon the cost of contamination investigations and assessments for the SWMUs, and design, construction, operation, inspection, monitoring, and maintenance of the corrective measure(s) to meet the requirements of 35 Ill. Adm. Code 724.201 and this permit. Estimates are required only for known and quantifiable costs. These estimates must be based upon third party costs and be submitted to the Illinois EPA, if the corrective action cost estimates require updating. Adjustments to corrective action cost estimates for inflation should be submitted on or before the Permittee's anniversary date for submitting financial assurance. Adjustments due to reasons beyond inflation only shall be submitted as a permit modification.

4. Except as provided in Condition IV.J.5, the Permittee shall demonstrate continuous compliance with 35 Ill. Adm. Code 724.201 by providing documentation of financial assurance using a mechanism specified in 35 Ill. Adm. Code 724.243, in at least the amount of the cost estimate required under Condition IV.J.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 Ill. Adm. Code 724.251. The documentation shall be submitted to the Illinois EPA within sixty (60) days after the approval of the initial or revised cost estimates required under Condition II.G. The Illinois EPA may accept financial assurance for the completion of corrective action in combination with another financial mechanism that is acceptable under 35 Ill. Adm. Code 724.246 at its discretion.

5. The terms of the financial assurance mechanisms for closure, post-closure care and corrective action activities are included in Section VI.11.a of the Settlement Agreement.

a. Illinois EPA placed $287,000 received under a previous Letter of Credit provided by Laclede for financial assurance relating to the Facility in a standby trust fund (the "Standby Trust Fund") where it shall remain until released by Illinois EPA.

b. Alton Steel shall establish a trust fund in accordance with 35 Ill. Adm. Codes 724.243 and 724.245, and with terms approved by the Agency (the "Alton Trust Fund"). Alton Steel shall place $25,000 in the Alton Trust Fund before the end of every quarter of each calendar year, from March 31, 2003, until such time as the value of the Alton Trust Fund plus the Standby Trust Fund equals or exceeds the current approved cost estimate. In lieu of the trust fund mechanism set forth in this paragraph, Alton Steel may provide financial assurance in the full amount required by the Permit using any other statutorily available financial assurance mechanism.

SECTION V: SPECIAL CONDITIONS

A. 39i CERTIFICATION

The Permittee shall submit a current 39i certification and supporting documentation with all applications for a permit.

B. COMPLIANCE SCHEDULE

1. Cost Estimates: Within ninety (90) days of the effective date of this Permit,

   a. The Permittee shall submit revised post-closure cost estimates and financial assurance to meet the required minimum of thirty (30) years post-closure care costs for the CWP CAMU, as stated in Condition II.G.1 as a Class 1* permit modification.

   b. The Permittee shall include an updated corrective action cost estimate for completing investigation /remediation work at SWMU 5, as required in 35 Ill. Adm. Code 724.201.

   c. All cost estimates must be updated to the current year.

SECTION VI: STANDARD CONDITIONS FOR POST-CLOSURE CARE

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 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 Ill. Adm. Code 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Code 703.270 through 703.273 and Section 702.186. The filing of a request by the Permittee for a permit modification or revocation, 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 Ill. Adm. Code 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 Ill. Adm. Code 700.107)

4. PERMIT CONDITION CONFLICT. In case of conflict between a special permit condition and a standard condition, the special condition will prevail. (35 Ill. Adm. Code 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, other than noncompliance authorized by an emergency permit, constitutes a violation of the Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 Ill. Adm. 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 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 Appendix A of 35 Ill. Adm. Code 721. 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 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 Ill. Adm. Code 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 Ill. Adm. Code 703.280. (35 Ill. Adm. Code 702.152(a))

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management facility, the permittee may not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the permittee may 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 qualified 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 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 Ill. Adm. Code 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee shall give advance 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 Ill. Adm. Code 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 Ill. Adm. Code 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 90 days prior to the scheduled change. (35 Ill. Adm. Code 703.260)

18. MONITORING REPORTS. Monitoring results shall be reported at the intervals specified in the permit. (35 Ill. Adm. Code 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 Ill. Adm. Code 702.162. (35 Ill. Adm. Code 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 health or the environment. Any such information shall be reported orally within 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 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 day written notice requirement in favor of a written report within fifteen days. (35 Ill. Adm. Code 702.152(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 14, 15, and 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 Ill. Adm. Code 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 Ill. Adm. Code 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 -- #33
Permit Section
1021 N. 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 Ill. Adm. Code 702.126. (35 Ill. Adm. Code 702.151)

25. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 35 Ill. Adm. Code 161.

26. DOCUMENTS TO BE MAINTAINED AT FACILITY SITE. The Permittee shall maintain at the facility, until post-closure is complete, the following documents and amendments, revisions and modifications to these documents:

    a. Post-closure plan as required by 35 Ill. Adm. Code 724.218(a) and this permit.

    b. Cost estimate for post-closure care as required by 35 Ill. Adm. Code 724.244(d) and this permit.

    c. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.

    d. Inspection schedules as required by 35 Ill. Adm. Code 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 Ill. Adm. Code Part 722.

28. SECURITY. The Permittee shall comply with the security provisions of 35 Ill. Adm. Code 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 Ill. Adm. Code 724.115(c). Records of inspections shall be kept as required by 35 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 724.131)

RECORD KEEPING

32. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.

POST-CLOSURE

33. CARE AND USE OF PROPERTY. The Permittee shall provide post-closure care for the facility as required by 35 Ill. Adm. Code 724.217 and in accordance with the approved post-closure plan.

34. 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 Ill. Adm. Code 724.218(d).

35. COST ESTIMATE FOR POST-CLOSURE. The Permittee's original post-closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.244, must be:

    a. Adjusted for inflation either 60 days prior to each anniversary of the date on which the first post-closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year. This permit condition is applicable throughout the entirety of the post-closure care period.

    b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of the post-closure plan.

    c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.244)

    d. Maintained at the value approved by Illinois EPA with annual adjustment for inflation during the post-closure care period and cannot be decreased unless approved by the Illinois EPA in a permit modification.

36. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 Ill. Adm. Code 724.245 and 703.241(a)(2) by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by Permit Condition 35. This financial assurance shall be maintained at such value throughout the post-closure care period and shall be

adjusted accordingly pursuant to Permit Condition 35. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 Ill. Adm. Code 724.245.

Financial assurance documents submitted to 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

37. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

SECTION VII: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA Post-Closure permit is summarized below. This summary is provided to highlight the various reporting and notification requirements of this permit.

Condition	Submittal	Date
SECTION II: POST CLOSURE CARE		
F.2	Request permit modification to remove the liner or hazardous waste	Prior to removing the liner or wastes
F.4	Certify to Illinois EPA that post-closure care was performed in accordance with the specifications and submit Post-Closure Documentation Report	Within 60 days after completion of the post-closure care period
SECTION III: GROUNDWATER DETECTION MONITORING PROGRAM		
J.2	Groundwater monitoring data and statistical calculations required	Semi-annually
J.3	Groundwater Surface Elevation	Collected semi-annually Reported annually, due July 15
J.4	Groundwater flow rate and direction	Annually with the groundwater data due July 15
J.5	Surveyed Elevation	Every 5 years, due July 15 or at the request of Illinois EPA or whenever the elevation changes. In addition, for new wells, at the time of installation.
J.6	Elevation of the bottom of each well	Annually due July 15
J.10.a	Notify Illinois EPA in writing of statistically significant increase	Within 7 days after the increase was discovered
J.10.b	Sample groundwater in all wells for the approved subset of Appendix I constituents	Immediately after increase is discovered
J.10.d	Apply for permit modification establishing compliance monitoring program	Within 90 days after the increase was discovered
J.10.e	Provide Illinois EPA with corrective action feasibility plan	Within 180 days after the increase was discovered
J.11.a	Notify Illinois EPA in writing of intent to make demonstration	Within 7 days after the increase was discovered
J.11.b	Submit a report to Illinois EPA which demonstrates that a source other than a	Within 90 days after the increase was discovered

Condition	Submittal	Date
	regulated unit caused the increase, or resulted from error	
J.11.c	Submit to Illinois EPA application to change detection monitoring program	Within 90 days after the increase was discovered
SECTION III-A: PERIMETER GROUNDWATER OBSERVATION MONITORING PROGRAM		
I.2	Groundwater monitoring data and statistical calculations required	Semi-annually and annually
I.3	Groundwater surface elevation	Evaluated semi-annually; reported annually, due July 15.
I.4	Surveyed elevation	Every 5 years, due July 15 or at the request of Illinois EPA or whenever the elevation changes. In addition, for new wells, at the time of installation.
I.5	Elevation of bottom of each well	Annually due July 15
I.9.a	Notify Illinois EPA in writing of significant increase	Within 7 days after the increase was discovered
I.9.b	Sample groundwater in all wells for Appendix I	Immediately after the increase discovered
I.9.d	Apply for a permit modification establishing a compliance monitoring program	Within 90 days after the increase was discovered
I.9.e	Provide Illinois EPA with a corrective action feasibility plan	Within 180 days after the increase was discovered.
I.10.a	Notify Illinois EPA in writing of intent to make demonstration	Within 7 days after the increase was discovered
I.10.b	Submit a report to Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or resulted from error	Within 90 days after the increase was discovered
I.10.c	Submit to Illinois EPA application to change detection monitoring program	Within 90 days after the increase was discovered
SECTION IV: CORRECTIVE ACTION		
G.1	Notify Illinois EPA of newly identified SWMUs	Within 30 days of discovery

Condition	Submittal	Date
G.3	SWMU Assessment Plan	Within 90 days after receipt of Illinois EPA's request
H.	Notify Illinois EPA of release from SWMU	Within 30 days of discovery
J.3	Submit annual corrective action cost estimate if required	As necessary
SECTION V: SPECIAL CONDITIONS		
A.	Submit 39i certification and supporting documentation	With all application for a permit
B.1	Submit revised post-closure cost estimates and financial assurance	Within 60 days of the effective date of this Permit
SECTION VI: STANDARD CONDITIONS		
6	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	At least 15 days prior to planned change
16	Notify Illinois EPA of changes which may result in permit noncompliance	Within 15 days of change
17	Application for permit modification indicating permit is to be transferred	At least 90 days prior to transfer date
19	Submission of any information required in a compliance schedule	Within 14 days after each schedule date
20	Report to Illinois EPA any non-compliance which may endanger health or environment	
	By 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, as required by this permit, 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

Condition	Submittal	Date
35(a)	Adjust post-closure cost estimate for inflations	Within 60 days after anniversary date
35(b)	Revision of post-closure cost estimate	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

ATTACHMENT A

INSPECTION SCHEDULE & INSPECTION FORM

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

ATTACHMENT A

Inspection Schedule for Alton Steel, Inc.

Inspection Item	Frequency	Procedure
1. Integrity of Cap and Cover Erosion Subsidence Run-on/Run-off Control Weed/Vegetation	Semi-Annual	Inspections must be conducted in accordance with Section E.6 of the approved permit application.
2. Security Devices Fence Locks Warning Signs	Semi-Annual	
3. Groundwater Monitoring Wells Cap Casings Concrete Collar	Semi-Annual	

CONSOLIDATED WASTE PILE MONTHLY INSPECTION CHECKLIST
ALTON STEEL, INC.

Inspector's Name	Date
Weather Conditions? Sunny/Cloudy/Windy/Rainy/Snow	Ground Conditions? Wet/Dry/Snow

GROUNDWATER MONITORING WELLS
NOTE: Any "No" answer requires explanation

	YES	NO	COMMENTS
Monitoring wells locked and in good condition?			
Guard posts or protective casings in good condition?			
Locks in good condition?			
Well ID numbers clearly marked?			
Concrete collars in good condition?			
Is the surveyed benchmark used to prepare the survey plat for the consolidated waste pile visible, accessible, clearly labeled and undisturbed?			

SECURITY DEVICES

	YES	NO	COMMENTS
Fence in good condition?			
Fence posts in good condition?			
Surface pads in good condition?			
Gates closed and locked upon arrival?			
Locks in good condition?			
Warning signs posted at each entrance?			

INTEGRITY OF CAP/COVER
NOTE: Any "Yes" answer requires explanation

	YES	NO	COMMENTS
Any ponding or seeps?			
Any cracks or erosion channels greater than 1 inch wide?			
Any subsidence?			
Any gas odor, vegetative or vector problems?			
Any signs of stressed vegetation or no vegetation?			
Any vegetation with tap roots (shrubs or trees) growing on the cover?			
Vegetation growth impedes inspection of the cap?			
Any significant quantity of materials in the run-off ditches?			

SUMMARY OF REPAIRS OR CORRECTIVE ACTION TAKEN AND DATE COMPLETED:

_____

_____

_____

_____

_____

ATTACHMENT B

CONSTRUCTION CERTIFICATION FORM

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

When submitting certifications required by this post-closure permit for construction of any new unit, please complete the attached certification form. This will help to ensure that the submittal reaches its proper destination, and the certification will meet the regulatory requirements. Sending the Field Operations Section (FOS) copy directly to the FOS Office is acceptable as long as all copies have a completed copy of the enclosed form, and you advise the Permit Section, in writing, that a copy has been sent to the FOS Office.

A documentation report and as-built drawings (sealed and signed by an Illinois Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

1. An introduction and summary which describes the scope and purpose of the project;

2. A description of all construction activities, including quality assurance and quality control;

3. As-built drawings of the unit and a description of any deviations from the plans and specifications approved in the permit;

4. A description of the test methods used and justification for any deviations from standard test methods;

5. A summary of test results, identification of any samples which did not meet the specifications, and the corrective action and retesting which was undertaken in response to any failing test results;

6. Any necessary information associated with construction of the unit to document that construction was in accordance with the plans and specifications approved by the permit;

7. Information specifically required by the permit; and

8. Any available photographs of the unit.

CONSTRUCTION CERTIFICATION

This statement is to be completed by both the responsible officer and the qualified professional engineer upon completion of construction in accordance with 35 Ill. Adm. Code 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Agency
Bureau of Land -- #33
Permit Section
1021 N. Grand Avenue East
P.O. Box 19276
Springfield, Illinois 62794-9276

FACILITY NAME: Alton Steel, Inc.

IEPA SITE CODE: LPC No. 1190100004

USEPA ID NO.: ILD006280606

PERMIT LOG NO. B-160R2

PERMIT (OR MODIFICATION) ISSUANCE DATE:

PERMIT CONDITION NO. REQUIRING CERTIFICATION:

The _____ has been constructed in accordance with the specifications in the post-closure permit application. Documentation that the construction was in accordance with the permit is contained in the enclosed report. 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.

_____	_____
Signature of Owner/Operator	Name and Title
_____	_____
Signature of Registered P.E.	Name of Registered P.E. and Illinois Registration Number (P.E. Seal)
_____	
DATE	

ATTACHMENT C

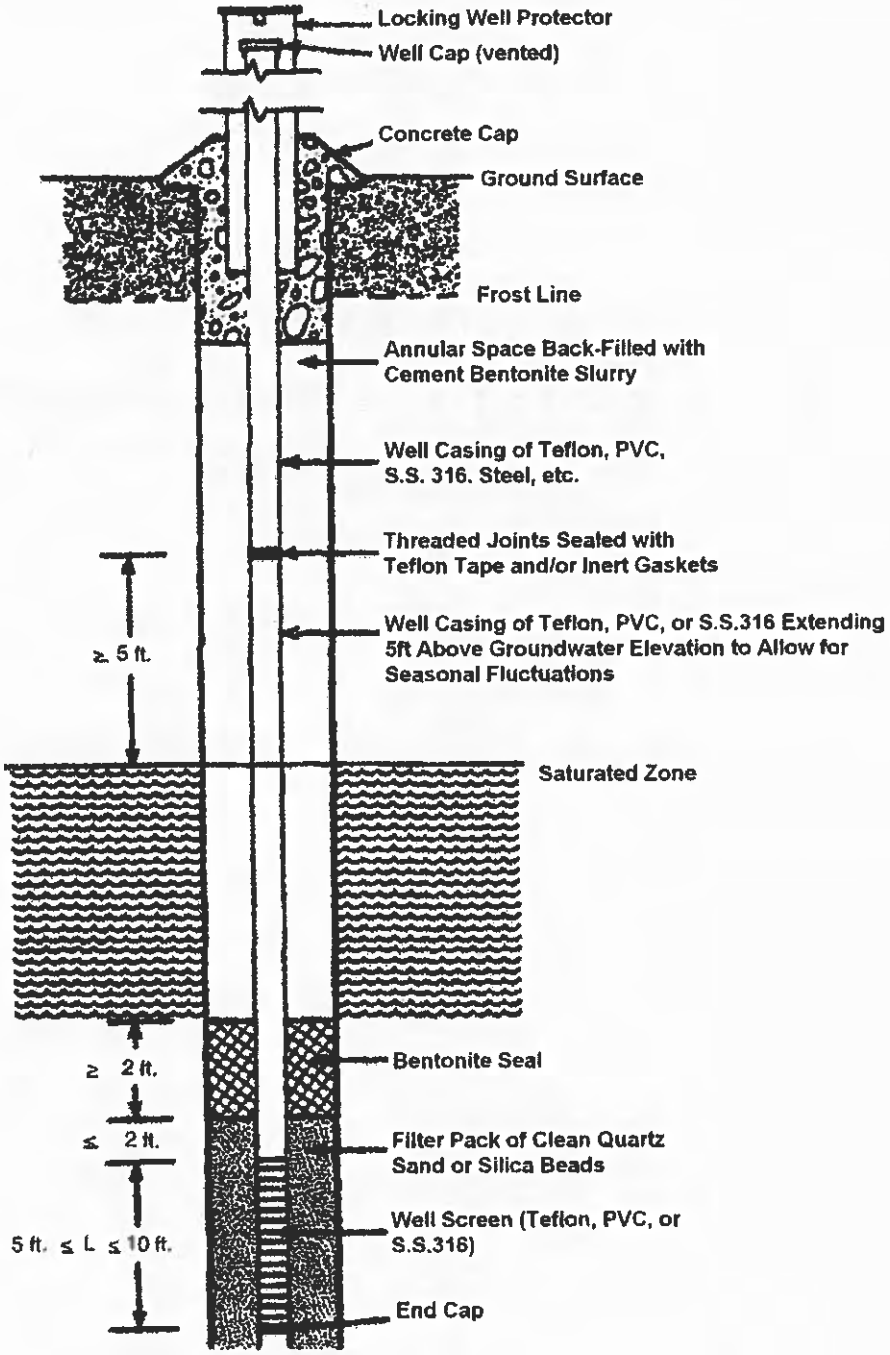
GROUNDWATER MONITORING PROGRAM ATTACHMENTS

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

Monitoring Well Diagram



1190100004-Alton Steel, Inc.
Log No. B-160R2
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Illinois Environmental Protection Agency **Well Completion Report**

Site Number: _____ County: _____

Site Name: _____ Well #: _____

State o ' " o ' "

Plane Coordinate: X ____ Y ____ (or) Latitude: ____ ____ ____ Longitude: ____ ____ ____ Borehole #: _____

Surveyed by: _____ IL Registration #: _____

Drilling Contractor: _____ Driller: _____

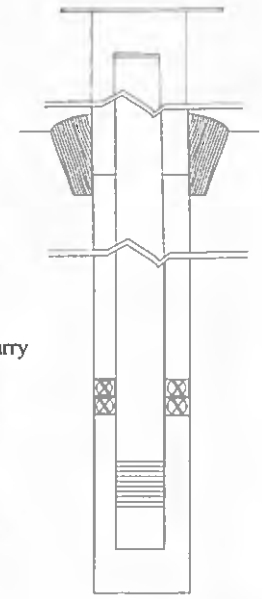
Consulting Firm: _____ Geologist: _____

Drilling Method: _____ Drilling Fluid (Type): _____

Logged By: _____ Date Started: _____ Date Finished: _____

Report Form Completed By: _____ Date: _____

ANNULAR SPACE DETAILS



Type of Surface Seal: _____

Type of Annular Sealant: _____

Installation Method: _____

Setting Time: _____

Type of Bentonite Seal - - Granular, Pellet, Slurry
(Choose One)

Installation Method: _____

Setting Time: _____

Type of Sand Pack: _____

Grain Size: _____ (Sieve Size)

Installation Method: _____

Type of Backfill Material: _____
(if applicable)

Installation Method: _____

	Elevations (MSL)*	Depths (BGS)	(.01ft.)
	_____	_____	Top of Protective Casing
	_____	_____	Top of Riser Pipe
	_____	_____	Ground Surface
	_____	_____	Top of Annular Sealant
	_____	_____	Static Water Level (After Completion)
	_____	_____	Top of Seal
	_____	_____	Top of Sand Pack
	_____	_____	Top of Screen
	_____	_____	Bottom of Screen
	_____	_____	Bottom of Well
	_____	_____	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)	
ID of Riser Pipe (inches)	
Protective Casing Length (feet)	
Riser Pipe Length (feet)	
Bottom of Screen to End Cap (feet)	
Screen Length ()" slot to last slot) (feet)	
Total Length of Casing (feet)	
Screen Slot Size **	

**Hand-Slotted Well Screens are Unacceptable

1190100004-Alton Steel, Inc.
Log No. B-160R2
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Illinois Environmental Protection Agency

Field Boring Log Page ___ of ___

Site ID No. _____ Federal ID No. _____

Site Name: _____

Quadrangle: _____ Sec. _____ T. _____ R. _____

UTM (or State Plane) Coord. N. (X) _____ E. (Y) _____

Latitude: ___ ___ ___ Longitude: ___ ___ ___

Boring Location: _____

Drilling Equipment: _____

County: _____

Boring No. _____ Monitoring Well No. _____

Surface Elevation: _____ Completion Depth: _____

Auger Depth: _____ Rotary Depth: _____

Date: Start: _____ Finish: _____

Elev.	Description of Material	Graphic Log	Depth In Feet	SAMPLES: Sample No.	Sample Type	Sample Recovery (X)	Penetrometer	N Values (Blow Counts)	OVA or HNU Readings	Personnel / REMARKS
										G - D - H - H - REMARKS

Field Boring Log (revised 02/02/04

1190100004-Alton Steel, Inc.
Log No. B-160R2
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Illinois
Environmental
Protection Agency

Bureau of Land
1021 North Grand Avenue East
Box 19276
Springfield, IL 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: _____ Site ID #: _____
Facility Address: _____ Fed ID #: _____

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

___ LPC-160 Forms

Groundwater

___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

Leachate

___ Quarterly – Indicate one: 1 2 3 4
___ Semi-Annual
___ Annual
___ Biennial

___ Groundwater Data (without LPC-160 Forms)
___ Quarterly – Indicate one: 1 2 3 4
___ Annual ___ Semi-Annual ___ Biennial

___ Well Construction Information
___ Well Construction Forms, Boring Logs and/or Abandonment Forms
___ Well Survey Data (e.g., Stick-up Elevation Data)

___ Notice of Statistically Significant Evidence of Groundwater Contamination (35 Ill. Adm. Code 724.198)

___ Notice of Exceedence of Groundwater Concentration Limit (35 Ill. Adm. Code 724.199(h))

___ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 Ill. Adm. Code 724.199(i))

___ Gas Monitoring Reports

___ Other (identify) _____

1190100004-Alton Steel, Inc.
Log No. B-160R2
Page C-5 of C-9

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data (the 01 Record portion of the LPC-160 is included for example purposes)

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF LAND POLLUTION CONTROL
CHEMICAL ANALYSIS FORM

Page 1 of _____

RECORD CODE: L P C S M 0 1 (1–7) TRANS CODE: A (8)

REPORT DUE DATE __ __/__ __/__ __ (36 M D Y 41)

FEDERAL ID NUMBER _____

SITE INVENTORY NUMBER _____ (9–18)

MONITOR POINT NUMBER (see Instructions) _____ (19–22)

REGION _____ CO. _____

DATE COLLECTED __ __/__ __/__ __ (23 M D Y 28)

FACILITY NAME _____

FOR IEPA USE ONLY

LAB _____ (29)

DATE RECEIVED __ __/__ __/__ __ (42 M D Y 47)

BACKGROUND SAMPLE (X) _____ (54)

TIME COLLECTED (24 Hr. Clock) __ __:__ __ (55 H M 58)

UNABLE TO COLLECT SAMPLE (see Instructions) _____ (59)

MONITOR POINT SAMPLED BY (see Instructions) _____ (60)

OTHER (SPECIFY) _____

SAMPLE FIELD FILTERED — INORGANICS (X) _____ (61) ORGANICS (X) _____ (62)

SAMPLE APPEARANCE _____ (63–102)

COLLECTOR COMMENTS _____ (103–142)

LAB COMMENTS _____ (150–199)

IL 532 1213
LPC 160 01/90

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered – Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-199	Lab Comments	

1190100004-Alton Steel, Inc.
Log No. B-160R2
Page C-7 of C-9

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data (the 02 Record portion of the LPC-160 is included for example purposes)

RECORD CODE | L | P | C | S | M | 0 | 2 | TRANS CODE | A | (COLUMNS 9-29 FROM ABOVE)

	FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE	STORET NUMBER	Remarks See Inst.	Replicate	< or >	VALUE
Q	TEMP OF WATER (unfiltered °F)	00011				
Q	SPEC COND (unfiltered umhos)	00094				
Q	pH (unfilted units)	00400				
Q	ELEV OF GW SURF (ft ref MSL)	71993				
Q	DEPTH OF WATER (ft below LS)	72019				
A	BTM WELL ELEV (ft ref MSL)	72020				
Q	DEPTH TO WATER FR MEA PT (ft)	72109				

IL 532 1213
LPC 160 01 90

This Agency is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Agency. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Spaces 35	Remarks	
Spaces 36	Replicate	
Spaces 37	< or >	
Spaces 38-47	Value	

APPENDIX I MONITORING

SUBSET PARAMETERS

Groundwater Detection Monitoring Program

Antimony (total and dissolved)
Arsenic (total and dissolved)
Barium (total and dissolved)
Beryllium (total and dissolved)
Cadmium (total and dissolved)
Chromium (Hexavalent-total and dissolved)
Chromium (total and dissolved)
Lead (total and dissolved)
Mercury (total and dissolved)
Nickel (total and dissolved)
Selenium (total and dissolved)
Thallium (total and dissolved)
Zinc (total and dissolved)

APPENDIX I MONITORING

SUBSET PARAMETERS

Perimeter Groundwater Observation Monitoring Program

Antimony (total and dissolved)
Arsenic (total and dissolved)
Barium (total and dissolved)
Beryllium (total and dissolved)
Cadmium (total and dissolved)
Chromium (Hexavalent-total and dissolved)
Chromium (total and dissolved)
Copper (total and dissolved)
Lead (total and dissolved)
Manganese (total and dissolved)
Mercury (total and dissolved)
Nickel (total and dissolved)
Selenium (total and dissolved)
Silver (total and dissolved)
Thallium (total and dissolved)
Zinc (total and dissolved)
Benzene
Ethylbenzene
Toluene
Total Xylene
Acenaphthene
Anthracene
Benzo(a)anthracene
Benzo(a)pyrene
Benzo(b)fluoranthene
Chrysene
Dibenzo(a,h)anthracene
Fluoranthene
Fluorene
Indeno(1,2,3-c,d)pyrene
Naphthalene
Pyrene
Acenaphthalene
Benzo(g,h,i)perylene
Phenanthrene
Total PCBs
Arochlor 1016
Arochlor 1221
Arochlor 1232
Arochlor 1242
Arochlor 1248
Arochlor 1254
Arochlor 1260

ATTACHMENT D

APPROVED PERMIT APPLICATION IDENTIFICATION

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

IDENTIFICATION OF APPROVED PERMIT APPLICATION

This permit is based on the information in the approved permit application. The approved permit application consists of the following documents:

Document	Date	Date Received
RCRA Post-Closure Permit Renewal Application	7/12/19	7/15/19
ADDITIONAL INFORMATION	3/31/20	4/6/20
ADDITIONAL INFORMATION	6/11/20	6/17/20
ADDITIONAL INFORMATION	8/26/20	9/1/20
ADDITIONAL INFORMATION	10/9/20	10/15/20
ADDITIONAL INFORMATION	9/24/21	9/27/21

ATTACHMENT E

CORRECTIVE ACTION AND POST CLOSURE CARE

COST ESTIMATE SUMMARY

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

CORRECTIVE ACTION, CLOSURE AND POST-CLOSURE CARE

COST ESTIMATE SUMMARY

Alton Steel, Inc.

These estimates are based on using 2021 dollars and include the cost of: (1) activities carried out each year (i.e., annual costs); and (2) one-time or non-annual costs.

ACTIVITY	COST ESTIMATES			
	Annual Cost Per Year	**Total Amount of Annual Costs**	**Non-Annual Costs**	**Total Costs w/Contingencies**
Corrective Action	$29,063	$290,630	$145,178	$479,389*
Closure	$0	$0	$0	$0
Post Closure Care	$16,508	$495,240	$30,560	$578,380*
TOTAL	$45,571	$785,870	$175,738	$1,057,769

Notes:
Total Annual Costs = Annual Cost per Yr. x 30 years

10% Contingency applied

*See Special Condition V.B.1(a) and (b).

ATTACHMENT F

CHRONOLOGICAL SUMMARY OF RCRA CORRECTIVE ACTION ACTIVITIES

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

The table below summarizes the corrective action activities completed to date at Alton Steel, Inc. (Illinois EPA ID No. 1190100004, USEPA ID No. ILD006280606) under its RCRA permit (Log No, B-160, B-160R, B-160R2 and associated modifications). This summary is based on a chronological presentation of the various letters sent by Illinois EPA.

Date of IEPA Letter and Log No.	**Brief Description of Action**
June 28, 1996 (B-160)	Issued a RCRA Post-Closure Permit for a hazardous waste landfill. This permit allows Laclede to operate the Consolidated Waste Pile as a CAMU with post-closure care and requires them to close two other HWMUs. It also requires the facility to conduct Corrective Action at eight SWMUs.
January 21, 1997 (B-160-M-1 and B-160-M-2)	Approved requests to modify the Part B Permit: (1) a Class 1 permit modification request to modify Conditions IV.D.2 and IV.G.1.a.ii.; and (2) a Class I permit modification request to extend the time limits for closure activities contained in Condition I.A.D.3 and I.B.E.1.
July 7, 1997 (B-160-CA-1)	Approved the RCRA Facility Investigation Phase I Work Plan, submitted on December 11, 1996 and March 21, 1997 with conditions and modifications. The work plan included an investigation plan for the following four units as required in Condition II.C.2 of the Part B Permit: (1) Existing WWTP area (SWMU 5); (2) Former Waste Oil Tank (SWMU 8); (3) Pre-RCRA Waste Piles (SWMU 12); and (4) Facility in General (SWMU 13).

Date of IEPA Letter and Log No.	Brief Description of Action
July 15, 1997 (B-160-M-3)	Approved a closure plan modification for the Rod Patenting Building, with conditions and modifications. The submittal proposed additional activities to further assess the integrity of the concrete floor and soil sampling/analysis plan to determine if underlying soils have been impacted. This request was reviewed as a Class I RCRA post-closure permit modification request.
January 9, 1998 (B-160-M-5)	Requested additional information regarding a Tier 3 evaluation submitted for the lead levels remaining at the Rod Patenting building.
June 10, 1998 (B-160-CA-1)	Determined that, subject to certain conditions: (1) closure of the Pelletizer Area has met the requirements of 35 Ill. Adm. Code 725.211 and 725.358; and (2) the corrective action activities at the Pre-RCRA waste pile have met the requirements of 35 Ill. Adm. Code 724.201. The conditions required for the Pelletizer are: (1) at least 3' of clean fill be placed over the area and property maintained; and (2) the access to the remaining material is restricted. The conditions required for the Pre-RCRA Waste Pile are: (1) at least 10' of clean fill be placed over the area and property maintained; (2) the access to the remaining material be restricted; and (3) a demonstration be made that groundwater has not been impacted at this unit.
June 18, 1999 (B-160-CA-4)	Approved Laclede's May 1, 1998 submittal regarding proposed installation of groundwater monitoring wells at WOT area with conditions and modifications. The letter also contained approval for the Phase I RFI report relative to groundwater at WOT.
June 28, 1999 (B-160-M-5)	Approved request to modify the language of Condition IV.G.2 (groundwater requirements) of the permit. Also modified the permit to include the established background concentrations for the total fraction of the listed indicator parameters, as listed in Permit Conditions IV.D.1, List G 1, and IV.B.2 has been modified to reflect the Class II status of the groundwater beneath the site.
July 8, 1999 (B-160-M-4)	Disapproved four submittals submitted by Laclede regarding RPB closure. Laclede's submittal included the soil sampling results at RPB and Tier 3 analysis (for lead) of the sampling results.
July 6, 2000 (B-160-CA-7)	Approved Laclede's "Safe Work Plan" for the Baghouse decommissioning work with conditions and modifications. This letter specifically identified the soil sampling required for the Scrap Aisle area near the Baghouses (SWMU 7).
July 7, 2000 (B-160-CA-6)	Approved Laclede's January 12, 2000 submittal with conditions and modifications. The submittal contained groundwater sampling results and a proposal for additional groundwater work at WOT.
August 1, 2000 (B-160-CA-8)	Approved July 6, 2000 letter regarding the cleanup for the EAF dust release at the Electric Melt Shop. This letter indicated that the closure of the Scrap Aisle near the Electric Melt Shop will be approved given that an institutional control and a warning layer of buried plastic in the vicinity of the Scrap Aisle area will be placed to restrict all access to the contaminated soil beneath.

Date of IEPA Letter and Log No.	Brief Description of Action
August 24, 2000 (B-160-M-4)	Responded to the four submittals made by Laclede regarding closure of Rod Patenting Building (RPB), which describes activities conducted at RPB. Additional soil sampling was required to determine the extent of contamination in the area of the RPB.
October 18, 2000 (B-160-CA-3)	Approved the RFI Phase I Report with conditions and modifications. This submittal summarized investigations conducted at Waste Oil Tank (WOT) and Wastewater Treatment Plant (WWTP). Required submittal of a Phase II Workplan for work at WWTP, WOT and Pre-RCRA Waste Pile.
November 2, 2000 (B-160)	Approved the closure of the Consolidated Waste Pile in accordance with 35 Ill. Adm. Code 724. Laclede's continuing post-closure care is required at this unit.
May 7, 2001 (B-160-CA-11)	Approved the request to modify the approved corrective action program at WOT with conditions and modifications. This submittal reported the results of additional work conducted at the WOT and requested to close the groundwater portion of the corrective action requirements for this unit. IEPA approved the work conducted at this unit; however, the request to close the groundwater portion of the project was not approved since the soil component is still under investigation.
July 10, 2001 (B-160-CA-10 and B-160-CA-13)	Approved two reports regarding the remedial activities conducted at the area around Baghouse Dust Accumulation Area (SWMU 7) with conditions and modifications. These reports summarized the cleanup and remedial activities conducted at SWMU 7 due to the K061 release from the collapsed duct at the Electric Melt Shop. For the remedial activities, only the Scrap Aisle Area portion of the impacted area was approved.
April 23, 2003 Settlement Agreement	A Settlement Agreement was signed between Alton Steel, Laclede Steel, Illinois EPA and U.S. EPA, as a part of the property transfer and Laclede's bankruptcy case to address the many environmental concerns at the facility. This Settlement Agreement is associated with Case No. 01-48321 filed in United States Bankruptcy Court for the Eastern District of Missouri, Eastern Division.
March 23, 2004 (B-160-CA-15)	Approved a workplan for cleaning and dismantling of the Waste Oil Tank (SWMU 8) with conditions and modifications. This workplan did not include any investigation plan at the unit.
June 18, 2004 (B-160-CA-16)	Approved Dowel Assembly Building (SWMU 9) Cleaning Report and determined that no further corrective action was required at this unit.
August 16, 2004 (B-160-CA-17)	Approved a workplan for soil investigation at Waste Oil Tank (SWMU 8) with conditions and modifications.
August 26, 2004 (B-160-CA-14)	Approved the Phase II Environmental Site Assessment (ESA) workplan for the facility with conditions and modifications. This was submitted in accordance with the Settlement Agreement. .

Date of IEPA Letter and Log No.	Brief Description of Action
September 13, 2004 (B-160, B-160-M-5, B-160-M-6 and B-160-CA-12)	Approved 6 submittals with conditions and modifications. In this letter, NFR was approved and an ELUC was required at both the Pelletizer Area (SWMU 3) and the Pre-RCRA Waste Pile (SWMU 12). In addition, at SWMU 2 (Rod Pat Building), the proposed Tier 3 evaluation was disapproved, requiring the facility to conduct additional investigation or remediation at SWMU 2.
September 16, 2004 (B-160-CA-14)	Made a minor modification to Condition 2 of Illinois EPA's August 26, 2004 letter.
September 17, 2004 (B-160-CA-18) (Financial)	Requested Associated Trust Company, where Alton Steel's Purchase Price Trust fund is managed, to release funds to Alton Steel and Tetra Tech EM for completing various remedial works required in the Settlement Agreement. (1) Removal of EAF dust from the Electric Melt Shop, and (2) cleanup of the Dowel Assembly Building.
February 24, 2005 (B-160-CA-21)	Approved submitted draft ELUC subject to conditions and modifications. Constitutes IEPA's no further action determination instrument that must be filed, provided terms and conditions of this letter are met for the Pelletizer Area (SWMU 3) and the Pre-RCRA Waste Pile (SWMU 12).
April 12, 2005 (B-160-CA-23) (Financial)	Requested Associated Trust Company, where Alton Steel's Purchase Price Trust fund is managed, to release funds to Alton Steel and Tetra Tech EM for completing remedial work required in the Settlement Agreement consisting of cleaning and dismantling the Waste Oil Tank.
May 13, 2005 (B-160-CA-24) (Financial)	Requested Associated Trust Company, where Alton Steel's Purchase Price Trust fund is managed, to release funds to Alton Steel, Tetra Tech EM, and Environmental Management Alternatives, Inc. for completing remedial work required in the Settlement Agreement consisting of inventorying, characterizing and disposing of containerized waste generated by Laclede prior to its closure.
August 11, 2005 (B-160-CA-26)	Approved a submittal re: closure/corrective action efforts at the Rod Pat Building (SWMU 2) with conditions and modifications. Actions included establishing engineered barriers in and around the building and conducting additional soil investigation in certain areas near the building.
August 30, 2005 (B-160-M-7)	Approved a Class 1* modification to change ownership from Laclede Steel to Alton Steel. The Corrective Action Section of the permit was also changed to reflect the conditions of the Settlement Agreement filed with the U.S. Bankruptcy Court, Case No. 01-48321.
October 19, 2005 (B-160-CA-27)	Approved recorded ELUCs for the Pelletizer Area (SWMU 3) and the Pre-RCRA Waste Pile (SWMU 12). This completes the closure of the Pelletizer Area, and the corrective actions at the Pre-RCRA Waste Pile.
November 1, 2005 (B-160-CA-28)	Approved report for the Waste Oil Tank Soil and Groundwater Investigation with conditions and modifications. The soil ingestion route is to be addressed by the use of an engineered barrier. Closure of the groundwater cannot be approved at this time.

Date of IEPA Letter and Log No.	Brief Description of Action
May 8, 2006 (B-160-CA-29)	Approved the Phase II Environmental Site Assessment (ESA) Report with conditions and modifications. ASI must submit a groundwater monitoring work plan to implement a groundwater monitoring system (6 new perimeter monitoring wells) and investigate groundwater exceedances found in the Phase II ESA. ASI may address the contamination identified during the Phase II ESA through IEPA's SRP.
May 25, 2006 (B-160-CA-30)	Approved submittal made by Shaw Environmental Group w/results of a supplemental soil investigation at the RPB. It was reviewed as a request to modify the approved RCRA corrective action program for the RPB, and was approved w/conds & mods. An engineered barrier and an institutional control must be established both inside the RPB and an area outside the building.
August 1, 2006 (B-160-CA-22)	Approved revised WOT Cleaning and Dismantling Report with conditions and modifications.
August 16, 2006 (B-160-CA-31)	Approved submittal regarding groundwater investigation & engineered barrier at WOT. NFA included. Approved draft ELUC. ELUC needs slight modification and then be recorded.
November 30, 2006 (B-160-CA-33)	Approved recorded institutional control/ELUC and NFA letter for WOT w/Madison County Recorder's Office.
March 2, 2007 (B-160-CA-32)	GAU approved the Perimeter Well Groundwater Monitoring Work Plan w/conditions & modifications. Work plan is for additional gw monitoring wells at the facility.
April 11, 2007 (B-160-CA-35)	Approved, with conditions and modifications, the Tier 3 TACO Risk Assessment for the soil around the Rod Pat Bldg. An ELUC and an engineered barrier are two of the requirements.
July 3, 2007 (B-160-CA-37)	Submittal was faxed lab results of 2001 wipe tests at the Rod Pat Bldg. (SWMU 2). The info was reviewed and the following are required: (1) an engineered barrier is required over the entire floor of the Rod Pat Bldg; (2) a description of the engineered barrier must be submitted; and (3) an ELUC must be recorded for the Rod Pat Bldg.
May 7, 2008 (B-160-CA-39)	Approved a layer of asphalt, engineered barrier, on top of the entire existing floor of the Rod Patenting Bldg. (RPB). Requires a draft ELUC for the RPB and the surrounding area.
August 1, 2008 (B-160-CA-38)	Approved Completion Report for the Placement of an Engineered Barrier at the Former WOT. Engineered barrier has been constructed and ELUC was previously filed. No further action is necessary at the WOT other than compliance with terms and conditions of this letter.
August 19, 2008 (B-160-CA-40)	Approved submittal regarding Baghouse Dust Accumulation Area (SWMU 7). Submittal discussed past soil investigations, proposed work plan for additional soil sampling and analysis, and stated an engineered barrier and an ELUC would be established.

Date of IEPA Letter and Log No.	Brief Description of Action
March 6, 2009 (B-160-CA-44)	Approved portions of report documenting installation of new wells and sampling of Perimeter GW Monitoring. Required the following: (1) additional information for renewal application; (2) quarterly GW monitoring and new list of parameters; and (3) additional information on the hydrogeology at the site.
March 31, 2009 (B-160-CA 43 and B-160-CA-46)	Approved RCRA Closure Certification Report and revised draft ELUC for Rod Patenting Building. An asphalt layer was installed on top of the concrete floor as an engineered barrier. Determined that no further corrective action is required. Letter constitutes IEPA's no further action determination instrument. ELUC must be filed and a copy submitted to IEPA.
May 28, 2009 (B-160-CA-36)	Approved the Phase II RFI Work Plan for SWMU 5 (WWTP) for additional soil, sediment, sludge, and surface water samples and analyses with conditions and modifications.
June 2, 2009 (B-160-CA-45)	Approved a submittal for SWMU 7 (Baghouse Dust Accumulation Area) containing (1) the results of the approved additional investigation at SWMU 7, (2) a revised proposal for an engineered barrier, and (3) a proposal for further soil investigation at the unit, with conditions and modifications.
June 2, 2009 (B -160-CA-47)	Approved the submittal of a certified copy of the ELUC filed with Madison County for SWU 2 (RPB) with conditions and modifications. No further action is necessary to complete RCRA closure of the Rod Patenting Building, other than compliance with the ELUC.
December 4, 2009 (B-160R)	Issued RCRA Post-Closure Renewal Permit to allow ASI to continue to provide PCC for a closed CWP CAMU and continue corrective action activities at eight SWMUs. Permit effective January 8, 2010 and expires January 8, 2020.
December 29, 2009 (B-160-CA-19)	Approved the submittal of the EMS Building Cleanup Final Report. The work included cleaning of dust and repairs in the electric melt shop and the baghouse areas.
December 29, 2009 (B-160-CA-25)	Approved the submittal of the report for the collection, inventory, and disposal of containerized waste left by Laclede Steel.
March 15, 2010 (B-160R-CA-1)	Approved (1) the results of an additional soil investigation at the Baghouse Dust Accumulation Area; (2) a proposed engineered barrier over a portion of the area; and (3) required the submittal of a draft ELUC to Illinois EPA for review and approval.
April 15, 2011 (B-160-CA-48, 49, 50 & 51)	Approved a Groundwater Investigation Plan with the following conditions and modifications: (1) the installation of two piezometers nests; (2) GW elevations must be collected quarterly for one year to determine GW flow, potentiometric maps must be constructed, GW elevations table must be provided; (3) provide GW investigation report within 90 days of the 4th quarter GW elevations; (4) provide Class 1* modification to designate wells as piezometers.

Date of IEPA Letter and Log No.	**Brief Description of Action**
November 10, 2011 (B-160R-M-5)	Class 2 permit modification that approved the following: (1) the proposed Appendix I Subset Parameter List for the Perimeter GW Observation Monitoring Program; but did not approve the initial Background GW Quality values.
May 23, 2012 (B-160R-M-6)	Approved proposed interwell Background Groundwater Quality (BGQ) values for the Perimeter Groundwater Observation Monitoring Program.
November 28, 2012 (B-160R-CA-3)	Approved the installation of the engineered barrier and a draft ELUC for the Baghouse Dust Accumulation Area/SWMU 7. No further action required except to file ELUC with Madison County.
February 21,2013 B-160R-CA-4)	Approved the ELUC filed with Madison County for the Baghouse Dust Accumulation Area and restated the requirements of the ELUC.
August 15, 2013 (B-160R-CA-5)	Approved GW Investigation Report and proposed additional investigation with conditions and modifications: (1) submit Class 1* modification to remove and add piezometers; (2) require sampling and logging during installation of new piezometer; (3) submit bore logs, construction diagrams and data sheets for new piezometer; and (4) submit final GW investigation report.
June 29, 2016 (B-160R-M-11)	Approved updated corrective action, closure and post-closure cost estimates and revised the permit to reflect approval of the closure of SWMU 7.
May 4, 2017 (B-160R-CA-2)	Approved the Phase II RCRA RFI report regarding SWMU 5 known as the Wastewater Treatment Plant Area and the request for additional investigation activities.

ATTACHMENT G

LEGAL DESCRIPTION and FACILITY MAP

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

ATTACHMENT G

ALTON STEEL PERMITTED FACILITY DESCRIPTION

For this RCRA Post-Closure Permit, the Alton Steel, Inc. (ASI) facility is comprised of approximately 238 acres of property owned by ASI, with its principal gate at 5 Cut Street in Alton, Illinois. This attachment will further define the boundaries of the ASI facility covered by this permit.

The boundaries of ASI facility covered by this permit includes the contiguous land and structures, other appurtenances, and improvements on the land used for treating, storing, or disposing of hazardous waste. Adjacent properties that are owned by ASI and located outside the facility boundaries covered by this permit do not have any structures, appurtenances, or improvements used for treating, storing, or disposing of hazardous waste, and do not contain any solid waste management units required to be addressed by the corrective action provisions of this permit.

The ASI facility covered by this permit includes the following properties:

1. A 34.4 acre, more or less, piece of property that contains the two units referred to as the Consolidated Waste Pile (CWP) (SWMU 1) and the Solid Waste Landfill (SWMU 4). The CWP is approximately six (6) acres and is on top of the Solid Waste Landfill. The legal description of this piece of property is on page 2 of this attachment. This property is also shown on page 3 of this attachment.

2. The properties identified by the Madison County Assessor as Parcel Number 23-1-08-00-000-011 (197.76 acres more or less), Parcel Number 23-1-08-18-00-000-011.001 (2.83 acres), and Parcel Number 23-1-08-00-000-012 (1.84 acres more or less). These parcels are located west of Chessen Lane and make up the bulk of the past and present manufacturing areas. These parcels are shown on page 3 of this attachment.

3. A 1.5 acre, more or less, piece of ASI property that is a roadway connecting the two (2) aforementioned properties. Page 3 of this attachment shows the roadway connecting the two properties.

Legal Description - Laclede Steel Company Landfill Site (Solid Waste Landfill and Consolidated Waste Pile within that Landfill)- Alton. Illinois

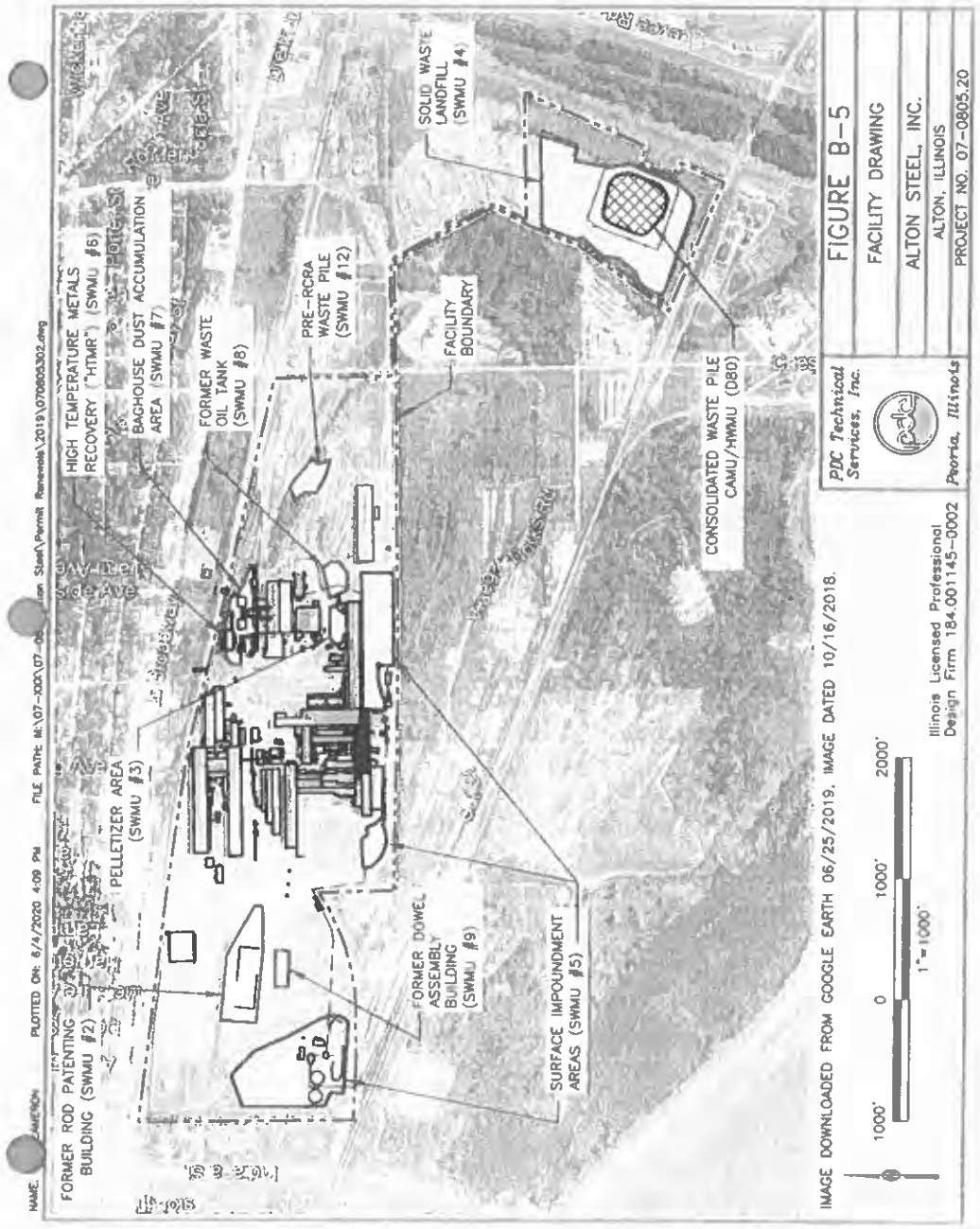
A tract of land located in the Southwest quarter of Section 17 and the Northwest quarter of Section 20, Township 5 North, Range 9 West of the Third Principal Meridian, within the Corporate Limits of the City of Alton, Madison County, Illinois, more fully described as follows:

From the southeast corner of the Southwest quarter of Section 17 measure South 88 degrees 52 minutes West along the south line of said quarter section a distance of 634.65 feet to the west right-of-way line of the Wood River Drainage and Levee District and the Point of Beginning of this tract; thence South 22 degrees 27 minutes West from said beginning point along said west right-of-way line a distance of 770.6 feet; thence North 64 degrees 35 minutes West along said line a distance of 40.00 feet; thence South 25 degrees 25 minutes West along said line a distance of 150.00 feet; thence South 64 degrees 35 minutes East along said line a distance of 55.00 feet; thence South 22 degrees 07 minutes West along said line a distance of 358.27 feet to an intersection with the north right-of-way line of Norfolk and Western Railroad (formerly Illinois Terminal Railroad); thence westerly along said line a distance of 288.49 feet to an offset in said right-of-way line; thence northerly at right angles to the last described course a distance of 6.00 feet; thence westerly along said north right-of-way line a distance of 915.00 feet to an offset in said right-of-way line; thence northerly at right angles to the last described course a distance of 15.00 feet; thence westerly continuing along said north right-of-way line a distance of 31.00 feet to the center of Old Wood River; then North 44 degrees 00 minutes East a distance of 300.00 feet; thence North 71 degrees 00 minutes East a distance of 120.00 feet; thence North 27 degrees 00 minutes East a distance of 545.00 feet; thence NORTH a distance of 250.00 feet; thence easterly a distance of 125 feet more or less to the southwest corner of a tract of land leased to International Mill Service; thence North 88 degrees 40 minutes 23 seconds East along the south line of said lease tract and the easterly extension thereof a distance of 1150 feet, more or less to an intersection with the west right-of-way line of the Wood River Drainage and Levee District; thence South 21 degrees 24 minutes West along said right-of-way line a distance of 20 feet, more or less to an angle point; thence South 49 degrees 19 minutes West continuing along said right-of-way line a distance of 114.1 feet; thence South 22 degrees 27 minutes West continuing along said right-of-way line a distance of 247.05 feet to the Point of Beginning. Containing 34.4 acres, more or less.

Subject to conditions, restrictions and easements or record.

1190100004-Alton Steel, Inc.
Log No. B-160R2
Page G-3 of G-3

Facility Drawing



ATTACHMENT H

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

Alton Steel Inc. (1190100004) – Madison County
USEPA ID: ILD010284248
RCRA Permit Log No. B-160R2

To meet the requirements of 35 Ill. Adm. Code 724.220, this statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 Ill. Adm. Code 702.126) and by a qualified professional engineer upon completion of post-closure care of the UNIT NAME. Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste management unit closed as a landfill, known as the UNIT NAME, has been closed in accordance with the specifications in the approved closure plan. Post-Closure care required for the UNIT NAME has been provided and completed in accordance with the RCRA Permit. A report documenting that required post-closure care have been carried out and completed in accordance with the approved post-closure care plan is attached.

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.

A 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 ILCS5/44(h))

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

ATTACHMENT I

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

STATE ID # 1190100004

ILD006280606

Post-Closure Permit Log No. B-160R2

ATTACHMENT I

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 Title 35 Illinois Administrative Code (35 Ill. Adm. Code) 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 Ill. Adm. Code 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 CMP at a given SWMU or other AOCs to follow these five 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 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 CMP at each SWMU or other AOCs. All such documents must be reviewed and approved by 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 AOC and provides a conceptual design for these measures. The main criteria for Illinois EPA review is 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 totally 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 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:

a. 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.

b. 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 Ill. Adm. Code 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. Describe the corrective measure 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 3.0 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, some 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"-12" 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"-12" 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.

7. Additional soil must be removed, as necessary, until it can be demonstrated that the remaining soil in and around the AOC 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.

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

SEP 29 2023

7022 1670 0001 4381 5296

BP Products North America, Inc.
Attention: Ms. Michelle Knapp
Liability Manager
301 Evans Avenue
P.O. Box 167
Wood River, Illinois 62095

Re: 1191155009 – Madison County
BP Products North American Inc./Riverfront Property
ILD980503106
Log No. B-145R2
RCRA Administrative Record
Permit Approval

Dear Ms. Knapp:

Enclosed is a final renewed Resource Conservation and Recovery Act (RCRA) Post-Closure Permit for BP Products North America, Inc. - Riverfront Facility (BP). 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 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 renewed RCRA Post-Closure Permit were from BP. The Illinois EPA's responses to these 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 Illinois Environmental Protection Act by filing a petition for a hearing within thirty-five (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 ninety (90) days by written notice from the applicant and the Illinois EPA within the initial 35-day appeal period. If the applicant 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
Attn: Land Enforcement Unit Manager
1021 North Grand Avenue East
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, Clerk
State of Illinois Center
100 West Randolph, Suite 11 500
Chicago, IL 60601
312/814-3620

Any questions regarding groundwater issues, please contact Amy Butler, P.G. at 217/558-4716. For all other questions, please contact Jacob Nutt at 217/524-7048.

Sincerely,

Jacqueline M Cooperider

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:JDN:1191155009-RCRA-B145R2-approval.docx

Attachment: Illinois EPA's Response to BP's Comments
Renewed RCRA Post-Closure Permit

cc: Norberto Gonzalez, U.S. EPA – Region V
Emily Keener, U.S. EPA – Region V
Michael Hoffman, Wood Environment & Infrastructure Solutions, Inc

ILLINOIS EPA'S RESPONSE TO COMMENTS
BP Products North America, Inc.
Draft Renewed RCRA Post-Closure Permit

The responses below address comments received from BP Products North America, Inc. Riverfront Facility (BP) dated August 23, 2023, and received by Illinois EPA on August 24, 2023, pertaining to the draft renewed RCRA permit for BP issued on July 7, 2023. In addition, typographical errors were corrected throughout the permit as the Illinois EPA initiated changes.

BP'S COMMENTS TO THE FACT SHEET

BP Comment 1:

Page 1 of 7 (Section II.A.): *1st paragraph, 4th and 5th sentences:*
Please revise to clarify the property now owned by Kinder Morgan Phoenix Holdings, LLC (KMPH) is no longer a portion of the Main Plant facility. Please remove the detail regarding operations at the KMPH facility as it is no longer a portion of the Main Plant facility.

In addition, it was used for the management of refinery waste. Currently, Kinder Morgan Liquids Terminal LLC (KMLT) operates and Kinder Morgan Phoenix Holdings, LLC (KMPH) owns a storage and distribution facility for gasoline and petroleum distillates at a site which was formerly a portion of the Main Plant facility but~~that~~ was sold to KMPH and will be subject to a separate RCRA Permit. ~~Distribution operations are managed via pipelines, aboveground storage tanks at the Main Plant, and barge operations on the Mississippi River~~.

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP Comment 2:

Page 2 of 7 (Section II.B.): *2nd paragraph, 2nd sentence:*
Please add references to the Main Plant facility and revise "riverfront property" to "Riverfront facility" for clarification.

The Riverfront facility is adjacent to, and its operation was associated with the former Amoco Refinery in Wood River. This 569-acre former refinery (Main Plant facility) is located due east of the Riverfront facility ~~riverfront property~~. Route 143, East Rand Avenue, South Sixth Street, and Illinois Route 3 bound the former refinery (Main Plant facility) on the north, south, east, and west sides, respectively.

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP Comment 3:

Page 3 of 7 (Section III.A.1.): *Table:*
Please revise to clarify there are no sediments or soil with K048 above the ESP liner. Remove second closing parentheses.

Description of Hazardous Waste & Waste Numbers
Sediments and soil below the liner contaminated with K048 – Dissolved air flotation (DAF) float from the petroleum refining industry)

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP Comment 4:

Page 3 of 7 (Section III.A.1.): *2nd paragraph, 1st sentence:*
Please revise to clarify treatment and placement of sludges into the landfills.

The majority of the sludges were removed and treated by the Chemfix process prior to placement in the Permitted Non-Hazardous Waste Landfill (PNWL, or Pond 5 landfill). However, t~~T~~he heavier hazardous sludges and the majority of the impacted soils in these ponds could not be placed in the PNWL and were subsequently removed and placed in the Pond 1 Landfill (this unit is further discussed below).

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP Comment 5:

Page 3 of 7 (Section III.A.1.): *3rd paragraph, last sentence:*
Please remove the word influent.

In the event this level is exceeded, ~~influent~~water can be diverted to the Temporary Surge Basin or the West Surge Pond.

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP Comment 6:

Page N/A (Section III.A.2.): *Pg. 11 through 18 of the pdf*
Please remove duplicate Fact Sheet.

Illinois EPA Response:

The Illinois EPA acknowledges BP's comment. However, the Fact Sheet will not be included as a part of the final permit.

BP'S COMMENTS TO DRAFT PERMIT

BP Comment 7:

Page I-2 (Section I.C.): *1st paragraph, 4th and 5th sentences:*

Please revise to indicate that Kinder Morgan Phoenix Holdings (KMPH) owns and Kinder Morgan Liquid Terminals LLC (KMLT) operates this former portion of the Main Plant facility.

Please revise to clarify that the property now owned by KMPH is no longer a portion of the Main Plant facility. Please remove the detail regarding operations at the KMPH facility as it is no longer a portion of the Main Plant facility.

Presently, Kinder Morgan Liquid Terminals LLC (KMLT) ~~owns~~operates, and Kinder Morgan Phoenix Holdings (KMPH) ~~operates~~owns, a storage and distribution facility for gasoline and petroleum distillates at a site which was formerly a portion of the Main Plant facility but was sold to KMPH and will be subject to a separate RCRA Permit.~~for gasoline and petroleum distillates. Distribution operations are carried out via pipelines and aboveground tanks at the Main Plant.~~ The Main Plant and Riverfront facilities were owned by Amoco Oil Company until the company merged with BP in 1999.

Illinois EPA Response:

The Illinois EPA can accept the proposed changes, and the 1st paragraph of Section I.C been revised as proposed.

BP Comment 8:

Page I-2 (Section I.C.): *3rd paragraph, 3rd sentence:*

Please add a space after the "," following (DAF) float in the third sentence of the third paragraph.

From 1977 to 1981, Amoco stored Dissolved Air Flotation (DAF) float,_a listed hazardous waste, in Ponds 1, 1A, 2, 2A, 3, 3A and 4 of the former series of wastewater treatment ponds.

Illinois EPA Response:

The typographical error was corrected as proposed in the 3rd paragraph of Section I.C.

BP Comment 9:

Page I-3 (Section I.C.): *Condition 2, 4th sentence:*

Please add Permit reference to define "wastewater from the Main Plant."

These wastewaters ~~include wastewater from the Main Plant~~are defined in Condition II.B.1~~, Wood River Wastewater Treatment Plant, and non-hazardous leachate from the Pond 5 landfill, also known as the Permitted Non-Hazardous Waste Landfill (PNWL).~~

Illinois EPA Response:

The Illinois EPA can accept the proposed changes, and Condition I.C.2 was revised as proposed.

BP Comment 10:

Page I-3 (Section I.C.): *Last 2 paragraphs:*

Please remove the second period at the end of the third sentence in the third paragraph.

In the first sentence of the fourth paragraph, revise the word "at" to "the" and revise to clarify corrective action is required at the facility. However, bp does have the option to remove a parcel from the Land Reuse program, whereby Corrective Action would only apply to SWMUs and PRSs and would not include recognized environmental conditions.

As part of the general corrective action program, the facility has been broken up into ten parcels and the SWMUs in each parcel have individual focus.

This permit allows/requires BP to carry out ~~at~~the following activities at the Riverfront facility: (I) continue storing/treating non-hazardous wastewaters in the ESP until closure activities begin;

(2) provide post-closure care for the Pond 1 Landfill; (3) conduct-corrective action, as appropriate, ~~on the recognized environmental conditions~~ at the facility; and (4) implement a groundwater monitoring/corrective action program.

Illinois EPA Response:

The Illinois EPA can accept the proposed changes.
The Illinois EPA disagrees with BP's comment that required corrective action only applies to SWMUs and PRSs. Any newly discovered contamination throughout the site must be addressed under the corrective action, which may be designated as an area(s) of concern. However, the proposed change to remove "on the recognized environmental conditions" does not have any impact on the corrective action requirements in Section I.C of the final permit. Thus, proposed changes were made as proposed in Section I.C.

BP Comment 11:

Page II-1 (Section II.A.): *Third Paragraph, 2nd sentence:*

Please add the word "to" between allowed and be.

Although some residual soil contamination may remain in the ESP during the delay of closure period, no new hazardous wastes are allowed to be placed in the unit.

Illinois EPA Response:

The Illinois EPA can accept the proposed changes, and Section II.A was revised as proposed.

BP Comment 12:

Page II-1 (Section II.B.): *B. Condition 1, 1st sentence:*

Please revise language to the 80-million-gallon capacity / 2-ft freeboard.

(a) Please add "industrial" sewage to account for process wastewater. Please add a "t" to BP "Main Plan."

(c) Please define or clarify "seepage water from the Riverfront facility."

The Permittee may only store/treat non-hazardous wastewaters ~~a~~in total volume of 100 million gallons in the ESP subject to the terms of this permit including: (a) domestic and industrial sewage and commingled stormwater from the Cities of Wood River, Hartford, South Roxana, and also BP Main Plant and Riverfront facilities; (b) groundwater pumped as part of BP's hydraulic gradient control and subsurface hydrocarbon recovery program; and (c) recovered non-hazardous leachate from the PNWL and seepage water from the Riverfront facility.

Illinois EPA Response:

Regarding Item (a): The Illinois EPA corrected the typographical errors in Condition II.B.1. However, at this time, insertion of "and industrial" is not made to the final permit as requested. Section B.1.2 and Section E Addendum of BP's application for this renewed permit did not include "industrial sewage" regarding the wastewater management at the East Surge Pond (ESP). If BP would like this requirement to be modified, BP may submit a request to modify the permit with a demonstration that managing "industrial sewage" at the ESP is appropriate and meets any consideration for the final order of the Adjusted Standard (AS-91-4) for delay of closure of the unit. In addition, based on the Illinois EPA's further evaluation of the requirements of wastewater management at the ESP relative to BP's comment, the Illinois EPA determined that the following additional language is necessary in Section II.B.1: "Any wastewater management activities at the ESP must meet all requirements by the Illinois EPA Bureau of Water, as necessary".

Seepage water at the Riverfront facility would be water seeping naturally through subsurface soils to surface soils and ground-surface at the Riverfront facility.

Thus, Condition II.B.1 of the permit is revised to read:

> The Permittee may only store/treat non-hazardous wastewaters in total volume of 100 million gallons in the ESP subject to the terms of this permit including: (a) domestic sewage and commingled stormwater from the Cities of Wood River, Hartford, South Roxana, and also BP Main Plant and Riverfront facilities; (b) groundwater pumped as part of BP's hydraulic gradient control and subsurface hydrocarbon recovery program; and (c) recovered non-hazardous leachate from the PNWL and seepage water from the Riverfront facility. Any wastewater management activities at the facility at the ESP must meet all requirements by the Illinois EPA Bureau of Water, as necessary.

BP Comments 13 and 14:

Page II-2 (Section II.B.): *Condition 2, a:*

Please revise to clarify this sample is the first discharge of wastewater sent to the ESP from Pond 3A.

Please define required analytes or add reference to the Condition with requirements.

a. Collect/analyze a sample of the first discharge of wastewater from Pond 3A ~~sent~~ to the ESP each quarter of the calendar year in accordance with Condition II.B.2.c.

Page II-2 (Section II.B.): *Condition 2, b:*

As this is a new requirement, please confirm the following:

1) *that PNWL leachate sampling is necessary;*
2) *what actions are required if no PNWL leachate is generated/ discharged; and*
3) *what documentation is required if no PNWL leachate is discharged.*

Please consider the proposed revision to require a quarterly sample of the PNWL leachate discharge as it is not possible to guarantee collection of the "first" PNWL leachate discharge.

Please revise the number formatting if the sample requirements apply to the samples required under both II.B.2.a and II.B.2.b. and add reference to II.B.2.c.

Please clarify if electronic records meet the definition of "operating record" throughout the Permit.

b. *Two composite samples of ~~the first~~ leachate discharge, one from the manifolded pipe of odd numbered sumps and one from the even numbered sumps of the PNWL, sent to the East Surge Pond each quarter of the calendar year in accordance with Condition II.B.2.c.*

c. *These samples must be analyzed for all the characteristics of hazardous waste set forth in 35 IAC 721, Subpart C. The results of these efforts must be documented in the facility's operating record.*

Illinois EPA Response:

In response to BP's comments above, the Illinois EPA has revised Conditions II.B.2 (a) and (b) as proposed and also added Conditions II.B.2 (c) (partially modified previous Condition II.B.2 (b)) and II.B.4 to ensure that any wastewater managed meets necessary requirements by the Illinois EPA Bureau of Water as follows and the constituents of concerns at the ESP are properly analyzed:

Condition II.B.2:

a. Collect and analyze a sample of the discharge of wastewater from Pond 3A to the ESP each quarter of the calendar year in accordance with Condition II.B.2 (c).

b. Collect ~~T~~two (2) composite samples of ~~the first~~ leachate discharge: one from the manifolded pipe of odd numbered sumps; and one (1) from the even numbered sumps of the PNWL, sent to the ESP each quarter of the calendar year, when leachate is present at the PNWL in accordance with Condition II.B.2(c). If leachate is present at the PNWL but is not discharged to the ESP, then it must be noted in the analytical report included in the facility's operating record and annual report, as required in II.B.2 (c) below.

c. ~~These samples must be analyzed for all the characteristics of hazardous waste set forth in 35 IAC 721, Subpart C.~~ The Permittee shall collect representative samples

of the discharge described in Conditions II.B.2 (a) and (b) above and analyze it for all the constituents listed in 35 IAC 724 Appendix I. The results of these efforts must be documented in the facility's operating record and reported to Illinois EPA annually. If it is found that the wastewater/leachate is hazardous, then:
<Conditions II.B.2 (b) (1) through (3) became Conditions II.B (c) (1) through (3)>

Condition II.B.4:

4. The Permittee must meet all applicable requirements of the Illinois EPA Bureau of Water, as necessary, regarding management of all wastewater at the facility in accordance with all applicable regulations for such activities.

BP Comment 15:

Page II-3 (Section II.C.): *Condition 2:*

Please clarify if there is an exception to the 2-foot freeboard requirement in the case of Force Majeure events.

A minimum of two feet of freeboard must be maintained at all times in the ESP. Illinois EPA may modify this requirement when it determines cause exists, such as Force Majeure or events over which the Permittee has no control.

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition II.C.2 was revised as proposed.

BP Comment 16:

Page II-3 (Section II.C.): *Condition 3:*

Please add period to last sentence.

This adjusted standard allows the Permittee to continue using the ESP for the storage/treatment of non-hazardous wastewaters until they decide to close the impoundment in accordance with 35 IAC 724.

Illinois EPA Response:

The typographical error was corrected as proposed in Condition II.C.3.

BP Comment 17:

Page II-4 (Section II.E.): *Condition 3:*

Please include reference to Illinois Administrative Code.

If the ESP is taken out of service for more than six months, then prior to returning to service, the Permittee shall obtain a certification from a qualified Professional Engineer registered in the State of Illinois that the surface impoundment and the flood-protection dike, including that portion of any dike which provides freeboard, have structural integrity in accordance with 35 IAC 724.326(c).

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition II.E.3 was revised as proposed.

BP Comment 18:

Page II-4 (Section II.F.): *Condition 1, 2nd and 3rd sentences:*

Please clarify or define "non-closure activity."

The proposed schedule for closure of the ESP required in this section must include and consider any additional non-closure activities associated with the ESP. Any additional non-closure activities associated with the ESP must commence at least five (5) years prior to the expiration of this permit so that the required RCRA closure activities of the ESP may commence prior to the expiration date of this permit unless approved otherwise by Illinois EPA.

Illinois EPA Response:

Non-closure activities in this regard are activities which may impact the ESP but are not required RCRA interim status closure activities for the ESP. For example, re-routing stormwater from on- and off-site areas to be managed elsewhere than the ESP may be a non-closure activity. It has a direct impact on the operation of the ESP and essentially for the ESP closure activities. However, the action of re-routing of stormwater itself is not a required RCRA closure activity (thus non-closure activity) while removing any existing water in the ESP would be considered a part of closure activity.
No changes were made to Condition II.F.1.

BP Comment 19:

Page II-4 (Section II.F.): *Condition 2, 4th sentence:*

Please capitalize "p" in Environmental Protection Act.

Illinois EPA review of this plan will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Illinois Environmental ~~p~~Protection Act.

Illinois EPA Response:

The typographical error was corrected in Condition II.F.2.

BP Comment 20:

Page II-6 (Section II.F.): *Condition 5, i:*

Please add a ";" between geologic cross-sections and groundwater monitoring data.

As appropriate and available: boring logs; well construction diagrams; geologic cross-sections; groundwater monitoring data; and information about any groundwater remediation effort.

Illinois EPA Response:

The typographical error was corrected in Condition II.F.5 (i).

BP Comment 21:

Page III-2 (Section III.B.): *Condition 4:*

Please revise description of cover system to include the Geotextile fabric layer between the 1-ft thick compacted clay layer and the geonet drainage layer.

The cover system on the top of the Pond 1 landfill is constructed of the following layers, specified from the top to bottom:

a. *One foot thick protective soil cover;*
b. *One foot thick compacted clay layer;*
~~*b.*~~*c.* *Geotextile fabric;*
~~*c.*~~*d.* *A geonet drainage layer;*
~~*d.*~~*e.* *60 mil HDPE geomembrane liner; and*
~~*e.*~~*f.* *Two foot thick compacted clay layer.*

Illinois EPA Response:

The typographical errors were corrected in Section III.B.4.

BP Comment 22:

Page III-3 (Section III.B.): *Condition 5, b:*

Please revise to include exception for delisting.

Any material removed from the Pond 1 Landfill during future activities must be managed as a hazardous waste in accordance with 35 IAC Subtitle G: Waste Disposal unless material has been delisted by the Illinois Pollution Control Board in accordance with Section 28.1 of the Illinois Environmental Protection Act and 35 IAC 720.122.

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition III.B.5 (b) was revised as proposed.

BP Comment 23:

Page III-5 (Section III.D.): *Condition 4, 1st sentence:*

A recent inspection of the benchmark locations at the Riverfront facility could not locate the markers; please consider the proposed revision.

The Permittee shall inspect the benchmarks used to identify the location of the hazardous waste management units (HWMUs) and solid waste management units (SWMUs) within 60 days of the effective date of this permit and thereafter in accordance with the Inspection Schedule in the approved permit application. If benchmarks cannot be located or confirmed, then the Permittee shall have the appropriate benchmark(s) reestablished by a licensed surveyor within 90 days of the effective date of this permit.

Illinois EPA Response:

Based on BP's comment regarding not being able to locate previous benchmarks, in addition to BP's proposed language, Illinois EPA has added additional requirements to: (1) evaluate, as much as possible, and document any noticeable changes in the ground elevation in general and any settlement of the unit; and (2) maintain the benchmarks as a part of post-closure care of the unit. Thus, Condition II.D.4 in the final permit will read:

> The Permittee shall inspect the benchmarks used to identify the location of the hazardous waste management units (HWMUs) and solid waste management units (SWMUs) within 60 days of the effective date of this permit and thereafter in accordance with the Inspection Schedule in the approved permit application.
>
> If benchmarks cannot be located or confirmed, then the Permittee shall have the appropriate benchmark(s) reestablished by a licensed surveyor within 90 days of the effective date of this permit. Furthermore, the Permitted must: (1) evaluate, as much as possible, and document any noticeable changes in the ground elevation in general and any settlement of the unit; and (2) maintain the benchmarks as a part of post-closure care of the landfill.

BP Comment 24:

Page III-6 (Section III.E.): *Condition 1:*

Please clarify if electronic records meet the definition of "written operating record."

The Permittee shall keep and maintain a written operating record that includes all the records, reports, notifications, monitoring data, testing or analytical data, and corrective action data required by 35 IAC 724.173 and the conditions in this permit, for the entirety of the post-closure care period. The operating record shall be kept on-site at the facility and available for Illinois EPA review.

Illinois EPA Response:

Keeping electronic records that can be printed meets the definition of "written operating record". If any operational record is requested by the Illinois EPA, a written (paper copy) record must be available. No changes were made to Condition III.E.I based on this comment.

BP Comment 25:

Page III-6 (Section III.E.): Conditions 4 and 5, 2nd sentence:

Please remove references to "run-on control system" and "run-off management system" as the landfill is not active; or define and clarify when applicable to the Pond 1 Landfill.

4. The Permittee shall prevent run-on from eroding or otherwise damaging the final cover. ~~At a minimum, the run-on control system shall be capable of preventing flow onto the active portion of the landfill during peak discharge from a 24 hour, 25-year storm event.~~

5. The Permittee shall prevent run off from eroding or otherwise damaging the final cover. ~~At a minimum, the run-off management system shall be capable of collecting and controlling the volume of water resulting from a 24 hour, 25-year storm event.~~

Illinois EPA Response:

Both run-on and run-off stormwater must also be managed at the Pond 1 Landfill to prevent any future erosion and damage to the final cover. Run-on and run-off storm water is especially a concern during a peak discharge from a 24-hr, 25-year (or more intense) storm event. Thus, such a stormwater management system for the landfill must be in-place to prevent any damages to the final cover and other component of the Pond 1 Landfill. Thus, no changes were made to Conditions III.E.4 and 5.

BP Comment 26:

Page III-6 and III-7 (Section III.E.): *Condition 7:*

Please consider the following:

The Pond 1 Landfill does not have a current permanent pumping system for leachate extraction. Leachate is removed via vacuum truck. A draft delisting petition for the Pond 1 Landfill leachate has been submitted for review by Illinois EPA prior to submittal to the Illinois Pollution Control Board (IPCB). bp proposes to submit a Compliance Plan to Illinois EPA within 30 days of IPCB approval or denial of this petition, proposing a schedule to comply with the requirements, as applicable.

Please consider revising to require a camera survey of the collection risers and sump every 10 years to inspect and determine if sediment removal is needed.

7. *The Permittee submitted a draft delisting petition dated June 30, 2023 for review by Illinois EPA prior to submittal to the Illinois Pollution Control Board. Within 30 days of Illinois Pollution Control Board approval or denial of this petition, the Permittee shall submit a Compliance Plan to Illinois EPA, proposing a schedule to comply with the requirements stated below, as applicable:÷*

   a. *~~The Permittee shall m~~Install and maintain ~~the~~a leachate collection system (LCS) with pumps, and leak detection system (LDS) in accordance with the design plans and specifications contained in the Illinois EPA approved ~~permit application~~Compliance Plan and the conditions in this permit. ~~The permittee shall:~~*
   b. *The LCS will maintain leachate levels within the collection risers at a depth such that leachate does not exceed one (1) foot above the liner.*
   c. *Remove and clean the pumps from the LCS and LDS at least once every year.*
   d. *Every 10 years, the permittee will use a camera to inspect the collection risers and sump for sediment build-up. If 10% or more of the screened interval is silted-in, the permittee shall ~~R~~remove sediment from the ~~LCS and LDS~~ collection riserpipes and sumps using a high-pressure jet or equivalent method ~~at least once every 10 years~~.*
   e. *Install and operate ~~within 30 days of the effective date of this permit,~~ a leak detection alarm system to alert when the level of leachate reaches one (1) foot as described in Condition III.E.11 (b).*

Illinois EPA Response:

The Illinois EPA partially concurs with BP's comment. Any changes to the compliance requirements as a result of BP's delisting petition to the Illinois Pollution Control Board may be submitted as a permit modification request to the Illinois EPA. Condition III.E.7 (a) was revised to reflect BP's comment regarding future revisions in the current LCS and LDS. Condition III.E.7 (b) was revised as proposed by BP. Condition III.E.7 (c) was not

revised as the Illinois EPA determined that a leak detection alarm should be in place at the facility as a necessary safety measure for operating the Pond 1 Landfill. Finally, the requirements in Condition III.E.7 (d) were inserted as requested by BP. Thus, Condition III.E.7 was revised to read:

7. The Permittee shall maintain the leachate collection system (LCS), and leak detection system (LDS) in accordance with the design plans and specifications contained in the approved permit application and the conditions in this permit. The permittee shall:

   a. ~~Remove and clean the pumps from LCS and LDS must be at least once every year~~ Manage leachate collected in LCS and LDS in accordance with Condition III.E.9 below until an alternative compliance plan is approved by Illinois EPA to install a new LDS with a permanent pumping system and LDS. Any pumps from the LCS and LDS must be removed on cleaned at least once every year, as applicable.

   b. Every 10 years, the Permittee will use a camera to inspect the collection risers and sump for sediment build-up. If 10% or more of the screened interval is silted-in, the permittee shall ~~R~~remove sediment from the ~~LCS and LDS~~ collection riser~~pipe~~s and sumps using a high-pressure jet or equivalent method ~~at least once every 10 years~~.

   c. Install and operate within 30 days of the effective date of this permit, a leak detection alarm system to alert when the level of leachate reaches one (1) foot as described in Condition III.E.11 (b).

   d. The LCS will maintain leachate levels within the collection risers at a depth such that leachate does not exceed one (1) foot above the liner.

BP Comment 27:

Page III-7 (Section III.E.): *Condition 10, a and b:*

As this is a new requirement, and the Permittee has conducted previous rounds of leachate characterization sampling to support a delisting petition, please clarify or revise based on the following:

In lieu of analyzing annual samples for the 35 IAC 724 Appendix I parameters for the first four years, bp proposes to analyze the first annual sample for the Appendix I parameters and submit these results to Illinois EPA along with results from previous samples collected by bp and/or the Publicly Owned Treatment Works (POTW) that collectively comprise the 35 IAC 724 Appendix I parameters, and use these results to propose a Reduced List for Illinois EPA approval, then subsequent implementation during the second annual sampling event.

The permittee shall collect a representative sample of leachate from the landfill and analyze it for all the constituents listed in 35 IAC 724 Appendix I. These samples shall be collected and analyzed annually in accordance with the sampling and test methods specified in the approved permit application. The results of the leachate quality testing data shall be submitted and maintained in the facility's operating record and submitted to the Illinois EPA by July 15 each year.

a. *The Reduced List will be based on the four most recent complete 35 IAC 724 Appendix I analyses and include all parameters detected in any of the four Appendix I analyses. Starting the next sampling event after Illinois EPA approval, this Reduced List will be used in lieu of the Appendix I analysis for three out of four years, with the fourth-year reverting to a full Appendix I analysis. Any parameters not included on the existing Reduced List that are detected in the fourth-year Appendix I analysis shall be added to all future Reduced List analyses by means of a permit modification request. This cycle of three years of Reduced List, followed by one year of Appendix I analysis, will repeat for the remainder of the post-closure period.*

   i. *For the first cycle, the Permittee may utilize results from the first annual sample analyzed for all Appendix I parameters in conjunction with previous results from samples collected by the Permittee and/or the Publicly Owned Treatment Works (POTW) that collectively comprise the Appendix I parameters, if available, to propose the first Reduced List for Illinois EPA approval.*

Illinois EPA Response:

The requested changes to Condition III.E.10 (a) by BP were not made as the Long Term Stewardship (LTS) consideration for the Pond 1 Landfill was made to include the subject condition. As the Pond 1 Landfill remains under post-closure care as long as the hazardous waste and associated risks remain in place, the only mechanism for detecting any hazardous constituent released from the landfill waste is to sample its leachate. The Illinois EPA currently has no information to ensure that the proposed four (4) years of sampling of leachate would demonstrate that the same condition of the containment system and the absence of risks would continue in perpetuity. Until such time that an appropriate demonstration can be made to the Illinois EPA that reduction of the parameters in sampling leachate represents the actual conditions of the waste materials managed in the landfill and future risks associated with the Pond 1 Landfill, this condition must be met. It should be noted that the Permittee is allowed to make such demonstration through a permit modification request to the Illinois EPA for its review and approval.

BP Comment 28:

Page II-8 (Section III.E.): Condition 11, b:

Please consider the following:

A draft delisting petition for the Pond 1 Landfill leachate has been submitted for review by Illinois EPA prior to submittal to the Illinois Pollution Control Board. A 30-day deadline from the date of approval or denial of the delisting petition is requested for submittal of a Compliance Plan for implementation of any leachate management systems and adherence to Condition III.E.11.b.

In accordance with the Compliance Plan referenced in Condition III.E.7, ~~L~~leachate shall be removed from the collection risers as necessary to ensure the leachate depth over the liner does not exceed one (1) foot (or approximately at Elevation 403 'above mean sea level (MSL) for LCS).

Illinois EPA Response:

The Illinois EPA can accept the proposed changes. Condition III.E.11 (b) was revised to read:

b. In accordance with an alternative Compliance Plan, if approved by the Illinois EPA as referenced in Condition III.E.7, leachate shall be removed from the collection risers as necessary to ensure the leachate depth over the liner does not exceed one (1) foot (or approximately at Elevation 403'above mean sea level (MSL) for LCS).

BP Comment 29:

Page II-8 (Section III.E.): *Condition 11, c:*

Please revise to include exception for delisting.

All leachate removed from the LCS and LDS shall be managed as a hazardous waste unless leachate has been delisted by the Illinois Pollution Control Board in accordance with Section 28.1 of the Illinois Environmental Protection Act and 35 IAC 720.122.

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition III.E.11 (c) was revised as proposed.

BP Comment 30:

Page III-8 (Section III.F.): *Condition 3:*

Please confirm this new data reporting requirement is necessary. If so, please consider allowing this data to be reported in the quarterly Corrective Action Progress Report required in Condition V.J.1 rather than a standalone report.

The leachate quantity and quality data required by Conditions III.E.10 and III.E.11 for the LCS and LDS shall be submitted to the Illinois EPA Bureau of Land Permit Section as part of the Leachate Data Quarterly Monitoring Report in accordance with the following schedule.

Data Collected	*Results/ Report Submitted by:*
January – March	*May 1*
April – June	*August 1*
July – September	*November 1*
October – December	*February 1*

Illinois EPA Response:

The Illinois EPA is confirming that leachate monitoring report is necessary as required in Conditions III.E.10 and III.E.11. As this is not a part of corrective action required under 35 IAC 724.201, a separate reporting must be made for the leachate data. However, the Permittee may submit the leachate data within the groundwater report required in Condition IV.I.14. Thus, Condition III.F.3 was revised as below:

3. The leachate quantity and quality data required by Conditions III.E.10 and III.E.11 for the LCS and LDS shall be submitted to the Illinois EPA Bureau of Land Permit Section as part of the Leachate Data Quarterly Monitoring Report semi-annually in accordance with the following schedule.~~:~~ This Leachate Data Quarterly Monitoring Report may be combined with the groundwater monitoring report required in Condition IV.I.14.

Data Collected	Results/ Report Submitted by:
January – March	August 1 ~~May 1~~
April – June	August 1
July – September	February 1 ~~November 1~~
October – December	February 1

BP Comment 31:

Page III-9 (Section III.F.): *Condition 6:*

Please clarify the number of copies required. This Condition states that an original and one (1) copy is required for this report whereas Condition IV.I.12 states that one (1) original and a minimum of two (2) copies are required for each notice or report submitted to the Illinois EPA.

Please confirm that this new reporting requirement for graphical representations of leachate removal volumes and liquid level elevations should start with the data generated following the effective date of the permit.

6. The permittee shall submit an original and one (1) copy of each Leachate Data Quarterly Monitoring Report required in Condition III.F.3 above.

a. *A graphical representation of the volumes of leachate removed from the LCS and LDS each month. The leachate generation rates (gallons/month) from the LCS and LDS shall be presented on the same graph. The scale of the abscissa (time) shall be such that no more than one year of data (starting with January each year) is presented on each sheet of paper.*

b. *A graphical representation of the elevations of the liquid level in the collection risers for the quarter. For each measurement, the graph needs to identify the following: the elevation of leachate over time, elevation of the top of liner, and elevation of the bottom of the cover system all in feet above MSL.*

Illinois EPA Response:

The Illinois EPA re-evaluated this condition, Condition III.E.3, and Condition IV.E.14 and made the following changes to Condition III.F.6 to: (1) require semi-annual reporting of the quarterly sampling BP has been conducting; and (2) allow for combining the Leachate Data Quarterly Monitoring Report within semi-annual groundwater monitoring reports for the Pond 1 Landfill:

6. The permittee shall submit one (1) ~~an~~ original paper copy ~~and one (1) copy~~ of each Leachate Data Quarterly Monitoring Report required in Condition III.F.3 above. A Leachate Data Quarterly Monitoring Report may be combined with a groundwater monitoring report required in Condition IV.I.14. In addition to the electronic data, each report must include:

BP Comment 32:

Page IV-1 (Section IV.A.): *Condition 1, 1st sentence:*

Please revise to match language in current Permit.

Condition 1, 3rd sentence:

Please revise to match language from current Permit.

Control of groundwater flow in the uppermost aquifer such that groundwater flow in the Riverfront Groundwater Management Zone is towards the interior of the ~~of the contaminated groundwater is towards the interior of the BP~~ Main Plant facility.

Such flow control is necessary as a corrective action to prevent contaminant migration of ~~address contaminants in groundwater from~~ on-site releases of product or waste, beyond the boundaries of the ~~at the BP~~ Riverfront facility and is the basis for the establishment of a Groundwater Management Zone (GMZ).

Illinois EPA Response:

The Illinois EPA can accept the proposed changes, and Condition IV.A.1 was revised as proposed.

BP Comments 33 and 34:

Page IV-2 (Section IV.C.): *Condition 1, 2nd sentence:*

Please revise to reference the figure showing the well network for the approved optimized Groundwater Corrective Action Monitoring Program.

The location of these wells is specified in Figure C-~~2~~7 of the approved permit application.

Page IV-2 and IV-3(Section IV.C.): *Condition 1:*

Please revise well construction information to match what was provided in permit renewal application replacement pages.

Please move IEPA Well No. LOD5 from the gauging and semi-annual sampling network to the gauging and annual sampling network to align with the approved optimized Groundwater Corrective Action Monitoring Program.

Please revise IEPA Well No. RL17B to L17B to meet 4-digit requirement and prevent confusion IEPA Well No. RL-17. Currently, IEPA Well No. RL17B is truncated to RL17 in Storet EDD files submitted to Illinois EPA.

Please revise Facility Well No. SUMP-2 to SUMP-8 for IEPA Well No. G512 included in the well network approved in the optimized Groundwater Corrective Action Monitoring Program.

Please correct miscellaneous typos as noted.

IEPA Well No.	Facility Well No.	Area	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
GMZ Boundary Wells (Gauging and Semi-Annual Sampling Network[2])					
G66D	RL-6C	ESP	70.00	361.38	366.38-361.38[H]
G103	RL-3	P1LF	39.00	386.27	396.4~~3~~27-386.27[C]
G106	RL-6	ESP	~~45.28~~ 44.00	~~385.29~~ 386.57	~~395.15-385.29~~ 396.57-386.57[C]
G107	RL-7	ESP	39.00	388.36	398.~~59~~36-388.36[C]
G113	SWMU-14/MW-14A	Parcel C	~~53.30~~ 51.94	~~369.64~~ 371.00	~~378.20-369.64~~ 381.00-371.00[H]

G114	SWMU-14/MW-15	Parcel C	56.00	364.46	374.~~65~~46-364.46[H]
LOD1	LOD-1	LOD	31.~~10~~ 00	393.~~48~~58	403.~~32~~58-393.~~48~~58[C]
LOD2	LOD-2	LOD	41.~~20~~ 00	~~379.95~~380.15	~~390.02 379.95~~ 390.15-380.15[C]
~~LOD5~~	~~LOD-5~~	~~LOD~~	~~28.50~~	~~393.61~~	~~401.87 393.61~~[C]
LOD7	LOD-7	LOD	~~28.50~~ 29.14	391.~~84~~20	401.20-39~~1.84~~1.20[C]
~~R~~L17B	RL-17B	LOD	~~55.00~~54.84	363.~~82~~98	373.98-363.~~82~~98[H]
Observation Monitoring Wells (Gauging and Annual Sampling Network[2])					
G35L	C-25B	ESP	~~57.00~~56.82	~~370.82~~ 371.00	378.00-~~370.82~~ 373.00[H]
G104	RL-4	P1LF	~~39.00~~36.00	~~385.25~~ 388.25	~~398.54 385.25~~ 398.25-388.25[C]
G115*	RL-15	WSP	52.00	376.18	~~380.51~~ 381.18-376.18H
G116	RL-16	WSP	52.00	375.35	~~379.08~~ 380.35-375.35[H]
G119	RL-19	ESP	~~41.10~~40.00	~~389.53~~ 391.80	~~405.36 389.53~~ 406.80-391.80[C]
G401	T-1	WSP	41.50	~~370.86~~ 380.86	~~379.76 370.86~~ 385.86-380.86[H]
LOD5	LOD-5	LOD	30.24	391.87	401.87-391.87[C]
R21L	RL-21BR	WSP	~~56.00~~54.01	~~367.93~~ 369.92	~~372.60 367.93~~ 374.92-369.92[H]
R529	P-29R	LOD	~~47.00~~48.61	~~373.91~~ 372.30	382.30-~~373.91~~ 372.30[H]
IEPA Well No.	**Facility Well No.**	**Area**	**Well Depth (ft-bgs)**	**Well Depth Elevation (ft MSL)**	**Well Screen Interval (ft MSL)**
Observation Monitoring Wells (Annual Sampling Only Network[3])					
R21D	RL-21CR	WSP	~~71.00~~70.24	~~352.82~~ 353.58	~~356.90 352.82~~ 358.58-353.58[H]
LOD6	LOD-6	LOD	28.50	393.20	403.40-393.40[C]
LOD9	LOD-9	LOD	28.50	394.12	404.12-394.12[C]
Observation Monitoring Wells (Gauging Only Network[4])					
G030	C-20	TF	~~35.00~~39.10	~~390.37~~ 386.27	~~400.35 390.37~~ 406.27-386.27[C]
G033	C-23	POTW	35.00	393.54	403.55-393.55[C]
G037	C-27	PNWL	34.00	393.94	404.04-393.94[P]
G038	C-28	PNWL	35.69	393.70	403.90-393.80[P]

G090	G090	PNWL	48.00	378.61	383.74-379.16[H]
G091	G091	PNWL	66.50	359.14	382.27-377.69[H]
G102	RL-2	LOD	34.0	388.78	398.78-388.78[C]
G109	RL-9	ESP	39.00	388.45	398.45-388.45[P]
G36R	C-26R	PNWL	34.4	392.18	402.48-392.48[P]
G411	S-1	WSP	41.60	376.83	386.83-376.83[H]
R034	C-24R	ESP	35.24	393.64	403.88-393.88[C]
R66L	RL-6BR	ESP	55.30	377.06	382.16-377.06[H]
G503	PANC-UP01	Parcel A	39.50	378.55	388.75-378.75[H]
G504	PANC-UP02	Parcel A	39.00	372.06	382.06-372.06[H]
G505	PANC-UP05	Parcel A	37.10	389.61	399.61-389.61[C]
G506	PANC-UP09	Parcel A	27.30	389.29	399.49-389-49[C]
G507	PANC-UP11	Parcel A	37.30	388.62	398.82-388.82[C]
G508	SWMU4-MW01	Parcel A	30.98	395.10	405.10-395.10[P]
G509	SWMU4-MW03	Parcel A	29.41	389.24	405.90-395.90[P]
G510	SWMU4-MW04	Parcel A	32.62	388.96	405.57-395.57[P]
Observation Monitoring Wells (LNAPL Monitoring Network[5])					
G105	~~Rl-5~~ RL-5	ESP	34.00	388.28	398.28-388.28[C]
G512	SUMP-~~2~~8	Parcel C	+	+	409.05-406.35[P]
Observation Monitoring Wells (Sentinel Wells[6])					
G511	SWMU4-MW02	Parcel A	26.43	392.67	402.67-392.67[C]
LOD1[2]	LOD-1	LOD	31.~~1~~000	~~393.48~~ 393.58	~~403.32-393.48~~ 403.58-393.58[C]
LOD2[2]	LOD-2	LOD	41.~~2~~000	~~379.95~~ 380.15	~~390.02-379.95~~ 390.15-380.15[C]
G029[7]	C-19R	MP	24.52	393.98	404.31-394.31[C]
G056**	G-16	MP	30.00	395.54	415.54-395.54[P]
IEPA Well No.	**Facility Well No.**	**Area**	**Well Depth (ft-bgs)**	**Well Depth Elevation (ft MSL)**	**Well Screen Interval (ft MSL)**
G057[8]	G-17	MP	35.02	391.90	411.90-391.90[C]
G058[8]	G-18	MP	36.00	391.27	411.27-391.27[C]
GXXX[9]	Well details will be provided within ninety (90) days of well completion				
GXXX[9]	Well details will be provided within ninety (90) days of well completion				
GXXX[9]	Well details will be provided within ninety (90) days of well completion				

Illinois EPA Response:

The Illinois EPA can accept the proposed changes, and Condition IV.C.1 has been updated accordingly. However, the following Illinois EPA comments apply:

The difference in well details for G401 and G030 are greater than expected. While changes were made to reflect the most current information, the following requirement has been added to the Special Conditions section to require further reporting regarding this difference. Thus, Condition VI.C.9 has been added to the Special Conditions section of the final permit to require the following:

9. Provide a summary in the next semi-annual groundwater monitoring report required by Section IV which discusses the results of the recent well integrity efforts performed site-wide at the Riverfront facility, and explain specific to wells G401 and G030 why the changes in well depths and/or screened interval occurred since the previous survey. If reasons are unknown, submit a workplan as a Class 1* permit modification within ninety (90) days to investigate the well integrity.

BP Comment 35:

Page IV-7 (Section IV.D.): *Condition 1:*

Please revise the Depth to Water units to Ft below ground surface (bgs) and Ft below top of casing (bTOC).

Please revise hazardous constituents list and footnotes to align with the approved optimized Groundwater Corrective Action Monitoring Program.

Please revise arsenic concentration limit to align with 35 IAC 620, Class I, Groundwater Quality Standards (GQS). Note that the historical drinking water standard for arsenic was 0.05 mg/L; however, the USEPA reduced the standard to 0.01 mg/L in 2006.

Depth to Water (below ~~land~~ ground surface)	72109	Feet bgs
Depth to Water (below ~~measuring point~~top of casing)	72109	Ft ~~bgs~~bTOC

Hazardous Constituents	Storet No. (Total)	Storet No. (Dissolved)	Concentration Limits (mg/L)
Arsenic*	01002	01000	0.01~~5~~
~~Barium~~	~~01007~~		~~2.0~~
~~Cadmium~~	~~01027~~		~~0.005~~
Chloride	00940	00941	200.0
Chrysene	34320		0.1
Lead*	01051	01049	0.0075

~~Sulfate~~	~~00945~~	~~400.0~~
Benzene	34030	0.005
~~Benzo(b)fluoranthene~~	~~34230~~	~~0.00018~~
Bis(2-ethylhexyl) phthalate	39100	0.006
~~Carbon Disulfide~~	~~81309~~	~~0.7~~
Ethylbenzene	78113	0.7
Toluene	34010	1.0
~~Total Xylenes~~	~~34020~~	~~10.0~~
Methyl Tertiary-Butyl Ether	46491	0.07
~~Phenols~~	~~46000~~	~~0.1~~

* = Constituents that must be sampled for both dissolved and total concentrations.
# = Constituents that must be sampled annually.
1 = To monitor natural attenuation conditions.

Illinois EPA Response:
The following comments apply:

1. The Illinois EPA can accept the recommendation to reduce the concentration limit for arsenic to 0.01 mg/L and add biogeochemical parameters, while the following recommendations to Condition D.1 of Section IV cannot be approved:

   a. The "List of STORET Numbers" available on the Illinois EPA website indicates the numbers 72019 and 72109 are associated with the information listed below; therefore, language will not be revised:

72019	DEPTH TO WATER LEVEL (FEET BELOW LAND SURFACE)	DEPTH-FT TO WATER BL L S
72109	DEPTH TO WATER LEVEL FROM A MEASURING POINT (FEET)	DEPTH TO WATER FR MP FT

   b. Due to the Groundwater Corrective Action Program being tied to a landfill, Condition IV.D.4 applies, and the constituents will remain on the hazardous constituents list in IV.D.1 at this time. Condition IV.D.4 states:

      4. Prior to removal of any constituents identified in Condition IV.D.1, the facility must present leachate analytical results from the Pond 1 landfill to demonstrate these constituents are not present in leachate. Therefore, to request removal of barium, cadmium, sulfate, benzo(b)fluoranthene, carbon disulfide, total xylenes, and phenols, present a demonstration these

constituents are not present in leachate. A leachate demonstration is also necessary to reduce the sampling frequency for chloride.

BP Comment 36:

Page IV-7 (Section IV.D.): *Condition 2, a:*

Please add Condition 2.a.i. to include language referencing the proposed site-specific GQS for arsenic. 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 GQS for arsenic be established at a concentration of 0.036 mg/L.

i. — The Permittee submitted a *Site-Wide Inorganics and Metals Evaluation Report* dated January 25, 2022, proposing a site-specific groundwater quality standard of 0.036 mg/L for arsenic pending approval by the Illinois EPA.

Illinois EPA Response:

The proposed addition to Condition IV.D.2 (a) describing the pending review related to an arsenic value will not be added since the referenced report and arsenic value has not been reviewed and/or approved. The groundwater must meet the arsenic value established in 35 Ill. Adm. Code, Part 620. Thus, no changes were made to Condition IV.D.2 (a).

BP Comment 37:

Page IV-9 (Section IV.E.): *Condition 3, b, 1st sentence:*

Please revise "daily" to "each business day."

The pumping rate from each Gradient Control Well (COD well) shall be recorded ~~daily~~each business day.

Illinois EPA Response:

The Illinois EPA can accept the recommendations, and the first sentence of Condition IV.E.3.b was revised as proposed.

BP Comment 38:

Page IV-10 (Section IV.E.): *Condition 6:*

Please revise to clarify "groundwater flow rate" and/or confirm this is a reference to seepage velocity in ft/day.

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 IV.C.1.

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition IV.E.6 was revised as proposed.

BP Comment 39:

Page IV-10 (Section IV.E.): *Condition 8:*

Please revise the reference.

The GMZ Boundary Wells and Observation Monitoring Wells listed in Condition IV.C.1 shall be monitored for the constituents listed in Condition IV.~~E~~D.1.

Illinois EPA Response:

The Illinois EPA can accept the proposed change, and Condition IV.E.8 was revised as proposed.

BP Comment 40:

Page IV-13 (Section IV.I.): *Condition 12:*

Please clarify the number of copies required. This Condition states that one (1) original and two (2) copies are required while Condition III.F.6 states one (1) original and one (1) copy is required for the Leachate Data Quarterly Monitoring Report. Please note 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 your 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 you submit to the Illinois EPA. The LPC 592 form is not to be used for permit modification requests.

Illinois EPA Response:

1. Condition III.F.6 has been updated to partially address BP's comment (see Illinois EPA's Response to Comment 31 above).

2. Regarding Condition IV.I.12, the number of necessary copies is determined by the Illinois EPA needs. There is a regulatory requirement for an original signature; therefore, at least one paper copy with a wet signature is required at this time. A reduction in paper copies does not appear to violate any regulatory requirements and will reduce resources and energy. At this time, one (1) original paper submittal, plus electronic copies, is considered adequate as described below:

   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 your submittal. However, the Permittee must submit one (1) original paper submittal ~~and (excluding the groundwater and leachate monitoring results submitted in an electronic format) a minimum of two (2) copies~~ 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 Illinois EPA copies (i.e., Permit Section and the regional Field Operations Section). Additional paper copies must be provided upon Illinois EPA request. The LPC 592 form is not to be used for permit modification requests.

BP Comment 41:

Page IV-13 (Section IV.I.): *Condition 14:*

Please confirm that the CDF (Parcel D) and PNWL (Parcel J) reports required by Illinois EPA letters can be incorporated into the semi-annual report since neither are stated in Section VI – Special Conditions.

1. *The Permittee shall submit a written report semi-annually to the Illinois EPA, in accordance with the schedule found in Condition IV.I.2, which discusses the effectiveness of the corrective action program and place it in the operating record for the facility. Groundwater monitoring information required by Illinois EPA letters for all Parcels at the BP Riverfront facility shall be provided within the semi-annual report and separate reports are no longer required unless otherwise stated in Section VI (Special Conditions) of the Permit. At a minimum, the report must:*

   a. *Address the information requirements in Conditions IV.C, IV.D, IV.E and IV.F*
   b. *Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition IV.D.*
   c. *Provide a discussion of any improvement in the quality of groundwater beneath the facility which has resulted from the corrective action.*

Illinois EPA Response:

1. Condition IV.I.14 is intended to require the groundwater reporting across the entire facility be provided within one report semi-annually as many individual groundwater monitoring wells identified in Section IV are also part of programs identified in Section V. The Illinois EPA previously approved modification to the Permit (Log No. B-145R-M-10 and M-12) dated July 19, 2019 for consolidation of reporting to reduce duplications and centralize information previously provided within separate reports. Condition IV.I.14 has been revised to remove the requirement for groundwater information for Parcels be included in semi-annual monitoring reports, and Condition V.J.1 has been revised to identify reporting requirements, which include groundwater information to be reported for each Parcel as the Parcels contain SWMUs regulated by 35 Ill. Adm. Code 724.201. These revisions eliminate duplicate efforts and retain reporting requirements for the respective sections the units are tied to. These revisions cause no reduction of information to be reported.

   Revisions to Condition IV.I.14 include:

   The Permittee shall submit a written report semi-annually to the Illinois EPA, in accordance with the schedule found in Condition IV.I.2, which discusses the effectiveness of the corrective action program and place it in the operating record for the facility. ~~Groundwater monitoring information required by Illinois EPA letters for all Parcels at the BP Riverfront facility shall be provided within the semi-annual report and separate reports are no longer required unless otherwise stated in Section VI (Special Conditions) of the Permit.~~ At a minimum, the report must:

   a. Address the information requirements in Conditions IV.C, IV.D, IV.E and IV.F

   b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition IV.D.

   c. Provide a discussion of any improvement in the quality of groundwater beneath the facility which has resulted from the corrective action.

   d. Groundwater monitoring information required by Illinois EPA letters for monitoring programs specific to Solid Waste Management Units (SWMUs) within Parcels identified in Section V of the Permit shall be provided within reports required by Section V.J of the Permit.

2. Revisions to Condition V.J.1 include the addition of the following language and renumbering to add clarification for where to report information for the CDF and PNWL. The LOD Area is also clarified:

The following condition is added as V.J.1 (d) to clarify reporting requirements for the PNWL:

d. The quarterly groundwater monitoring reports required by Attachment A of the December 15, 2006 letter (Log Nos. B-145; and 2001-075) for the landfill identified as the PNWL shall be incorporated into each quarterly Corrective Action Progress Report; and the PNWL annual groundwater monitoring reports required by the December 15, 2006 letter shall be incorporated into the Quarterly Corrective Action Progress Report. Separate reports are no longer required to be submitted.

3. The following condition is added as V.J.1 (e) to clarify reporting requirements for the CDF:

e. CDF landfill reporting requirements in Illinois EPA letters dated September 13, 2002 (Log No. B-145-CA-23), and as modified in Illinois EPA letters dated November 18, 2008 (B-145-CA-77), and September 3, 2009 (Log No. B-145-CA-71), shall be incorporated into the Quarterly and Annual Corrective Action Progress Reports in accordance with the schedule in Condition V.J.1.a (August 1 and March 1 submittal dates for the CDF). This includes the CDF Second and Fourth Quarter Semi-Annual Groundwater Monitoring Reports and the "Annual CDF Operations, Maintenance and Monitoring Report" (referred to as Annual CDF OM&M/Liquid Level Report by BP Products North America Inc.). Separate reports are no longer required to be submitted.

4. The following condition is added as V.J.1 (f) to clarify reporting requirements for the LOD Area:

f. The LOD Area reporting required as part of the GMZ approval in the April 4, 1994 Illinois EPA letter (Log No. B-145) and re-evaluation of the GMZ approval letter dated April 24, 2002 (Log No. B-145-CA-31) shall be incorporated into the Quarterly Corrective Action Progress Reports. Separate reports are no longer required to be submitted.

5. As a result of the added conditions listed above, Conditions V.J.1 (d) through (f) were renumbered and V.J.1. (e) of the draft permit was incorporated into V.J.1. (e) of the final permit.

BP Comment 42:

Page V-10 (Section V.F.): *Condition 3, c:*

BP requests removal of the 20% contingency from the total cost estimate.

~~*e. A 20% adjustment for contingencies to the total estimated cost;*~~

~~d.~~c *An identification of the resources needed to complete each task (type and amount) and the unit cost of each required resource;*
~~e.~~d. *Justification for all values used in the developing all aspects of the estimate.*

Illinois EPA Response:

The Illinois EPA respectfully declines BP's request as the 20% contingency is necessary to ensure the funds to complete corrective action will be available for the BP Riverfront facility located in the flood plain of the Mississippi River.

BP Comment 43:

Page V-15 (Section V.J.): *Condition 1, b, 1:*

Please clarify if the Pond 1 Landfill Leachate Data Quarterly Monitoring Report required in Condition III.F.3 can be included in this Corrective Action Progress Report rather than be submitted as a standalone report.

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;

Illinois EPA Response:

Please refer to Illinois EPA's Responses to Comments 30 and 31 above.

BP Comment 44:

Page V-15 (Section V.J.): *Condition 1, d:*

Please correct number formatting and period in last sentence.

d. An Annual Corrective Action Progress 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). Among other things, 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. The following shall be incorporated into the Annual Corrective Action Progress Report and separate reports are no longer required:

(1) The corrective action progress report for the fourth quarter (October – December of every year).

(2)~~e.~~ The "Annual CDF Operations, Maintenance and Monitoring Report" (referred to as Annual CDF OM&M/ Liquid Level Report by BP Products North America Inc.~~:~~).

Illinois EPA Response:

The Illinois EPA agrees with the proposed changes. As Condition V.J.1 (d) has been renumbered to Condition V.J.1 (g) in response to BP's Comment 41 above, the proposed change is made as requested under Condition V.J.1 (g) (1) and (2).

BP Comment 45:

Page VI-2 (Section VI.C.): *Condition 4:*

The GMZ for the River-front facility was established as a condition in the 1993 RCRA Permit. It is bp's opinion that the GMZ at the Riverfront facility is grand-fathered and is not subject to requirements for property owner permission that were adopted after the GMZ was established. The 2023 permit condition requiring written permission from property owners for an off-site GMZ pre-dates 1997 Illinois GMZ regulations and Illinois EPA 2001 guidance requiring written permission. bp proposes that off-site property owners be notified of the previously approved GMZ.

Within ninety (90) days of the effective date of this Permit, the Permittee shall submit a modification to the Corrective Action Section (Section V) of the Permit, for Illinois EPA review and approval, which provides written ~~permission from~~notification to any applicable off-site property owner ~~acknowledging they accept~~that a GMZ for the Riverfront f~~F~~acility encompasses~~is located on~~ their property. This documentation will serve to verify off-site property owners are aware ~~and approve~~ of a GMZ being present on their property.

Illinois EPA Response:

The Illinois EPA cannot approve the proposed language to Condition VI.C.4. The current requirements are reflected in the existing condition; therefore, no changes were made to Condition VI.C.4.

BP Comment 46:

Page VII-7 (Section VII.): *Condition 36:*

"Closure Requirements for Accumulation Areas" is a new Standard Condition (under "General Facility Standards" subsection). It is bp's opinion that this condition should only be applicable to storage areas operated on or after the date the closure requirement was adopted at 35 IAC 722.117(a)(8).

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). This requirement is applicable to storage areas used on or after this section was amended at 44 Ill. Reg. 15263, effective September 3, 2020.

Illinois EPA Response:

As this permit is issued after the effective date of the amendment (September 3, 2020), the Illinois EPA does not find the need to revise the condition. Thus, no changes were made to Condition VII.36.

BP Comment 47:

Page VII-10 (Section VII.): *Condition 56:*

The numbering missed "d" and skipped to "e". Please revise list formatting.

56. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 IAC 724.242, must be:

a. Adjusted for inflation 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Section 724.243. However, if the owner/operator is using the financial test or corporate guarantee, it must be updated for inflation within 30 days after close of the firm's fiscal year, and before the submission of updated information to the Illinois EPA as specified in Section 724.243(f).

b. Revised no later than 30 days after the Illinois EPA has approved a request to modify the closure plan, if the change in the closure plan increases the cost of closure.

c. Kept on record at the facility and updated. (35 IAC 724.242)

~~e.~~d. Made immediately available to Illinois EPA personnel upon Illinois EPA request.

~~f.~~e. Maintained at the value approved by Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification.

Illinois EPA Response:

The typographical errors were corrected as proposed.

BP Comment 48:

Page VII-11 (Section VII.): *Condition 63, a:*

Please revise language to align with current permit.

63. STORAGE RESTRICTIONS

a. The Permittee shall not store hazardous wastes restricted from land disposal under 35 IAC Part 728, Subpart C unless such wastes are stored only in containers or tanks, or other units approved by Illinois EPA in writing, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, as required by 35 IAC 728.150.

Illinois EPA Response:

Regulation 35 IAC 728.150 specifically states hazardous wastes restricted from land disposal are to be stored only in tanks, containers, or containment buildings on-site. It does not allow any other types of hazardous waste accumulation under the specific regulations. Thus, Condition VII.63 (a) was revised as:

63. STORAGE RESTRICTIONS

a. The Permittee shall not store hazardous wastes restricted from land disposal under 35 IAC Part 728, Subpart C unless such wastes are stored only in containers, ~~or~~ tanks, or containment buildings on-site, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, as required by 35 IAC 728.150.

BP Comment 49:

Page VII-12 (Section VII.): *Conditions 67 and 68:*

The numbering missed "c" and skipped to "d". Please revise list formatting.

67. 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 60 days prior to each anniversary of the date on which the first post-closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year. This permit condition is applicable throughout the entirety of the post-closure care period.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of the post-closure plan.

~~d.~~c. Kept on record at the facility and updated. (35 IAC 724.244).

~~e.~~d. Maintained at the value approved by Illinois EPA with annual adjustment for inflation during the post-closure care period and cannot be decreased unless approved by the Illinois EPA in a permit modification.

Illinois EPA Response:

The typographical errors were corrected as proposed in Conditions VII.67. Condition VII.68 references Condition VII.67, but no changes were made to Condition Ill.68.

BP Comment 50:

Page VIII-1 (Section VIII.): *Please revise the incorrect Condition references.*

Please clarify the due date for Condition VII.14 regarding Reporting Planned Changes as here it states, "At least 15 days prior to planned change" but Condition VII.14 states, "as soon as possible."

IV.D.4	*Notify Illinois EPA if any of the wells identified in Condition IV.~~D~~C.1 and IV.~~D~~C.2 are damaged, or the structural integrity has been compromised*	*Within 30 days of the date the damage is detected*
IV.~~D~~C.6	*Provide Illinois EPA boring logs, construction diagrams, and data sheets from new or replacement wells*	*Within 30 days of the date installation is complete*
IV.~~J~~I.2	*Groundwater monitoring data required each quarter, and additional data required in Conditions IV.~~F~~E., IV.~~G~~F, and IV.~~H~~H.*	*Semi-annually*
IV.~~J~~I.3	*Collect quarterly groundwater surface elevation data*	*Semi-annually*
IV.~~J~~I.4	*Quarterly groundwater withdrawal rates*	*Semi-annually*
IV.~~J~~I.5	*Gradient control measurements.*	*Semi-annually*
IV.~~J~~I.6	*Statistical evaluations, as required by Condition IV.~~F.2.e~~H*	*Every 5-years in GMZ Evaluation*
IV.~~J~~I.7	*Groundwater flow rate and direction in the uppermost aquifer.*	*Semi-annually*
IV.~~J~~I.8	*Collect groundwater samples per Condition IV.~~F~~E.8 and depict the extent of dissolved contamination to define the extent of contamination.*	*Semi-annually*
IV.~~J~~I.9	*The surveyed elevation of the top of well casing.*	*Every 5 years.*
IV.~~J~~I.10	*Elevation of the bottom of each monitoring well.*	*Annually during the second quarter sampling event.*
IV.~~J~~I.11	*Electronic Reporting*	*Semi-annually*

Illinois EPA Response:

The Illinois EPA can accept the proposed changes for Section IV reporting items in Section VIII; therefore, the corrections to references identified for Section IV have been updated accordingly. In addition, the reference to IV.D.4 was corrected to IV.C.4. For Condition VII.14, "as soon as possible of" was replaced with "at least 15 days prior to" to clarity the requirement as requested.

BP Comment 51:

Page Attachment A: *Divider Page:*

Please revise.

ATTACHMENT A
IDENTIFICATION OF APPROVED PERMIT APPLICAITION

Illinois EPA Response:

The typographical error was corrected as proposed on the title page for Attachment A.

BP Comment 52:

Page Attachment I and J: *Divider Page:*

Please revise.

ATTACHMENT I
CERTIFICATION OF COMPLETOPION OF CLOSURE

ATTACHMENT J
CERTIFICATION OF COMPLETOPION OF POST-CLOSURE CARE

Illinois EPA Response:

The typographical errors were corrected as proposed on the title pages for Attachments I and J.

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 · (217) 782-3397
JB PRITZKER, GOVERNOR JOHN J. KIM, DIRECTOR

RCRA HAZARDOUS WASTE PERMIT

1191155009 – Madison County
ILD980503106
BP Products North America/Riverfront
Permit Log B-145R2
RCRA Administrative Record

Issue Date: September 29, 2023
Effective Date: November 3, 2023
Expiration Date: November 3, 2033

PERMITTEE
BP Products North America, Inc.
Attention: Ms. Michelle Knapp
301 Evans Avenue, P.O. Box 167
Wood River, Illinois 62095

A renewed RCRA post-closure hazardous waste 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 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:

Disposal: One surface impoundment (East Surge Pond) for non-hazardous waste only (D83)
Post-Closure Care: One closed landfill (Pond 1 Landfill) (D80) with detection and compliance monitoring
Groundwater Monitoring: Corrective Action Monitoring
Corrective Action: Twelve (12) SWMUs and one Product Release Site in ten (10) Parcels (Parcels A – J)

This permit consists of the conditions contained herein and those in the 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 through the effective date of this 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 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)).

Jacqueline M Cooperider

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC:JDN: 1191155009-RCRA-B145R2-approval.docx

Hazardous Waste RCRA Permit

BP Products North America -- Riverfront Facility

Wood River, Illinois

LPC No. 1191155009

ILD980503106

Hazardous Waste RCRA Permit
BP Products North America/Riverfront Facility

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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" (Title 35 Illinois Administrative Code (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. LOCATON

1. Location of the facility:

The BP Riverfront facility is a 231-acre site mainly in Wood River, Illinois, with the 23 southernmost acres being located in the Village of Hartford in Madison County, Illinois. It is located between the levee of the Wood River Drainage Levee District (WRDLD) and the Mississippi River, just west of Illinois Route 3. The mailing address for this facility is 301 Evans Avenue, Wood River, Illinois. (Note: This is also the mailing address for BP Main Plant facility).

The Riverfront facility is adjacent to, and its operation was associated with the former Amoco Refinery in Wood River. This 569-acre former refinery is located due east of the BP Riverfront property. The general boundaries of the former refinery are Route 143, East Rand Avenue, South Sixth Street, and Illinois Route 3 on the north, south, east, and west sides, respectively.

2. Facility Maps:

The general location of the facility is shown on Figure B-1, Attachment B of this permit. The locations of the hazardous waste management units (HWMUs), solid waste management units (SWMUs), regulated by this permit are shown on Figure D-2, Attachment D of this permit.

C. DESCRIPTION OF HAZARDOUS WASTE MANAGEMENT ACTIVITIES

Amoco operated an oil refinery at the Main Plant (BP Main Plant facility – 1191150001) from 1908 to 1981 and Amoco Petroleum Additives Company operated in a portion of the Main Plant from 1957 to 1996. The Riverfront facility was used by Amoco to gain access to barges on the Mississippi River. In addition, it was used for the management of refinery waste. Presently, Kinder Morgan Liquid Terminals LLC (KMLT) operates, and Kinder Morgan Phoenix Holdings (KMPH) owns, a storage and distribution facility for gasoline and petroleum distillates at a site which was formerly a portion of the Main Plant facility but was sold to KMPH and will be subject to a separate RCRA Permit. The Main Plant and Riverfront facilities were owned by Amoco Oil Company until the company merged with BP in 1999.

The Riverfront Property is now being remediated and redeveloped and will continue to have industrial and commercial use. It has been split up into ten (10) parcels: Parcels A through J which will be investigated, remediated, reported on, and redeveloped on a parcel-by-parcel basis.

For many years prior to 1977, a series of surface impoundments (or ponds) at the Riverfront facility were used to treat wastewater from the refinery. In the mid-1970s, these ponds were replaced by a new wastewater treatment plant. From 1977 to 1981, Amoco stored Dissolved Air Flotation (DAF) float, a listed hazardous waste, in Ponds 1, 1A, 2, 2A, 3, 3A and 4 of the former series of wastewater treatment ponds. As such, these ponds became HWMUs subject to the requirements of RCRA. Amoco elected to close these hazardous waste surface impoundments; Illinois EPA approved a closure plan for these units on April 4, 1986 (Log No. C-145). The main goal of this closure effort was to remove all sludges and contaminated soil from these ponds, treat the removed material and render it non-hazardous and then dispose of it in a permitted on-site landfill.

The pumpable material from the subject ponds were removed, treated, and placed in the Pond 5 landfill as a non-hazardous waste in accordance with plans approved by and a permit received from Illinois EPA. However, Amoco found that they could not easily remove/treat the heavier sludges and contaminated soils in the ponds and thus pursued an alternative closure effort at these ponds as follows:

1. The heavier sludges and some impacted soils from Ponds 1, 1A and the north portion of Pond 2 were removed and stored in the other ponds to allow for the construction of the Pond 1 landfill (a hazardous waste landfill). The heavier sludges and impacted soils from all the ponds (listed hazardous wastes) were subsequently placed in the Pond 1 landfill, which had been constructed in accordance with the requirements for a hazardous waste landfill at the former location of Ponds 1, 1A and the northern portion of Pond 2.

2. The heavier sludge and some contaminated soil from the southern half of Pond 2, as well as Ponds 2A, 3, 3A and 4 were also placed in the Pond 1 landfill. However, not all contaminated soil was removed from the ponds and the clean

closure requirements of RCRA were not achieved. As such, Amoco pursued and obtained a delay of closure adjusted standard (AS-91-4) allowing the company to continue discharging non-hazardous wastewaters into a unit referred to as the "East Surge Pond" (ESP) which was created from these ponds. These wastewaters are defined in Condition II.B.1. A one-foot compacted clay liner was placed on the floors and walls of the East Surge Pond (from which the sludges and some contaminated soil had been removed) before wastewater began to be discharged into the pond.

The Pond 1 landfill is approximately 4.1 acres and contains 80,000 cubic yards of stabilized heavy sludges and impacted soils. This landfill has been closed in accordance with a plan approved by Illinois and has been under post-closure care since August 1995.

The ESP is 20.9 acres in size with a storage capacity of 100 million gallons, and 80 million gallons are normally available below the 2-foot freeboard level. As indicated above, it is used as a backup system and only accepts non-hazardous wastewater from the Main Plant facility and the Wood River Wastewater Treatment Plant (WWTP); and nonhazardous leachate from the onsite PNWL in accordance with the delay of closure adjusted standard (AS-91-4) and this permit. It will eventually have to be closed in accordance with a plan approved by Illinois EPA.

BP is also conducting a groundwater monitoring/corrective action program at this facility and also a general corrective action for the SWMUs at the facility. The groundwater corrective action program includes: (1) a groundwater management zone and (2) a groundwater pump and treat system whose goal is to prevent any contaminated groundwater from flowing off-site. As part of the general corrective action program, the facility has been broken up into ten parcels and the SWMUs in each parcel have individual focus. BP also has the option of conducting corrective action on all contaminated areas or recognized environmental conditions in a given parcel.

This permit allows/requires BP to carry out the following activities at the Riverfront facility: (I) continue storing/treating non-hazardous wastewaters in the ESP until closure activities begin; (2) provide post-closure care for the Pond 1 Landfill; (3) conduct corrective action, as appropriate, at the facility; and (4) implement a groundwater monitoring/corrective action program. A RCRA permit was initially issued for these activities on September 30, 1993 (Log No B-145) and was previously renewed on August 11, 2008 (Log No. B-145R). This renewal permit (Log No. B-145R2) supersedes the previously issued two permits and any associated modifications.

SECTION II: SURFACE IMPOUNDMENT

A. SUMMARY

The East Surge Pond (ESP) is a hazardous waste surface impoundment that currently only receives/stores/treats non-hazardous wastewaters and non-hazardous leachate from the adjacent and onsite Permitted Non-Hazardous Waste Landfill (PNWL). It covers approximately 20.9 acres and has a capacity of 100 million gallons and is designed so that 80 million gallons of storage are normally available below the 2-foot freeboard level.

The impoundment is constructed in an area where several impoundments (the southern part of Pond 2 and all of Ponds 2A, 3, 3A, and 4) were once present that stored hazardous waste but were not clean closed in accordance with Title 35 Illinois Administrative Code (35 IAC) 724 or 725. During construction of the ESP, all sludges/sediments and most of the contaminated soil was removed from these ponds. The floor and sides of the ESP are lined with 1 foot of recompacted clay, and are protected from a 100-year flood event by a flood-protection dike. The location and layout of the East Surge Pond are presented in Figure B-3 of Attachment B to this permit.

The Illinois Pollution Control Board issued an Adjusted Standard (AS-91-4) to the Permittee to allow operation of the ESP for the storage/treatment of non-hazardous wastewaters under the delay of closure regulations contained in 35 IAC 724.213. Although some residual soil contamination may remain in the ESP during the delay of closure period, no new hazardous wastes are allowed to be placed in the unit. During the delay of closure period, the unit will manage only non-hazardous wastewaters, including nonhazardous leachate from the adjacent PNWL. This section contains provisions for continued operation and eventual closure of this unit; and requires BP to submit a proposed schedule for the closure of the ESP.

B. DESCRIPTION OF SURFACE IMPOUNDMENT AND WASTES

1. The Permittee may only store/treat non-hazardous wastewaters in total volume of 100 million gallons in the ESP subject to the terms of this permit including: (a) domestic sewage and commingled stormwater from the Cities of Wood River, Hartford, South Roxana, and also BP Main Plant and Riverfront facilities; (b) groundwater pumped as part of BP's hydraulic gradient control and subsurface hydrocarbon recovery program; and (c) recovered non-hazardous leachate from the PNWL and seepage water from the Riverfront facility. Any wastewater management activities at the facility at the ESP must meet all requirements by the Illinois EPA Bureau of Water, as necessary.

Surface Impoundment Designation	Capacity (gallons)	Dimensions of Impoundment	Description of Hazardous Waste & Waste Numbers
ESP	100 million	20.9 acre	Sediments and soil contaminated with K048 Dissolved Air Flotation (DAF) float from the petroleum refining industry

2. All wastewater managed in the ESP must be evaluated through the approved waste analysis plan for compatibility to ensure that all wastewaters placed into the ESP will be non-hazardous. The Permittee must:

   a. Collect and analyze a sample of the discharge of wastewater from Pond 3A to the ESP each quarter of the calendar year in accordance with Condition II.B.2 (c).

   b. Collect two (2) composite samples of leachate discharge, one from the manifolded pipe of odd numbered sumps and one from the even numbered sumps of the PNWL, sent to the ESP each quarter of the calendar year, when leachate is present at the PNWL in accordance with Condition II.B.2 (c). If leachate is present at the PNWL but is not discharged to the ESP, then it must be noted in the analytical report included in the facility's operating record and annual report, as required in II.B.2 (c) below.

   c. The Permittee shall collect representative samples of the discharge described in Conditions II.B.2 (a) and (b) above and analyze it for all the constituents listed in 35 IAC 724 Appendix I. The results of these efforts must be documented in the facility's operating record and reported to Illinois EPA annually. If it is found that the wastewater/leachate is hazardous, then:

      (1) Illinois EPA (Bureau of Land Permit Section and Collinsville FOS) must immediately be notified of such findings via email and/or phone call (which determined to be most as most appropriate and effective);

      (2) No additional wastewaters/wastes must be discharged to the ESP until the Permittee is able to demonstrate to Illinois EPA's satisfaction that no additional hazardous waste will be discharged to the impoundment;

      (3) The Permittee must develop and implement a plan for determining the source of the hazardous waste. A report documenting the results of this investigation must be developed; this report must also describe the steps to be taken to ensure this problem will not occur in the future. These plans and reports are subject to Illinois EPA review and approval.

3. The Permittee is prohibited from storing, treating, or disposing any waste (hazardous or non-hazardous) in the permitted unit(s) that is not identified in Condition II.B.1.

4. The Permittee must meet all applicable requirements of the Illinois EPA Burau of Water, as necessary, regarding management of all wastewater at the facility in accordance with all applicable regulations for such activities.

C. DESIGN AND OPERATING REQUIREMENTS

1. The Permittee shall operate and maintain the surface impoundment in accordance with the plan and narrative contained in "East Surge Pond Addendum to Section E" section of the approved permit application and the conditions in this permit.

2. The Permittee shall operate and maintain the surface impoundment to prevent overtopping in accordance with the detailed design plans and operating practices contained in "East Surge Pond Addendum to Section E" section of the approved permit application. A minimum of two feet of freeboard must be maintained at all times in the ESP. Illinois EPA may modify this requirement when it determines cause exists, such as Force Majeure or events over which the Permittee has no control.

3. The Permittee shall comply with all requirements of the Adjusted Standard for delay of closure of the ESP issued by the Illinois Pollution Control Board, dated March 11, 1992 (AS-91-4). This adjusted standard allows the Permittee to continue using the ESP for the storage/treatment of non-hazardous wastewaters until they decide to close the impoundment in accordance with 35 IAC 724.

4. The requirements of Condition II.B.2 above must be met at all times while the ESP continues to receive non-hazardous wastewaters.

5. The Permittee shall maintain the surface impoundment dike in accordance with the operating practices contained in the approved permit application and the conditions in this permit.

D. REPORTING

The Permittee shall notify the Illinois EPA in writing within seven (7) days after detecting either a leak in the surface impoundment dike or a sudden drop in the liquid level (and the drop is not known to be caused by changes in the flows into or out of the impoundment). The procedures set forth in the contingency plan and 35 IAC 724.327 must then be followed if one of these incidents occur.

E. INSPECTIONS

1. The Permittee shall inspect the surface impoundment (including liner and appurtenances for control of overtopping) in accordance with the inspection schedule in the approved permit application.

2. The Permittee must inspect the surface impoundment on a weekly basis and within 72 hours of any storm or rain fall event of 3 or more inches in 24 hours to detect any evidence of:

   a. deterioration, malfunctions, or improper operation of overtopping control equipment;

   b. sudden drops in the level of the impoundment's contents; or

   c. severe erosion or other signs of deterioration in dikes and other containment devices.

3. If the ESP is taken out of service for more than six months, then prior to returning to service, the Permittee shall obtain a certification from a qualified Professional Engineer registered in the State of Illinois that the surface impoundment and the flood-protection dike, including that portion of any dike which provides freeboard, have structural integrity in accordance with 35 IAC 724.326(c).

4. The results of all inspections conducted on the ESP must be recorded on an inspection log and placed in the operating record for this facility. Appropriate action, including implementation of the contingency plan if necessary, must be carried out in response to deficiencies noted during inspections; the results of these efforts must also be documented on an inspection log/repair log and placed in the operating record for the facility. The forms in Exhibit ESP-3 and Exhibit ESP-4 of the approved permit application shall be used to document inspections and any repairs done at the facility.

F. CLOSURE REQUIREMENTS

At closure, at a minimum, all waste, waste residues, and hazardous constituents must be removed from the unit. Remaining wastes, liner, and underlying soil containing or contaminated with waste, waste residue, or hazardous constituents must also be removed/remediated as appropriate to meet the requirements of 35 IAC 742. Closure of the surface impoundment must be carried out in accordance with the contingent closure plan contained in the "East Surge Pond Addendum to Section E" section of the approved permit application, as modified below:

1. The Permittee shall submit to the Illinois EPA in writing a proposed schedule to close the ESP for Illinois EPA's review and approval within one (1) year of the effective date of this permit. The proposed schedule for closure of the ESP

required in this section must include and consider any additional non-closure activities associated with the ESP. Any additional non-closure activities associated with the ESP must commence at least five (5) years prior to the expiration of this permit so that the required RCRA closure activities of the ESP may commence prior to the expiration date of this permit unless approved otherwise by Illinois EPA.

2. The Permittee shall notify the Illinois EPA in writing of its intent to close the ESP at least 180 days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit a sampling and analysis plan to be used in demonstrating that all contaminated material (sludge, liner, and underlying soil) has been removed. This plan must be approved by the Illinois EPA in writing prior to being implemented. Illinois EPA review of this plan will be subject to the permit appeal provisions contained in Sections 39(a) and 40(a) of the Illinois Environmental Protection Act. The response from the Illinois EPA will approve with or without conditions, if appropriate and establish:

   a. The sampling and decontamination plan;

   b. What contaminants must be analyzed for; and

   c. The level at which decontamination or removal is considered complete. Please note that any proposed risk assessment will be subject to Illinois EPA's review. If the risk assessment is determined to be inadequate, the Illinois EPA may establish cleanup levels that will be protective of human health and the environment based upon the procedures set forth in 35 IAC 742.

3. All sweepings, wash water, and rinsate generated during the closure of the ESP shall be managed as a hazardous waste, unless it can be shown to be exempt under 35 IAC 721.

4. Additional plans and reports must be submitted to Illinois EPA for approval as necessary, to provide for the proper remediation (i.e., achievement of soil and groundwater remediation objectives developed in accordance with 35 IAC 742) of the sludges, liner, and underlying soil at the ESP.

5. Within sixty (60) days after closure of the ESP is complete, the Permittee shall submit certification to the Illinois EPA that the unit has been closed in accordance with the approved closure plan.

   A closure certification form meeting the requirements of 35 IAC 724.215 must be signed by an authorized representative of the Permittee and a qualified Professional Engineer. Signatures must meet the requirements of 35 IAC Section 702.126. The qualified Professional Engineer (registered in the State of Illinois) must be present at all critical activities during the closure. These activities might

include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the independent engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the ESP until the Illinois EPA approves the closure certification for the unit.

A Closure Documentation Report must be developed and submitted along with the certification of closure and include:

a. Background information about the facility overall and the overall closure project.

b. A description of the unit closed (include scaled maps showing location of unit within facility and layout of unit(s), information related to construction of the unit(s), identification of wastes managed in the unit).

c. A chronological discussion of all closure activities and what was accomplished as a result of completing these activities.

d. The volume of waste, waste residue and contaminated soil (if any) removed. The term waste includes wastes resulting from decontamination activities.

e. Scaled drawings showing the horizontal and vertical boundaries of the extent of any soil removal effort.

f. A description of the method of waste handling and transport.

g. The waste manifest numbers.

h. Copies of the waste manifests.

i. As appropriate and available: boring logs; well construction diagrams; geologic cross-sections; groundwater monitoring data; and information about any groundwater remediation effort.

j. Information documenting the results of all sampling/analysis efforts. The goal of presenting this information should be to describe, in a logical manner, the activities and results associated with the sampling/analysis effort. At a minimum, this information must include:

   (1) identification of the reason for the sampling/analysis effort and the goals of the effort;

   (2) a summary in tabular form of all analytical data, including all quality assurance/quality control data;

(3) a scaled drawing showing the horizontal location from which all soil samples were collected;

(4) identification of the depth and vertical interval from which each sample was collected;

(5) a description of the soil sampling procedures, sample preservation procedures and chain of custody procedures;

(6) identification of the test method used, and detection limits achieved, including sample preparation, sample dilution (if necessary) and analytical inferences;

(7) copies of the final laboratory report sheets, including final sheets reporting all quality assurance and quality assurance dates;

(8) visual classification of each soil sample in accordance with ASTM D-2488;

(9) a summary of all procedures used for quality assurance/quality control, including the results of these procedures; and

(10) a discussion of the data, as it relates to the overall goal of the sampling/analysis effort.

k. Information demonstrating that the remediation objectives approved for the project have been achieved, including establishment of any engineered barriers or institutional controls necessary to support these objectives.

l. Color photo documentation of closure. Document conditions before, during, and after closure.

m. A detailed summary of the costs incurred in completing the required closure activities.

6. The Permittee shall analyze all samples individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846 and Attachment G to the Illinois EPA Bureau of Land's RCRA closure plan guidance. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the same portion of the interval to be analyzed. To demonstrate a parameter is not present in a sample, analysis results must show a detection limit at least as low as the practical quantitation limit (PQL) for that parameter as identified in the latest edition of SW-846.

7. To avoid creating another regulated storage unit during closure, it is recommended that any necessary permits for waste disposal are obtained prior to initiating excavation activities. If it is necessary to store excavated hazardous waste on-site prior to off-site disposal, do so only in containers or tanks or in other units if approved by the Illinois EPA in writing for less than ninety (90) days. Do not create regulated waste pile units by storing excavated hazardous waste in an unapproved manner. The ninety (90) day accumulation time exemption (35 IAC 722.134) only applies to containers and tanks.

8. Under the provisions of 29 CFR 1910, cleanup operations must meet the applicable requirements of OSHA's Hazardous Waste Operations and Emergency Response standard. These requirements include hazard communication, medical surveillance, health and safety programs, air monitoring, decontamination, and training. General site workers engaged in activities that expose or potentially expose them to hazardous substances must receive a minimum of 40 hours of safety and health training off site plus a minimum of three days of actual field experience under the direct supervision of a trained experienced supervisor. Managers and supervisors at the cleanup site must have at least an additional eight hours of specialized training on managing hazardous waste operations.

9. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 IAC 724.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Section 40 of the Illinois Environmental Protection Act.

10. The Permittee shall provide post-closure care in accordance with 35 IAC 724 for the ESP if all of the wastes or contaminated material or media cannot be removed or decontaminated in accordance with the closure plan and meeting the requirements of 35 IAC 742. If it is determined that the clean closure requirements (closure by removal) cannot be met and post-closure care is required, this permit must be modified to require closure and post-closure care as a landfill in accordance with 35 IAC 724, Subparts G and H.

11. Should post-closure care, as described above, become necessary, the permittee shall submit an application for modification to this permit, including an amended closure and post-closure care plan for this unit, within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made not to pursue clean closure prior to the implementation of the closure plan, the modification request shall be made no later than sixty (60) days after such determination is made.

12. Financial assurance for closure and post-closure of the ESP as a landfill, if required, shall be provided within thirty (30) days following modification of the permit as set forth in Condition II.F.11 above.

G. FINANCIAL ASSURANCE REQUIREMENTS

1. The permittee shall maintain financial assurance for closure of the surface impoundment(s) of at least $538,420 (in 2020 dollars). The cost estimate for closure of this facility is shown in Attachment G to this permit. The financial assurance maintained by the facility shall be sufficient to meet the requirements at 35 IAC 724 Subpart H.

2. The approved cost estimate for closing this unit is as described in Attachment G. The Permittee must provide financial assurance for this amount in accordance with 35 IAC 724, Subpart G.

3. A revised closure cost estimate for the ESP must be submitted with the schedule for the closure for the ESP as required in Condition II.F.1. Such cost estimate must include all activities necessary to initiate and complete the closure of the ESP.

4. If clean closure cannot be achieved for the ESP, ESP will be subject to post-closure care, including the requirements for financial assurance.

SECTION III: POST-CLOSURE FOR THE POND 1 LANDILL UNIT

A. SUMMARY

Hazardous waste management units where waste is left in place (e.g., landfills) must receive post-closure care for at least 30 years after the date the certification of closure is approved in writing by the Illinois EPA. Activities required during post-closure care include but are not limited to: (1) maintenance of final cover, (2) management of leachate, (3) monitoring, and as necessary, remediation of the groundwater, and (4) providing financial assurance for post-closure activities pursuant to Title 35 Illinois Administrative Code (35 IAC) Part 724.

Presently, there is one closed hazardous waste landfill at this facility which must receive post-closure care –the Pond 1 landfill. If it is determined by way of the closure plan contained in the "East Surge Pond Addendum to Section E" of the approved permit application that the East Surge Pond (ESP) cannot be clean closed (closure by removal), this permit shall be modified to incorporate closure and post-closure care for that unit as a landfill. This section describes the post-closure care requirements for the Pond 1 Landfill.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the following hazardous waste management unit(s), as described in the approved permit application, subject to the terms and conditions of this permit:

Unit Designation	Capacity	Surface Area Dimensions of Unit	Description of Waste and Hazardous Waste No.
Pond 1 Landfill (D80)	100,000 yd^3	4.1 acres (approximate)	Sediments and soil contaminated with K048 – Dissolved air flotation (DAF) float from the petroleum refining industry

The Pond 1 Landfill covers approximately 4.1 acres over Pond 1, Pond 1A and the southern part of Pond 2. The unit contains approximately 100,000 yd^3 of contaminated sediment and soils from the closure of Ponds 1, 1A, 2, 2A, 3, 3A, and 4.

2. The location and horizontal extent of the landfill is identified in Figure B-2 of Attachment B to this permit. The lowest elevation of the sumps in the landfill is at or above 402 ft MSL. The highest elevation of the final cover system is at or below 432.99 ft MSL. The slopes of the final cover on the landfill shall not be steeper than 4H:1V or 2%. The landfill was designed and constructed to achieve

a minimum static slope factor of safety greater than or equal to 1.33 and a seismic factor of safety greater than or equal to 1.01.

3. Pond 1 Landfill has an engineered liner system consisting of several layers. From top to bottom (starting directly below the waste), these layers consist of:

   a. One foot protective soil layer;

   b. Geotextile fabric (filter);

   c. One foot sand and gravel primary leachate detection and collection layer including leachate collection piping and leachate collection sumps;

   d. 60 mil High Density Polyethylene (HDPE) geomembrane;

   e. 0.25 inch Claymax geosynthetic clay liner (GCL);

   f. One foot sand and gravel secondary leachate collection system including leachate collection piping and leachate collection sumps;

   g. A 60 mil HDPE geomembrane;

   h. Minimum of two feet of imported compacted clay; and

   i. Minimum of one foot of recompacted in-situ clay.

   The unit is protected from a 100-year flood event by a flood protection dike.

4. The cover system on the top of the Pond 1 landfill is constructed of the following layers, specified from the top to bottom:

   a. One foot thick protective soil cover;

   b. One foot thick compacted clay layer;

   c. Geotextile fabric;

   d. A geonet drainage layer;

   e. A 60 mil HDPE geomembrane liner; and

   f. Two foot thick compacted clay layer.

5. A survey plat indicating the location and dimensions of the Pond 1 Landfill and any other hazardous waste disposal units with respect to permanently surveyed benchmarks was prepared and certified by a professional land surveyor. The notes

on the plat state the owner's and operator's obligation to restrict disturbance of the Pond 1 Landfill in accordance with the applicable Subpart G regulations. These notes state:

a. The waste materials contained in the Pond 1 Landfill are considered RCRA hazardous wastes; and are sediments and soils contaminated with K048 – Dissolved air flotation (DAF) float from the petroleum refining industry.

b. Any material removed from the Pond 1 Landfill during future activities must be managed as a hazardous waste in accordance with 35 IAC Subtitle G: Waste Disposal unless material has been delisted by the Illinois Pollution Control Board in accordance with Section 28.1 of the Illinois Environmental Protection Act and 35 IAC 720.122.

c. The use of this area is restricted.

6. The Plat of Survey must be attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

a. The waste material in the Pond 1 Landfill is considered a RCRA hazardous waste;

b. Use of the area is restricted; and

c. A survey plat and record of the type, location, and quantity of waste material in the Pond 1 Landfill was filed with the Illinois EPA and the County Recorder.

d. Documentation/information regarding the Document No., Parcel Identification Number (PIN) for the Pond 1 Parcel, and the Drawing No. field with the Madison County Recorder's must be submitted as required in Condition VI.C.7 of this permit.

7. The permittee shall develop a scaled topographic drawing of each unit identified in Condition III.B.1 to determine the vertical and horizontal dimensions of each unit at least once every 10 years. If a topographic drawing of a unit has not been developed in the 10 years prior to the date of this permit, it must be developed within 90 days of the date of the effective date of this permit, and every 10 years thereafter. The topographic drawings shall be maintained as part of the operating record.

Each scaled topographic drawing shall be compared to the permitted dimensions for that unit. The Permittee shall submit the most recent survey and scale drawings of the permitted dimensions for the unit within 60 days of the effective

date of this permit.

If a difference in elevation of more than 2 feet exists at any location on the unit, the Permittee shall notify the Illinois EPA Bureau of Land Permit Section of this finding within 30 days of the most recent survey. The notification must include the most recent survey and scale drawings of the permitted dimensions for the unit, a discussion of why the difference exists, and a plan that includes a schedule for repairing the cover system to its permitted dimensions. Repairs to the cover system, and/or its components, may be considered a permit modification.

C. POST-CLOSURE CARE PERIOD

1. The post-closure care period for the Pond 1 Landfill began on August 14, 1995, the date of completion of closure of the unit listed in Condition III.B.1 of this permit. August 14, 2025, marks the minimum requirement of thirty (30) years of Post-Closure Care.

   Hazardous waste remains in the landfill, leachate continues to be generated and pumped out of the unit, and a groundwater corrective action program is required to address groundwater contamination at the site. Due to these site conditions, pursuant to 35 IAC 703.241, 724.131,724.410 as well as Sections 12(a), 21(n), and 39(g) of the Environmental Protection Act, the Permittee must continue to provide post-closure care for the Pond 1 Landfill. Post-closure care shall be extended for additional 30 years or until such time as no unacceptable risks to human health and the environment are present in the Pond 1 Landfill unit, as determined by the Illinois EPA.

2. On or prior to August 14, 2024 (one year before August 14, 2025), the Permittee must submit a Class 2 Permit Modification request to Illinois EPA in accordance with 35 IAC 703.241(a)(2) and 35 IAC 703 Appendix A.E.2 to extend the Post-Closure Care of the Pond 1 Landfill for an additional thirty (30) years or until such time as no unacceptable risks to human health and the environment are present in the Pond 1 Landfill unit, as determined by the Agency, as specified in Condition III.C.1 above.

3. The Illinois EPA may include restrictions upon the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After any administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

4. The Permittee shall not allow the property where the unit(s) identified in Condition B.1 are located to be used in a way that could disturb the integrity of

the final cover, liners, any components of the containment system, or the function of the facility's monitoring systems unless the Illinois EPA finds, by way of a permit modification, that such use is necessary for either of the following reasons:

a. It is necessary to the proposed use of the property, and will not increase the potential hazard to public health or the environment, or

b. It is necessary to reduce a threat to human health or the environment

5. The Illinois EPA may require the continuation of any of the security requirements during part or all of the post-closure period.

D. INSPECTIONS

1. The Permittee shall inspect the components, structures, and equipment at the site in accordance with the inspection schedule in the approved permit application and the conditions in this permit (Attachment H). The forms in Exhibit E-8 of the Post-Closure Plan in the approved permit application shall be used to document inspections and any repairs performed at the facility.

2. The Permittee shall inspect the facility at least quarterly or within 72 hours of any rain fall event of three (3) or more inches in 24 hours for evidence of any of the following:

   a. Deterioration, malfunctions, or improper operation of run-on and run-off systems.

   b. The presence of leachate in, and proper functioning of, the leachate collection and removal systems.

   c. The deterioration of the liner or cover systems.

3. Appropriate corrective action shall be taken if problems; including erosion, blockage of the channels, slope failure, etc. are observed at any time. If corrective action is taken, the area involved shall be reinspected one month following completion of the work to ensure the corrective actions have adequately corrected the problem(s) noted.

4. The Permittee shall inspect the benchmarks used to identify the location of the hazardous waste management units (HWMUs) and solid waste management units (SWMUs) within 60 days of the effective date of this permit and thereafter in accordance with the Inspection Schedule in the approved permit application.

   If benchmarks cannot be located or confirmed, then the Permittee shall have the appropriate benchmark(s) reestablished by a licensed surveyor within 90 days of the effective date of this permit. Furthermore, the Permitted must: (1) evaluate, as much as possible, and document any noticeable changes in the ground elevation

in general and any settlement of the unit; and (2) maintain the benchmarks as a part of post-closure care of the landfill.

5. Results of all inspections and a description of any remedial actions taken shall be documented in the Repair Log in the Operating Record and maintained for the entire post-closure period.

E. MONITORING, MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall keep and maintain a written operating record that includes all the records, reports, notifications, monitoring data, testing or analytical data, and corrective action data required by 35 IAC 724.173 and the conditions in this permit, for the entirety of the post-closure care period. The operating record shall be kept on-site at the facility and available for Illinois EPA review.

2. The Permittee shall maintain and monitor the groundwater monitoring system and comply with the other applicable regulations of 35 IAC 724 Subpart F (Groundwater Protection) during the post-closure period.

3. The Permittee shall maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, and other events.

4. The Permittee shall prevent run-on from eroding or otherwise damaging the final cover. At a minimum, the run-on control system shall be capable of preventing flow onto the active portion of the landfill during peak discharge from a 24 hour, 25-year storm event.

5. The Permittee shall prevent run-off from eroding or otherwise damaging the final cover. At a minimum, the run-off management system shall be capable of collecting and controlling the volume of water resulting from a 24 hour, 25-year storm event.

6. The Permittee shall comply with the requirements for landfills described in the approved permit application and the conditions of this permit as follows:

   a. Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one inch wide have formed for whatever reason, if gas, odor, vegetative or vector problems arise, if leachate pop-outs or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such vegetation.

   b. Protect and maintain surveyed benchmarks used in complying with surveying and recordkeeping requirements as required in Condition III.D.4.

7. The Permittee shall maintain the leachate collection system (LCS), and leak detection system (LDS) in accordance with the design plans and specifications contained in the approved permit application and the conditions in this permit. The permittee shall:

   a. Manage leachate collected in LCS and LDS in accordance with Condition III.E.9 below until an alternative compliance plan is approved by Illinois EPA to install a new LDS with a permanent pumping system and LDS. Any pumps from the LCS and LDS must be removed on cleaned at least once every year, as applicable.

   b. Every 10 years, the Permittee will use a camera to inspect the collection risers and sump for sediment build-up. If 10% or more of the screened interval is silted-in, the permittee shall remove sediment from the collection riser and sumps using a high-pressure jet or equivalent method.

   c. Install and operate a leak detection alarm system to alert when the level of leachate reaches one (1) foot as described in Condition III.E.11 (b).

   d. The LCS will maintain leachate levels within the collection risers at a depth such that leachate does not exceed one (1) foot above the liner.

8. The permittee shall remove leachate from the landfill until leachate is no longer detected in the LCS or LDS.

9. Leachate collected in the LCS and LDS, shall be managed in compliance with all applicable federal, state and local regulations. The leachate may be transferred to the City of Wood River Publicly Owned Treatment Works (POTW) by a vacuum truck in accordance with the Illinois EPA Water Pollution Control Permit No. 2020-EP-64994; the approved permit application; and the conditions in this permit.

10. The permittee shall collect a representative sample of leachate from the landfill and analyze it for all the constituents listed in 35 IAC 724 Appendix I. These samples shall be collected and analyzed annually in accordance with the sampling and test methods specified in the approved permit application. The results of the leachate quality testing data shall be submitted and maintained in the facility's operating record and submitted to the Illinois EPA by July 15 each year.

    a. The Reduced List will be based on the four most recent complete 35 IAC 724 Appendix I analyses and include all parameters detected in any of the four Appendix I analyses. Starting the next sampling event after Illinois EPA approval, this Reduced List will be used in lieu of the Appendix I analysis for three out of four years, with the fourth-year reverting to a full Appendix I analysis. Any parameters not included on the existing

Reduced List that are detected in the fourth-year Appendix I analysis shall be added to all future Reduced List analyses by means of a permit modification request. This cycle of three years of Reduced List, followed by one year of Appendix I analysis, will repeat for the remainder of the post-closure period.

b. If an analysis of the leachate from the landfill detects a parameter for which the groundwater is not being analyzed, the permittee shall submit a Class 1* permit modification to the Illinois EPA BOL Permit Section in writing within 30 days of the leachate analysis to add the previously undetected parameter(s) to the groundwater monitoring list.

11. The permittee shall operate, monitor, and maintain the leachate collection system (LCS); and the leachate detection system (LDS) in accordance with the approved permit application and the following conditions:

a. The elevation of leachate in the primary and secondary collection risers of the LCS and LDS of the Pond 1 Landfill shall be monitored weekly and recorded in feet above MSL.

b. In accordance with an alternative Compliance Plan, if approved by the Illinois EPA as referenced in Condition III.E.7, leachate shall be removed from the collection risers as necessary to ensure the leachate depth over the liner does not exceed one (1) foot (or approximately at Elevation 403'above mean sea level (MSL) for LCS).

c. All leachate removed from the LCS and LDS shall be managed as a hazardous waste unless leachate has been delisted by the Illinois Pollution Control Board in accordance with Section 28.1 of the Illinois Environmental Protection Act and 35 IAC 720.122.

d. The permittee shall record the amount of liquid removed from each LCS sump (in gallons) at least monthly. The results of the leachate quantity testing data from the LCS shall be maintained in the facility's operating record and submitted electronically to the Illinois EPA.

12. The permittee shall operate and maintain the alarm system as required in Condition III.E.7 (c). The alarm system shall immediately alert the permittee or their representative if there is a problem with the leachate collection or leak detection systems. Within 48 hours of an alarm, a technician will check the LCS and/or LDS and initiate any necessary corrective actions.

F. REPORTING AND NOTIFICATION REQUIREMENTS

1. The leachate quantity and quality data required by Conditions III.E.10 and III.E.11 above must be submitted to the Illinois EPA Bureau of Land Permit

Section in an electronic format. The information is to be submitted as fixed-width text files formatted as found in Attachment C to this permit. Additional guidance regarding the submittal of the information in an electronic format can be found at the Illinois EPA's website.

2. A completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC 592) must accompany all Leachate Data Reports required by this permit. A copy of this form is provided in Attachment C to this permit. This form is not be used for permit modification requests. This form is also available on the Illinois EPA website.

3. The leachate quantity and quality data required by Conditions III.E.10 and III.E.11 for the LCS and LDS shall be submitted to the Illinois EPA Bureau of Land Permit Section as part of the Leachate Data Quarterly Monitoring Report in accordance with the following schedule. This Leachate Data Quarterly Monitoring Report may be combined with the groundwater monitoring report required in Condition IV.I.14.

Data Collected	Results/ Report Submitted by:
January – March	August 1
April – June	August 1
July – September	February 1
October – December	February 1

4. The following Leachate Monitoring/Withdrawal Wells shall be used in leachate quality analysis required by Conditions III.E.10. For purposes of electronic reporting, the points will be labeled as shown below:

Name in Application	Name for Electronic Reporting
Primary Collection System Riser	PCRW
Primary Collection System Riser	PCRE
Secondary Collection System Riser	SCR1
French Drain Sump	FDS1

5. The following Leachate Monitoring/Withdrawal Well shall be used in leachate elevation and quantity monitoring required by Conditions III.E.11. For purposes of electronic reporting, the points will be labeled as shown below:

Name in Application	Name for Electronic Reporting
Primary Collection System Riser	PCRW
Primary Collection System Riser	PCRE
Secondary Collection System Riser	SCR1
French Drain Sump	FDS1

6. The permittee shall submit one (1) original paper copy of each Leachate Data Quarterly Monitoring Report required in Condition III.F.3 above. A Leachate Data Quarterly Monitoring Report may be combined with a groundwater monitoring report required in Condition IV.I.14. In addition to the electronic data, each report must include:

   a. A graphical representation of the volumes of leachate removed from the LCS and LDS each month. The leachate generation rates (gallons/month) from the LCS and LDS shall be presented on the same graph. The scale of the abscissa (time) shall be such that no more than one year of data (starting with January each year) is presented on each sheet of paper.

   b. A graphical representation of the elevations of the liquid level in the collection risers for the quarter. For each measurement, the graph needs to identify the following: the elevation of leachate over time, elevation of the top of liner, and elevation of the bottom of the cover system all in feet above MSL.

7. If the leachate quality analysis required in Condition III.E.10 detects a parameter for which the groundwater was not analyzed for in the last sampling event, the permittee shall submit a Class 1* permit modification to the Illinois EPA BOL Permit Section in writing within 30 days of the leachate analysis to add the previously undetected parameter(s) to the groundwater monitoring list. .

G. NOTICES AND CERTIFICATION

1. A request to change the Post-Closure Plan must be submitted in the form of a permit modification request. This request must be in accordance with applicable requirements of 35 IAC Parts 702, 703 and 724 and must include a copy of the amended Post-Closure Plan for approval by the Illinois EPA.

2. If the Permittee or any subsequent owner or operator of the land upon which the Pond 1 Landfill listed in Condition III.B above is located wishes to remove hazardous waste, hazardous waste residue, the liner, or contaminated soil, they must request a modification to this RCRA post-closure permit in accordance with the applicable requirements in 35 IAC Parts 703, 705 and 724. At a minimum, the owner or operator must demonstrate that the removal of such material will satisfy the criteria of 35 IAC 724.217(c).

3. If the Permittee seeks to demonstrate that they should be allowed to end the post-closure care period (e.g., all waste has been removed, and leachate and groundwater monitoring results do not indicate a potential for migration of waste at levels which may be harmful to human health and the environment), the permittee shall submit an Uniform Environmental Covenant (UEC) for the future land use and management of the property on which the Pond 1 Landfill is located.

The UEC shall be submitted at least one year prior to the date the permittee expects to submit the Certification of Completion of Post-Closure and must be approved by Illinois EPA.

Pursuant to Section 39(g) of the Environmental Protection Act and Uniform Environmental Covenant Act, the purpose of the UEC is to place restrictions upon the future use of the site necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment.

4. If the Permittee seeks to exit post-closure care, the Permittee shall submit the following documents to the Illinois EPA Bureau of Land Permit Section by registered mail no later than sixty (60) days after completion of the established post-closure care period for the Pond 1 Landfill listed in Condition III.B of this permit:

   a. A properly completed Certification of Completion of Post-Closure Care Form provided in Appendix J to this permit that states the post-closure care for the Pond 1 Landfill was performed in accordance with the specifications in the approved post-closure plan in the approved permit application and the conditions in this permit. The owner and operator and a qualified Professional Engineer registered in the State of Illinois must sign the Certification Form.

   b. A Post-Closure Documentation Report that documents the post-closure care conditions and activities at your facility during the post-closure period. The Post-Closure Documentation Report must include the following:

      (1) Background information about the facility and the unit subject to the Post-Closure Certification. Describe the facility and RCRA permit history for the unit.

      (2) A detailed description of the unit subject to the post-closure care certification that includes:

         i. The unit's design, including liner system, sumps, leachate collection, leak detection, and gas systems, and cover system including stormwater run-off and run-on controls. Provide this information in both a narrative form and scale drawings.

         ii. How the unit was operated and how it was closed.

         iii. When the unit was operated and when it was closed.

         iv. The wastes disposed of (including waste codes).

         v. The amount of leachate pumped each year from each sump in the unit's leachate collection and leak detection systems during

the post-closure period. Provide this information in both a table and graphically. Demonstrate the unit has met the requirements of 35 IAC 724.410(b)(2).

vi. A scaled map showing the location of unit within the facility boundary. Include all wells in the groundwater monitoring system for the unit on this map.

vii. Scaled drawings (plan view and cross-section) that show the horizontal and vertical extent of the unit at the time it was certified closed, every 10 years after it was closed, and at the time the Post-Closure Documentation Report is submitted. The scale of the plan view should be 1 inch = 200 feet. All design components of the unit must be shown on the drawings.

When the drawings are compared, if a difference in elevation of more than 2 feet exists at any location on the unit, the Post-Closure Documentation Report needs to indicate the reason for the change in elevation, and demonstrate it would not be a concern in the future.

viii. A survey of the unit when it was certified closed and at the time the Post-Closure Documentation Report is submitted. The surveys must be certified by a professional land surveyor.

(3) A general discussion on the inspection and maintenance of, and repairs to, the cover system, leachate collection, leak detection, gas collection, stormwater run-off and run-on controls, wells in the groundwater monitoring system, and any corrective action system required for the unit or groundwater contamination associated with it. Describe any problems and/or repairs to these systems that were addressed over the post-closure care period in chronological order. Show the locations of each of the repairs to these systems during post-closure care on a scaled drawing of the unit.

(4) A discussion on the groundwater monitoring program, including any corrective measures that were completed during the post-closure care period, and a summary of the three (3) most recent years of groundwater data. Identify the horizontal and vertical extent of any groundwater contaminant plume from the unit that existed at the beginning of the post-closure period and every five (5) years after that. The facility must have complied with all requirements of 35 IAC 620 and 724, Subpart F, in order to certify completion of post-closure care activities.

(5) Colored photos of unit(s) at post-closure completion. Photo documentation of the unit should include at least one aerial (satellite) photo and photos of all design features of the unit.

(6) Completed Illinois EPA LPC-PA23 and 39i Forms.

c. Documentation that the UEC required by Condition III.G.3 above has been placed on the deed to the property on which the Pond 1 Landfill is located has been filed with the County Recorder's Office.

5. The certification of completion of post-closure care shall not be approved by the Illinois EPA until the permittee demonstrates that the UEC required by Condition III.G.3 above has been properly filed with the appropriate governmental office (e.g. State of Illinois, or County Recorder's office).

6. Within 60 days after receiving certification from the owner or operator and a qualified Professional Engineer that the post-closure care period has been completed for the Pond 1 Landfill listed in Condition III.B of this permit in accordance with the approved post-closure plan, the Illinois EPA shall notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care of that unit unless the Illinois EPA determines that post-closure care has not been conducted in accordance with the approved post-closure plan. The Illinois EPA shall provide the owner or operator with a detailed written statement of any such determination that post-closure care has not been in accordance with the approved post-closure plan.

H. POST-CLOSURE CARE COST ESTIMATE/FINANCIAL ASSURANCE

1. The Permittee shall maintain financial assurance for post-closure care of the Pond 1 Landfill listed in Condition III.B.1of this permit of at least $2,364,068 in 2020 dollars until such time as it is required to be modified pursuant to Conditions VI.C.1(a) and VI.C.1 (d). A summary of the cost estimate for post-closure care is shown in Attachment G to this permit. The financial assurance maintained by the facility shall be sufficient to meet the requirements at 35 IAC 724 Subpart H.

2. Post-closure care costs are determined by multiplying annual costs by the 30-year post-closure care period.

SECTION IV: GROUNDWATER CORRECTIVE ACTION PROGRAM

A. SUMMARY

Hazardous constituents released from the BP Riverfront facility have been detected in the groundwater at the point of compliance at concentrations which exceed the Groundwater Protection Standards, as well as groundwater quality standards established by Title 35 Illinois Administrative Code (35 IAC) 724.192. Therefore, a Corrective Action Program meeting the requirements of 35 IAC 724.200 must be implemented at the BP Riverfront facility.

The Corrective Action Program required by this permit includes:

1. Control of groundwater flow in the uppermost aquifer such that groundwater flow in the Riverfront Groundwater Management Zone is towards the interior of the Main Plant facility. This control of groundwater flow will be accomplished by withdrawing sufficient quantities of groundwater from the uppermost aquifer through operation of Gradient Control Wells located at the BP Main Plant facility. Such flow control is necessary as a corrective action to prevent contaminant migration of on-site releases of product or waste, beyond the boundaries of the Riverfront facility and is the basis for the establishment of a Groundwater Management Zone (GMZ).

2. Verification that the flow of groundwater is adequately controlled as required by Condition IV.A.1 above.

3. Monitoring the quality and movement of the groundwater in the uppermost aquifer beneath the BP Riverfront facility to determine the effectiveness of the Corrective Action Program, as well as verify compliance with the GMZ.

B. IMPLEMENTATION

1. The Permittee shall implement the 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 Riverfront facility. The uppermost aquifer at this facility is a sand and gravel aquifer located approximately 30 feet deep below the ground surface (hereinafter 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 IV.D.1 or to established background values as appropriate.

4. At this time, the establishment of a Point of Compliance (as defined by 35 IAC 724.195) will be postponed until such time that the monitoring wells at the facility have attained the applicable concentration limits that comprise the Groundwater Protection Standard found in Condition IV.D.1 and the GMZ expires. At that time, facility 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. 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-7 of the approved permit application. All wells are gauged quarterly. Sampling frequencies vary and are specified below.

IEPA Well No.	Facility Well No.	Area	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
GMZ Boundary Wells (Gauging and Semi-Annual Sampling Network[2])					
G66D	RL-6C	ESP	70.00	361.38	366.38-361.38[H]
G103	RL-3	P1LF	39.00	386.27	396. 27-386.27[C]
G106	RL-6	ESP	44.00	386.57	396.57-386.57[C]
G107	RL-7	ESP	39.00	388.36	398.36-388.36[C]
G113	SWMU-14/MW-14A	Parcel C	51.94	371.00	381.00-371.00[H]
G114	SWMU-14/MW-15	Parcel C	56.00	364.46	374.46-364.46[H]
LOD1	LOD-1	LOD	31.00	393.58	403.58-393.58[C]
LOD2	LOD-2	LOD	41.00	380.15	390.15-380.15[C]
LOD7	LOD-7	LOD	29.14	391.20	401.20-391.20[C]
L17B	RL-17B	LOD	54.84	363.98	373.98-363.98[H]
Observation Monitoring Wells (Gauging and Annual Sampling Network[2])					
G35L	C-25B	ESP	56.82	371.00	378.00-373.00[H]
G104	RL-4	P1LF	36.00	388.25	398.25-388.25[C]

IEPA Well No.	Facility Well No.	Area	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
G115*	RL-15	WSP	52.00	376.18	381.18-376.18[H]
G116	RL-16	WSP	52.00	375.35	380.35-375.35[H]
G119	RL-19	ESP	40.00	391.80	406.80-391.80[C]
G401	T-1	WSP	41.50	380.86	385.86-380.86[H]
LOD5	LOD-5	LOD	30.24	391.87	401.87-391.87
R21L	RL-21BR	WSP	54.01	369.92	374.92-369.92[H]
R529	P-29R	LOD	48.61	372.30	382.30-372.30[H]
Observation Monitoring Wells (Annual Sampling Only Network[3])					
R21D	RL-21CR	WSP	70.24	353.58	358.58-353.58[H]
LOD6	LOD-6	LOD	28.50	393.20	403.40-393.40[C]
LOD9	LOD-9	LOD	28.50	394.12	404.12-394.12[C]
Observation Monitoring Wells (Gauging Only Network[4])					
G030	C-20	TF	39.10	386.27	406.27-386.27[C]
G033	C-23	POTW	35.00	393.54	403.55-393.55[C]
G037	C-27	PNWL	34.00	393.94	404.04-393.94[P]
G038	C-28	PNWL	35.69	393.70	403.90-393.80[P]
G090	G090	PNWL	48.00	378.61	383.74-379.16[H]
G091	G091	PNWL	66.50	359.14	382.27-377.69[H]
G102	RL-2	LOD	34.0	388.78	398.78-388.78[C]
G109	RL-9	ESP	39.00	388.45	398.45-388.45[P]
G36R	C-26R	PNWL	34.4	392.18	402.48-392.48[P]
G411	S-1	WSP	41.60	376.83	386.83-376.83[H]
R034	C-24R	ESP	35.24	393.64	403.88-393.88[C]
R66L	RL-6BR	ESP	55.30	377.06	382.16-377.06[H]
G503	PANC-UP01	Parcel A	39.50	378.55	388.75-378.75[H]
G504	PANC-UP02	Parcel A	39.00	372.06	382.06-372.06[H]
G505	PANC-UP05	Parcel A	37.10	389.61	399.61-389.61[C]
G506	PANC-UP09	Parcel A	27.30	389.29	399.49-389-49[C]
G507	PANC-UP11	Parcel A	37.30	388.62	398.82-388.82[C]
G508	SWMU4-MW01	Parcel A	30.98	395.10	405.10-395.10[P]
G509	SWMU4-MW03	Parcel A	29.41	389.24	405.90-395.90[P]
G510	SWMU4-MW04	Parcel A	32.62	388.96	405.57-395.57[P]
Observation Monitoring Wells (LNAPL Monitoring Network[5])					
G105	RL-5	ESP	34.00	388.28	398.28-388.28[C]
G512	SUMP-8	Parcel C	+	+	409.05-406.35[P]

IEPA Well No.	Facility Well No.	Area	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
Observation Monitoring Wells (Sentinel Wells[6])					
G511	SWMU4-MW02	Parcel A	26.43	392.67	402.67-392.67[C]
LOD1[2]	LOD-1	LOD	31.00	393.58	403.58-393.58[C]
LOD2[2]	LOD-2	LOD	41.00	380.15	390.15-380.15[C]
G029[7]	C-19R	MP	24.52	393.98	404.31-394.31[C]
G056**	G-16	MP	30.00	395.54	415.54-395.54[P]
G057[8]	G-17	MP	35.02	391.90	411.90-391.90[C]
G058[8]	G-18	MP	36.00	391.27	411.27-391.27[C]
GXXX[9]	Well details will be provided within ninety (90) days of well completion				
GXXX[9]	Well details will be provided within ninety (90) days of well completion				
GXXX[9]	Well details will be provided within ninety (90) days of well completion				

Notes

+ = Well construction information is incomplete

* = Denotes Upgradient Well(s)

** = Also an Observation Well under the BP Main Plant RCRA Permit. Groundwater sampling required until additional sentinel wells are installed and incorporated into the BP Riverfront RCRA Permit in accordance with January 19, 2023 Illinois EPA letter.

C = Wells fully or partially screened within the silty sandy layer of the Cahokia Sand facies are designated as "UMA C" uppermost aquifer wells.

H = Wells screened within the coarse sand and gravel of the Henry formation are designated as "UMA H" uppermost aquifer wells.

P = Wells within the Cahokia exhibiting perched behavior are designated as "Cahokia Perched" wells.

2 = GMZ Boundary

3 = Groundwater sampling only. Well will still be gauged when sampled in accordance with Condition IV.F.1; however, water level data will not be utilized for developing potentiometric surface maps or evaluation of hydraulic gradients as required under Condition IV.E.6 (3 Observation wells)

4 = Groundwater gauging only. Groundwater sampling not required (20 Observation wells).

5 = LNAPL monitoring only. Groundwater sampling not required (2 Observation wells).

6 = Sentinel wells required to be sampled semi-annually.

7 = Groundwater sampling required until revised GMZ approved and G029 is abandoned in accordance with January 19, 2023 Illinois EPA letter.

8 = Also an Observation Well under the Main Plant RCRA Permit.

9 = Additional sentinel wells to be installed and incorporated into RCRA Permit in accordance with January 19, 2023 Illinois EPA letter.

2. The Permittee shall maintain the Gradient Control 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 IV.A.1 above.

IEPA Well No.	Facility Well No.	Area	Well Depth (ft-bgs)	Well Depth Elevation (ft MSL)	Well Screen Interval (ft MSL)
Gradient Control Wells					
G664	PW-64	MP	118.0	309.4	344.4 -309.4
G667	HPW-41	MP	105.0	322.6	347.6 - 322.6
G668	HPW-58	MP	115.0	318.0	358.0 – 318.0
G669	HPW-61	MP	118.0	314.55	345.05 – 314.55

Area Identification

P1LF = Pond 1 Landfill
ESP = East Surge Pond
WSP = West Surge Pond
MP = Main Plant
TF = Tank Farm
LOD = Light Oils Dock
POTW = Publicly Owned Treatment Works
PNWL = Permitted Non-Hazardous Solid Waste Landfill
PA = Parcel A
PC = Parcel C

3. Construction of each monitor well/piezometer must be in accordance with the diagram contained in Attachment C to this Permit, 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 as provided in Attachment C 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 Conditions IV.C.1 and IV.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 this 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 monitor well construction standards at the time that the wells are replaced. A replacement well which is more than ten (10) feet from the existing well or which 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 Illinois EPA
   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 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Condition IV.C.4.

D. GROUNDWATER PROTECTION STANDARD

1. The following hazardous constituents and their concentration limits (35 IAC 620, Class I, Groundwater Quality Standards) comprise the Groundwater Protection Standard for the groundwater monitoring wells found in Conditions IV.C.1. (Total (unfiltered) values will be used for the comparison with the 35 IAC 620, Class I, Groundwater Quality Standards. Dissolved values shall be used for statistical evaluations required in Condition IV.H unless otherwise noted.)

Field Parameters	Storet	Units
pH	00400	
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	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 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 IV.I.9.a.

Hazardous Constituents	Storet No. (Total)	Storet No. (Dissolved)	Concentration Limits (mg/L)
Arsenic*	01002	01000	0.01
Barium	01007		2.0
Cadmium	01027		0.005
Chloride*	00940	00941	200.0
Chrysene	34320		0.1
Lead*	01051	01049	0.0075
Sulfate	00945		400.0
Benzene	34030		0.005
Benzo(b)fluoranthene	34230		0.00018
Bis(2-ethylhexyl) phthalate	39100		0.006
Carbon Disulfide	81309		0.7
Ethylbenzene	78113		0.7
Toluene	34010		1.0
Total Xylenes	34020		10.0
Methyl Tertiary-Butyl Ether	46491		0.07
Phenols	46000		0.1
Biogeochemical Analytes[1]			
Dissolved iron		01046	N/A
Dissolved manganese		01056	N/A
Dissolved sulfate		00946	N/A

* = Constituents that must be sampled for both dissolved and total concentrations.
1 = To monitor natural attenuation conditions.

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 as follows:

   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 or reapply once corrective measures have been implemented pursuant to 35 IAC 620.450.

   b. For those hazardous constituents without a 35 IAC Part 620 standard, the alternative concentration limits proposed by the facility must be approved by the Illinois EPA.

3. The Permittee must continue corrective action measures for as long as necessary, as determined by the Illinois EPA, to achieve compliance with the Groundwater Protection Standards. The Permittee may terminate corrective action measures taken beyond the period equal to the active life of the waste management area (including the closure period) if it can be demonstrated, based on data from the groundwater monitoring program, that the Groundwater Protection Standards found in Condition IV.D.1 have not been exceeded for a period of three (3) consecutive years.

4. Prior to removal of any constituents identified in Condition IV.D.1, the facility must present leachate analytical results from the Pond 1 landfill to demonstrate these constituents are not present in leachate. Therefore, to request removal of barium, cadmium, sulfate, benzo(b)fluoranthene, carbon disulfide, total xylenes, and phenols, present a demonstration these constituents are not present in leachate. A leachate demonstration is also necessary to reduce the sampling frequency for chloride.

E. GROUNDWATER CORRECTIVE ACTION PROGRAM

The Permittee shall conduct the Corrective Action Program and perform groundwater monitoring detailed in this section, in accordance with the following:

1. The Permittee shall monitor the GMZ Boundary Wells and Observation Wells designated in Condition IV.C.1 on a semi-annual or annual basis (as indicated in Condition IV.C.1) for the hazardous constituents listed in Condition IV.D.1 above.

2. The GMZ must be monitored and maintained as follows:

   a. The GMZ boundaries shall be defined as follows:

      - Western Boundary: LOD-1 and LOD-5;

- Eastern Boundary: G103, G106 and G107;
- Northern Boundary: LOD-2, G113 and G114;
- Southern Boundary: LOD-7 and G107.
- Vertical Boundary: RL-17B and G66D.

b. The results of monitoring the GMZ shall be submitted to the Illinois EPA semi-annually in accordance with the schedule found in Condition IV.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 IV.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.

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 IV.I must also be included.

3. The 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 as follows:

   a. The pumping from the Gradient Control Wells (COD wells) shall maintain the cone of depression to ensure groundwater flow is adequately controlled in the uppermost aquifer.

   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 IV.I.2.

a. A record of the amount of groundwater withdrawn each day by the groundwater withdrawal wells.

b. Quarterly monitoring of the piezometric head at wells in the uppermost aquifer identified in Conditions IV.C.1 and IV.C.2 above to demonstrate that groundwater flow is properly controlled throughout the contaminated area requiring corrective action in the uppermost aquifer is being contained.

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 IV.C.1.

7. The groundwater quality in the uppermost aquifer beneath the facility shall be monitored on a semi-annual or an annual basis in Condition IV.C.1 at each of the monitoring wells identified.

8. The GMZ Boundary Wells and Observation Monitoring Wells listed in Condition IV.C.1 shall be monitored for the constituents listed in Condition IV.D.1.

9. Due to the close proximity to the Hydrocarbon Pool (SWMU 7), the facility must propose a location for a new well or replacement well which will monitor the same geologic zone as monitoring well G119. The proposed location must be submitted for Illinois EPA review and approval prior to abandonment of well G119. BP must continue to pursue approval for replacement of G119 from the Corps of Engineers to satisfy replacement requirements from Illinois EPA, and provide updates in each semi-annual report required by Condition IV.I.2.

F. GROUNDWATER ELEVATIONS

1. The Permittee shall determine the groundwater surface elevation referenced to MSL at each well each time groundwater is sampled in accordance with Condition IV.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 IV.I.9.

3. Elevation, as referenced to MSL, of the bottom of each monitoring well (STORET 72020), is to be reported at least annually. The mandatory measurement shall be taken during the first semi-annual sampling event each year.

G. SAMPLING AND ANALYSIS PROCEDURES

The Permittee shall follow the techniques and procedures described in Exhibit C-3 of Attachment B of the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition IV.C.1:

1. Samples shall be collected by the techniques described for low-flow sample collection in Exhibit C-3 of Attachment B of the approved permit application.

2. Samples shall be preserved, shipped and handled in accordance with the procedures specified in Exhibit C-3 of Attachment B of the approved permit application.

3. Samples shall be analyzed according to the procedures specified in Exhibit C-3 of Attachment B of the approved permit application, with the exception that the most current SW-846 Method states that field blanks must be tested for volatile organic compounds (VOCs), which includes Methyl Tertiary-Butyl Ether (MTBE).

4. Samples shall be tracked and controlled using the chain-of-custody procedures specified in Exhibit C-3 of Attachment B of the approved permit application.

H. STATISTICAL METHODS

The Permittee shall evaluate the quality of groundwater samples collected during semi-annual sampling events identified in Condition IV.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 IV.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 IV.D.1, in accordance with Exhibit C-4 of the approved permit application.
   b. The results of the statistical evaluations shall be discussed and included within the required five (5)-year GMZ Evaluation reports required by Condition IV.I.6.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing and analytical data obtained in accordance with Conditions IV.D, IV.E, IV.F and IV.H into the operating record.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions IV.D, IV.E, IV.F and IV.G shall be collected and reported as identified in the table below. All additional data required by the groundwater monitoring program (as specified in Conditions IV.D, IV.E, IV.F and IV.G) shall also be submitted to the Illinois EPA at the address listed in Condition IV.C.6 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 IV.F.1, shall be collected at least quarterly and submitted to the Illinois EPA as identified in Condition IV.I.2.

4. Groundwater withdrawal rates collected and calculated pursuant to Condition IV.E.3.b shall be submitted in accordance with the schedule identified in Condition IV.I.2.

5. Gradient control measurements collected pursuant to Condition IV.E.5 shall be submitted to the Illinois EPA as part of the second and fourth quarter reports as identified in Condition IV.I.2.

6. Statistical evaluations for the year, as required by Condition IV.H, shall be submitted to the Illinois EPA as a part of the required 5-year GMZ Evaluation reports required by Condition IV.E.2.e.

7. The Permittee shall report the groundwater flow rate and direction, as required by Condition IV.E.6, during the first and second semi-annual reports each year.

8. Groundwater quality samples collected to meet the requirements of Condition IV.E.8 shall be collected during the second and fourth quarter and submitted to the Illinois EPA as identified in Condition IV.I.2.

9. The Permittee shall report the surveyed elevation, as required by Condition IV.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 IV.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 IV.C.1, referenced to MSL, is to be reported annually. This measurement shall be taken during the first semi-annual sampling event (Storet 72020).

11. Information required by Conditions IV.I.2, IV.I.3, IV.I.9 and IV.I.10 must be submitted in an electronic format. The information is to be submitted as fixed-width text files formatted as found in Attachment C of this permit, in accordance with the schedule found in Condition IV.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found at the Illinois EPA's website.

12. 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 your 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 Illinois EPA copies (i.e., Permit Section and the regional Field Operation Section). Additional paper copies must be provided upon Illinois EPA request. The LPC 592 form is not to be used for permit modification requests.

13. 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.

14. The Permittee shall submit a written report semi-annually to the Illinois EPA, in accordance with the schedule found in Condition IV.I.2, which discusses the effectiveness of the corrective action program and place it in the operating record for the facility. At a minimum, the report must:

    a. Address the information requirements in Conditions IV.C, IV.D, IV.E and IV.F

    b. Evaluate the effectiveness of the hydraulic control and contaminant removal from the GMZ including the information required by Condition IV.D.

    c. Provide a discussion of any improvement in the quality of groundwater beneath the facility which has resulted from the corrective action.

d. Groundwater monitoring required by Illinois EPA letters for monitoring programs specific to Solid Waste Management Units (SWMUs) within Parcels identified in Section V of the Permit shall be provided within reports required by Section V.J of the Permit.

15. If the Permittee determines that groundwater flow is not being adequately controlled, 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 IV.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 Corrective Action Program required by this permit no longer satisfies the requirements of 35 IAC 724, Subpart F, the Permittee must, within ninety (90) days, submit an application for permit modification to the Bureau of Land of the Illinois EPA 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 V: CORRECTIVE ACTION

A. INTRODUCTION

1. In accordance with Section 3004 of RCRA and Title 35 Illinois Administrative Code (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 constituents from any solid waste management unit (SWMU) at its facility in Wood River, Illinois. This section contains the conditions which must be followed to ensure these requirements are met.

2. The original RCRA permit issued by Illinois EPA for this facility on September 30, 1993 required that the facility conduct corrective action on twelve (12) solid waste management units and one product release site. On, August 9, 2001, Illinois EPA approved a plan to expand the scope of the corrective action program at the facility to include all recognized conditions at the facility. To accomplish this, the facility was broken up into ten (10) land reuse investigation parcels so that corrective action at the facility could be addressed on a parcel-by-parcel basis.

3. The facility has completed a substantial amount of corrective action efforts to date at this facility. A summary of these completed efforts, based on the date that Illinois EPA approved workplans and reports associated with these efforts, as of January 2021, is provided in Condition V.C below.

4. The Permittee must develop and implement a Corrective Measures Program to protect human health and the environment from any of the SWMUs and areas of concern at the facility.

5. 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.

6. The Permittee must provide corrective action, as appropriate, for: (1) any newly discovered SWMUs; or (2) future releases for existing SWMUs.

7. 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) Illinois EPA and USEPA guidance documents regarding such efforts; and (3) Illinois EPA letters regarding such activities.

8. The requirements of 35 IAC 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.

9. All Illinois EPA final decisions regarding RCRA corrective action at this facility are subject to the appeal provisions of the Illinois Environmental Protection Act.

10. 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.

B. CORRECTIVE ACTION REQUIREMENTS

1. Twelve (12) SWMUs and one Product Release Site (PRS) were listed in the 1993 permit as units to be addressed by the facility's corrective action program; SWMU 10 was combined with SWMU 6 in 1994; and a SWMU 14 was added in 1994 (the Former Channel Seep Area). As of January 2021, the following list of SWMUs have been identified at the facility:

SWMU/PRS	Name
SWMU 1	Closed Disposal Facility
SWMU 2	West Surge Pond
SWMU 3	Temporary Surge Basin
SWMU 4	Butene Polymerization Waste Area
SWMU 5	Pond 5 Landfill Adjacent Area
SWMU 6	Tank D-700 Area (includes SWMU 10—Field North of Tank D-700)
SWMU 7	Hydrocarbon Pool
SWMU 9	Chemfix Pad Area
SWMU 11	Pond 5 Landfill
SWMU 12	Heavy Oils Dock
SWMU 13	Mississippi River Seep Area
SWMU 14	Former Channel Seep Area
PRS 1	Marathon Pipeline Area

2. A Phase I RCRA Facility Investigation report for the units above was approved by Illinois EPA on December 2, 1996. The Permittee and Illinois EPA subsequently expanded the scope of corrective action at this facility to all recognized environmental conditions (not just the units identified above) and divided the facility into ten (10) land reuse parcels for remediation and potential redevelopment. Market conditions and environmental priorities will guide the

schedule for investigating, remediating and redeveloping these parcels. The schedule for addressing these parcels is subject to Illinois EPA review and approval. A map of the BP Riverfront land reuse parcels is presented in Figure B-1 of Attachment B to this permit; these parcels are also identified as the following:

Parcel	Name
A	Barge Maintenance Area (BMA), North Channel Tract Areas (NCT), Butene Polymerization Waste Area (BPWA), South Channel Tract Area (SCT), Southwest Channel Tract Area (SWCT)
B	Light Oils Dock (LOD)
C	Former Channel Seep Area (FSCA)
D	Closed Disposal Facility (CDF)
E	Pond 1 Landfill
F	Temporary Surge Pond (TSP)
G	Mississippi River Seep Area (MRSA)
H	East Surge Pond (ESP)
I	West Surge Pond (WSP)
J	Permitted Nonhazardous Landfill (PNWL)

3. The Permittee plans to complete corrective action for the soil and groundwater at the facility through the parcel land reuse investigation remediation process. The goal in following this process is to obtain a no further action (NFA) determination for the entire parcel and address all recognized environmental conditions in the parcel. If the Permittee determines that redevelopment is not likely to occur in a given parcel, the Permittee may focus only on the SWMUs and PRS within the parcel. If the potential for redevelopment of the parcel becomes viable in the future, the Permittee may pursue an NFA determination for all recognized environmental conditions within the parcel at that time. The general process for investigation/remediation of each parcel (or for individual SWMUs/PRSs) is as follows:

   a. Current conditions will be established for the parcel.

   b. An Investigation Work Plan incorporating the current conditions will be developed and submitted to Illinois EPA for review and approval to investigate data gaps required to properly characterize the area.

   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 IV of this permit.

d. The results of investigation will be analyzed; as well as all other data remediation objectives will be developed in accordance with 35 IAC 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 Items (c) and (d) above will be submitted to Illinois EPA for review and approval. 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 the results of its review of the Investigation Report, 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 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 Illinois EPA, until 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 No Further Action letter can be issued. Plans for establishing the required barrier/institutional control must be submitted to 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.

4. Plans and reports associated with all aspects of corrective action at this facility must be submitted to Illinois EPA before being implemented.

5. The investigation efforts conducted at each area must be sufficient to characterize contamination associated with all the identified recognized environmental conditions present in the area. The parcel investigations will focus on soil and perched water.

C. SUMMARY OF CORRECTIVE ACTION EFFORTS COMPLETED TO DATE

1. As of February 2021, the Permittee has obtained NFA for the specific media at the following parcels and SWMUs:

Parcel/ SWMUs Present in Parcel	NFA and Media
Parcel A—Butene Polymerization Waste Area/SWMU 4	NFA letter for soil and perched-groundwater only was issued on March 8, 2005 (Log No. B-145-CA-46). ELUC was established for Parcel A (see Conditions IV.C. 2 and 3 below).
Parcel B—Light Oils Dock/SWMU 6, SWMU 10	NFA Letter for soils-only was issued by IEPA on October 22, 2009 (Log No. B-145-CA-69). Exclusion of perched-groundwater in this parcel was approved on 12/30/2004 (B-145-CA-48).
PRS 1	NFA letter for soils-only was issued for PRS 1 on December 2, 1996 (B-145-CA-1) (see Condition IV.D below).

2. As of February 2021, 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 Riverfront Facility

Area Name	Size (Acres)	Parcel ID for Site	Date of NFA Letter	County Recorder's No. /Date Recorded	PIN/TAX ID
Parcel A	64.8-AC (A-1= 63.92-AC; A-2 = 0.88-AC)	Parcel A, which includes Parcel A-1 and Parcel A-2	3/8/2005 (Log No B-145-CA-46)	2007R32644 June 15, 2007	PIN: 19-1-08-28-00-000-009; 19-1-08-28-00-000-009-.001; 19-1-08-29-00-000-07

3. ELUCs have been established in accordance with 35 IAC Part 742 as part of the completed corrective action efforts at this facility as summarized in Condition V.C.2 above. The ELUC places following restrictions on future activities at the facility:

a. Parcel A
ELUC requires following restrictions: potable groundwater use restriction; no residential use; construction worker health and safety plan for any excavation required; limited access to soils in this area and requirements for soil screening of VOCs and documentation requirements; an engineered barrier at a location which requires 3' of clean soil (including following sampling locations: PASW0702BH02;PALD0109BH01;PASW0702BH06). Note: Certified copy of recorded ELUC was accepted by IEPA on January 14, 2008.

4. At Parcel E (Pond 1 Landfill), the Pond 1 Landfill was closed as a hazardous waste landfill in August 1995;post-closure care is being carried out in accordance with requirements of Section III of this permit.

D. SUMMARY OF CORRECTIVE ACTION EFFORTS STILL TO BE COMPLETED

1. A brief summary of corrective action efforts still to be completed at each parcel, as of June 2023, is presented by the table below. (Please note this is not a complete listing of SWMUs at the subject facility). In addition, for all Parcels and SWMUs, Corrective Action efforts must be completed in accordance with requirements of this permit and corrective action letters issued by Illinois EPA for all media of concern.

Parcel/ SWMUs Present in Parcel	Corrective Action Efforts to be Completed
Parcel A—Butene Polymerization Waste Area/SWMU 4	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 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/ SWMUs Present in Parcel	Corrective Action Efforts to be Completed
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 the Illinois EPA) and meet the corrective requirements.
Parcel G—Mississippi River Seep Area (MRSA)/ SWMU 13	Land Reuse Investigation activities in accordance with the Illinois EPA'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.
Parcel H—East Surge Pond (ESP)/ SWMU 8	The ESP must be operated in accordance with requirements of Section II of this permit. A proposed schedule to close the ESP in accordance with Condition II.F of this permit must be submitted to the Illinois EPA within one (1) year of the effective date of this permit. The closure of the ESP must commence prior to the expiration date of this permit as required in Condition II.F.1 of this permit, unless otherwise approved of an alternative closure commencement date by the Illinois EPA. If clean closure can't be achieved, this unit must be closed as a landfill and provided necessary post-closure care.
Parcel I—West Surge Pond (WSP)/ SWMU 2	The WSP is currently used for temporary storage of nonhazardous wastewaters. A current conditions report and RCRA Investigation workplan for this area must be submitted.
Parcel J—Permitted Non-Hazardous Waste Landfill/ SWMU 5/ SWMU 11	BP is currently providing post-closure care (maintenance of final cover, leachate management, and groundwater monitoring) in accordance with the Illinois EPA letter of April 27, 2005 and associated modifications. BP submits groundwater reports quarterly. Any additional corrective action activities must be conducted as necessary to meet the corrective action requirements.
SWMU 7—Hydrocarbon Pool	Further investigation and remediation must be conducted to meet the conditions of the Illinois EPA's Corrective Action approval letters for this unit. BP is awaiting USACE, WRDLD, and IDOT access authorization for this area to conduct further required corrective action activities. Any remaining corrective action activities must be conducted to meet the corrective action requirements.
PRS-1—Marathon Pipeline Area	BP must continue to monitor groundwater in accordance with corrective action provisions of this permit.
Shallow Groundwater Beneath Facility	BP must continue to address shallow groundwater at the site to meet the corrective action requirements of this permit.
Groundwater Beneath Facility in the American Bottoms Aquifer	BP must continue to address the groundwater at the site in accordance with Section IV of this permit.

2. Within ninety (90) days of the date of the permit, the Permittee must submit a document summarizing the next step for the corrective action and proposed schedule for addressing each Parcel/SWMU listed in Condition V.D.1 above as a corrective action submittal.

E. 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 E to this permit. 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 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);

   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 Corrective Measures Program described in Attachment E to this permit consists of five 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 Illinois 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. For units closed as landfills:

a. The Phase II report must include a plan for the construction of a final cover system as well as a post-closure care plan. The post-closure care plan must include provisions for (1) inspecting the final cover; (2) monitoring the groundwater and soil gas; and (3) taking corrective action if any problems are observed during the inspection/monitoring effort.

b. The Phase III report must document the construction of the approved final cover system and any other systems required for closure of the unit.

c. During Phase IV, quarterly reports must be submitted documenting the results of the inspection/monitoring efforts as well as any corrective measures taken in response to problems observed during these efforts. It will be necessary to submit plans to the Illinois EPA for review and approval to address any groundwater quality or gas migration problems.

d. The Phase V report will not be submitted until the post-closure care period has been completed. This report must demonstrate that all applicable post-closure requirements have been met and that the groundwater at the site meets the applicable standards.

7. 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.

8. The Illinois EPA's action on all CMP submittals shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

F. FINANCIAL ASSURANCE FOR CORRECTIVE ACTION

1. The current cost-estimate for completing corrective action and groundwater remediation, including 20% contingency, at the BP Riverfront provided by the facility is $10,359,514 in 2020 dollars as described in Attachment G. 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 VI.C.1 (c).

2. 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 V.E.1 above. 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 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.

3. At least once per year but no later than January 30 of each year, starting in 2024, the Permittee shall submit an updated estimate of the cost for completing corrective action at this facility to reflect the recent results of the program and the impacts these results have on determining what is needed to complete corrective action at the facility (such updates are also necessary to take into account such things as the completion of investigation efforts, the need for or completion of remediation, etc.). This estimate shall be submitted as a Class 1* modification request and contain the following detailed information in support of the overall cost estimate:

   a. A brief description of the various tasks which must be carried out to complete corrective action at the facility;

   b. The estimated cost of completing each identified task;

   c. A 20% adjustment for contingencies to the total estimated cost;

   d. An identification of the resources needed to complete each task (type and amount) and the unit cost of each required resource;

e. Justification for all values used in the developing all aspects of the estimate.

4. The cost estimate must be supported by a detailed breakdown of the estimated third-party cost for completing each required task. The amount of the various resources needed to complete each task must be provided, as well as the unit cost of these resources and an adjustment for contingencies. Justification for all data used in these calculations must also be provided.

5. The financial assurance requirements of 35 IAC 724.201 must also be met for any investigative or corrective action efforts carried out in accordance with Conditions G.1 or I below. Detailed cost estimates must be developed for any activities carried out under this Section and must accompany any workplan/report submitted to Illinois EPA for review and approval. Appropriate documentation of financial assurance in at least the amount of the approved cost estimate must be submitted to Illinois EPA within sixty (60) days after the cost estimates are approved.

6. All cost estimates prepared under the requirements of Conditions V.F.1 through V.F.5 above must be submitted as a Class 1* permit modification request in accordance with 35 IAC 703.281.

G. REQUIREMENTS FOR ADDRESSING NEWLY- IDENTIFIED SWMU(s) AND AREA(s) OF CONCERN (AOCs)

1. The Permittee shall notify the Illinois EPA BOL Permit Section in writing of any newly-identified SWMU(s) and/or Area(s) of Concern (AOCs) discovered during the course of groundwater monitoring, field investigations, environmental audits, or other means, no later than thirty (30) calendar days after discovery. The notification shall provide the following information, as available:

   a. The location of the newly-identified SWMU/AOC in relation to other SWMUs on a scaled map or drawing;

   b. The type of unit 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-discovered SWMU(s)/AOC(s) to the environment.

3. Within ninety (90) calendar 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) calendar days of receiving such written notification or in 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. The Permittee must implement a Corrective Measures Program, as necessary, to properly address any contamination encountered during the assessment. Guidance regarding the implementation of this program will be provided at the time Illinois EPA notifies the Permittee of the need for such a program.

H. FUTURE RELEASES FROM SWMUs

There exists a potential that a release may occur in the future from SWMUs identified in the 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 V.G.1 above. Additional investigation and, as necessary, corrective measures efforts at this SWMU must be carried out in accordance with the procedure set forth in Subsection E above. The results of all corrective action efforts required by this condition must meet the requirements of 35 IAC 724.201.

I. INTERIM MEASURES/STABILIZATION

The Permittee shall carry out interim measures/stabilization activities in order to prevent or mitigate the migration of a release of hazardous substances into the environment, and to provide adequate protection to public health, welfare 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 RCRA Facility Investigation (RFI) or a Corrective Measures Study (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 corrective measures study.

2. Prior to implementing any interim measures, the Permittee must submit detailed information regarding the proposed interim measure to the Illinois EPA's BOL Permit Section 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 Illinois EPA review and approval of the RFI Reports and the Corrective Measures Plan, 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.

J. REPORTING REQUIREMENTS

1. A "Corrective Action Progress Report (formerly referred to as Riverfront RFI Progress Report by BP Products, North America)" shall be submitted summarizing the corrective action efforts completed at each parcel 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**

** The fourth quarter report must be combined with the Annual "Corrective Action Progress Report" (due by March 1 of every year)

   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; and

      (3) A summary of the activities anticipated to be carried out during the next quarter.

   c. The "MRSA Corrective Measures Quarterly Report" for each quarter, required by the Illinois EPA's letter dated January 12, 2006 and the "90-Day SWMU 7 Status Reports" shall be incorporated into each quarterly Corrective Action Progress Report and are no longer required to be submitted as separate reports.

   d. The quarterly groundwater monitoring reports required by Attachment A of the December 15, 2006 letter (Log Nos. B-145; and 2001-075) for the

landfill identified as the PNWL shall be incorporated into each quarterly Corrective Action Progress Report; and the PNWL annual groundwater monitoring reports required by the December 15, 2006 letter shall be incorporated into the Quarterly Corrective Action Progress Report. Separate reports are no longer required to be submitted.

e. CDF landfill reporting requirements in Illinois EPA letters dated September 13, 2002 (Log No. B-145-CA-23), and as modified in Illinois EPA letters dated November 18, 2008 (B-145-CA-77), and September 3, 2009 (Log No. B-145-CA-71), shall be incorporated into the Quarterly and Annual Corrective Action Progress Reports in accordance with the schedule in Condition V.J.1.a (August 1 and March 1 submittal dates for the CDF). This includes the CDF Second and Fourth Quarter Semi-Annual Groundwater Monitoring Reports and the "Annual CDF Operations, Maintenance and Monitoring Report" (referred to as Annual CDF OM&M/Liquid Level Report by BP Products North America Inc.). Separate reports are no longer required to be submitted.

f. The LOD Area reporting required as part of the GMZ approval in the April 4, 1994 Illinois EPA letter (Log No. B-145) and re-evaluation of the GMZ approval letter dated April 24, 2002 (Log No. B-145-CA-31) shall be incorporated into the Quarterly Corrective Action Progress Reports. Separate reports are no longer required to be submitted.

g. An Annual Corrective Action Progress 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). Among other things, 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. The following shall be incorporated into the Annual Corrective Action Progress Report and separate reports are no longer required: The corrective action progress report for the fourth quarter (October – December of every year).

2. 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 a qualified 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.

SECTION VI: SPECIAL CONDITIONS

A. REQUIRED FORMS

ii. 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.

iii. The permittee shall submit current 39(i) certifications and supporting documentation with all applications for a permit.

Note: If the applicant wants additional staff to be able to send in future modifications, certifications, etc. those individuals should also send in an individual 39i 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 RCRA Post-Closure Renewal Permit.

   b. All permit applications and permit modification requests.

   c. All Illinois EPA responses to modification requests made to the RCRA Post- Closure Permit (Log No. B-145R2).

C. COMPLIANCE SCHEDULE

1. Cost Estimates: Within ninety (90) days of the effective date of this Permit,

   a. The Permittee shall submit revised post-closure cost estimates and financial assurance to meet the required minimum of thirty (30) years post-closure care costs for the Pond 1 Landfill, as stated in Condition III.H. as a Class 1* permit modification.

   b. The Permittee shall include the corrective action cost estimates for Parcel J/ SMWU 5 - the costs associated with the post-closure care of the Permitted Non-Hazardous Waste Landfill.

   c. The Permittee must provide 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

90 days of the date of the effective date of this permit, as required in accordance with Title 35 Illinois Administrative Code (35 IAC) 724.201.

d. All estimated costs must be updated annually beginning with Year 2024.

2. Survey Plat: Within ninety (90) days of the effective date of this Permit,

a. The Permittee shall file the certified survey plat and record of the type/location/quantity of material in the Pond 1 Landfill with the Illinois EPA, the County Recorder, and any local zoning authority or authority with jurisdiction over local land use.

b. The Permittee must provide to the Illinois EPA a copy of the certified survey plat (at least in a size of 11" X 17" drawing) that includes the documents that the survey plat was placed in; with the County Recorder's Office and the local zoning authority.

3. Within ninety (90) days of the effective date of this Permit, the Permittee shall submit revised page(s) as a Class 1* modification for Illinois EPA review and approval, which revises Section C.8 of the approved permit application to identify the monitoring wells specific to each monitoring program (i.e., identify the wells which must be monitored for the PNWL Program) and their groundwater quality.

4. Within ninety (90) days of the effective date of this Permit, the Permittee shall submit a modification to the Corrective Action Section (Section V) of the Permit, for Illinois EPA review and approval, which provides written notification to any applicable off-site property owner that a GMZ for the Riverfront facility encompasses their property. This documentation will serve to verify off-site property owners are aware of a GMZ being present on their property.

5. Within one (1) year of the effective date of this Permit, the Permittee shall submit a proposed schedule for implementing closure activities for the East Surge Pond (ESP) as required by Condition II.F.1 as a Class 1* modification for Illinois EPA review and approval. In accordance with Condition II.G.3, a revised cost estimate for conducting closure of the ESP must be submitted with the proposed schedule.

6. Any proposed corrective actions to address leachate at the Pond 1 Landfill as a result of Pond 1 Landfill assessment as described in Sections III. E.3.4 and III. E.4.3 of the approved permit application must be submitted as a permit modification request in accordance with Condition III.G.1 for Illinois EPA's review and approval. The permittee must verify that automated alarm system is in place for leachate detection as required in Condition III.E.7.(c) of the Permit. In addition, as a part of the study, an Action Leakage Rate (ALR) is recommended to be determined for Pond 1 Landfill for corrective action purposed.

7. Within thirty (30) days of the date of this permit, the Permittee must submit a draft deed restriction regarding the Pond 1 Parcel with a Plat of Survey, which will be attached to the deed to the property as described in Condition II.B.6.(d) of this permit as a Class 1* permit modification request. Once the draft deed restriction is approved by Illinois EPA, the deed restriction must be filed with the Madison County Recorder's office. A certified copy of the recorded deed restriction with a Plat of Survey must be submitted to Illinois EPA as a Class 1 permit modification request within thirty (30) days of the Illinois EPA's approval of the draft document.

8. Within ninety (90) days of the date of the permit, the Permittee must submit a document summarizing the next step for the corrective action and proposed schedule for addressing each Parcel/SWMU listed in Condition V.D.1 of this permit as a corrective action submittal.

9. Provide a summary in the next semi-annual groundwater monitoring report required by Section IV which discusses the results of the recent well integrity efforts performed site-wide at the Riverfront facility, and explain specific to wells G401 and G030 why the changes in well depths and/or screened interval occurred since the previous survey. If reasons are unknown, submit a workplan as a Class 1* permit modification within ninety (90) days to investigate the well integrity.

SECTION VII: 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 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. (Title 35 Illinois Administrative Code (35 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 Section 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 Environmental Protection Act and is grounds for enforcement action; permit revocation or modification; or for denial of a permit renewal application. (35 IAC 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 includes 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 Appendix A of 35 IAC 721. 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 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 at least 15 days prior to 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 IACs 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. i. The Illinois EPA has inspected the modified or newly constructed facility and finds it is in compliance with the condition of the permit; or

ii. If, within 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 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 health or the environment. Any such information shall be reported verbally within 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 hazardous waste management 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 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 day written notice requirement in favor of a written report within fifteen days. (35 IAC 702.152(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. REPORTING REQUIREMENTS. The following reports required by 35 IAC 724 shall be submitted in addition to those required by 35 IAC 702.152 (reporting requirements):

a. Manifest discrepancy report: if a significant discrepancy in a manifest is discovered, the permittee must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within 15 days after receiving the waste, the permittee must immediately submit to the Illinois EPA a

letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue. (35 IAC 724.172(b))

b. Unmanifested waste report: The permittee must submit to the Illinois EPA within 15 days of receipt of unmanifested waste an unmanifested waste report on EPA form 8700-13B. (35 IAC 724.176)

c. Annual report: an annual report must be submitted covering facility activities during the previous calendar year. (35 IAC 724.175)

24. 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 Illinois EPA
Bureau of Land
Permit Section - #33
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

25. 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 702.151)

26. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 IAC 702.103 and 35 IAC 161.

27. 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. Waste analysis plan as required by 35 IAC 724.113(b) and this permit.

b. Personnel training documents and records as required by 35 IAC 724.116(d) and this permit.

c. Contingency plan as required by 35 IAC 724.153(a) and this permit.

d. Closure plan as required by 35 IAC 724.212(a) and this permit.

e. Cost estimate for facility closure as required by 35 IAC 724.242(d) and this permit.

f. Operating record as required by 35 IAC 724.173 and this permit.

g. Inspection schedules as required by 35 IAC 724.115(b) and this permit.

28. WASTE MINIMIZATION. The Permittee shall certify at least annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that one generates to the degree determined by the Permittee to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 IAC 724.173(b)(9).

GENERAL FACILITY STANDARDS

29. NOTICE OF WASTE FROM A FOREIGN SOURCE. The permittee who has arranged to receive hazardous waste from a foreign source must notify the Illinois EPA in writing at least four weeks in advance of the date the waste is expected at the facility. (35 IAC 724.112(a))

30. NOTICE OF WASTE FROM OFF-SITE. The Permittee who receives hazardous waste from an off-site source (except where the Permittee is also the generator), must inform the generator in writing that the permittee has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the facility operating record. (35 IAC 724.112(b))

31. GENERAL WASTE ANALYSIS. The Permittee shall comply with the procedures described in the approved waste analysis plan. (35 IAC 724.113)

32. SECURITY. The Permittee shall comply with the security provisions of 35 IAC 724.114(b) and (c).

33. 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).

34. PERSONNEL TRAINING. The Permittee shall conduct personnel training as required by 35 IAC 724.116 and shall maintain training documents and records as required by 35 IAC 724.116(d) and (e).

35. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE. The Permittee shall comply with the requirements of 35 IAC 724.117.

36. 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). This requirement is applicable to storage areas used on or after this section was amended at 44 Ill. Reg. 15263, effective September 3, 2020.

PREPAREDNESS AND PREVENTION

37. 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)

38. 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.

39. 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)

40. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee shall maintain access to the communications or alarm system as required by 35 IAC 724.134.

41. REQUIRED AISLE SPACE. The Permittee shall maintain aisle space as required by 35 IAC 724.135 and National Fire Protection Association (NFPA) requirements.

42. 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.

CONTINGENCY PLAN

43. IMPLEMENTATION OF PLAN. The provisions of the contingency plan must be carried out by the Permittee immediately whenever there is a fire, explosion or release of hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 IAC 724.151(b)). At a minimum, this includes any fire or explosion which occurs in an area where hazardous waste is being managed (treated, stored or disposed) (35 IAC 703.241). Within 15 days of any incident that requires implementation of the contingency plan, the owner or operator must submit a written report to the Illinois EPA as required by 35 IAC 724.156(j).

44. COPIES OF PLAN. A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and state and local emergency response teams as required by 35 IAC 724.153.

45. AMENDMENTS TO PLAN. The Permittee shall review and immediately amend, if necessary, the contingency plan, as required by 35 IAC 724.154.

46. EMERGENCY COORDINATOR. A trained emergency coordinator shall be available at all times in case of an emergency as required by 35 IAC 724.155 and 724.156.

MANIFEST SYSTEM RECORD KEEPING AND REPORTING

47. MANIFEST SYSTEM. The Permittee shall comply with the manifest requirements of 35 IAC 724.171, 724.172 and 724.176.

48. OPERATING RECORD. The Permittee shall maintain a written operating record at the facility in accordance with 35 IAC 724.173.

49. ANNUAL REPORT. The Permittee shall prepare and submit an annual report to the Illinois EPA prior to March 1st of each year in accordance with the requirements of 35 IAC 724.175.

CLOSURE

50. PERFORMANCE STANDARD. The Permittee shall close the facility as required by 35 IAC 724.211 and in accordance with the approved closure plan.

51. AMENDMENT TO CLOSURE PLAN. The Permittee must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 IAC 724.212(c).

52. NOTIFICATION OF CLOSURE. The Permittee shall notify the Illinois EPA at least 60 days prior to the date it expects to begin closure. (35 IAC 724.212(d))

53. TIME ALLOWED FOR CLOSURE. After receiving the final volume of hazardous waste, the Permittee shall treat or remove from the site all hazardous waste and complete closure activities in accordance with the schedule(s) specified in the closure plan. (35 IAC 724.213)

54. DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT. When closure is completed, the Permittee shall decontaminate and/or dispose of all facility equipment and structures as required by the approved closure (35 IAC 724.214) plan.

55. CERTIFICATION OF CLOSURE. When closure is completed, the Permittee shall submit certification to the Illinois EPA in accordance with 35 IAC 724.215 that the facility has been closed as specified by the approved closure plans.

56. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 IAC 724.242, must be:

a. Adjusted for inflation 60 days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Section 724.243. However, if the owner/operator is using the financial test or corporate guarantee, it must be updated for inflation within 30 days after close of the firm's fiscal year, and before the submission of updated information to the Illinois EPA as specified in Section 724.243(f).

b. Revised no later than 30 days after the Illinois EPA has approved a request to modify the closure plan, if the change in the closure plan increases the cost of closure.

c. Kept on record at the facility and updated. (35 IAC 724.242)

d. Made immediately available to Illinois EPA personnel upon Illinois EPA request.

e. Maintained at the value approved by Illinois EPA with annual adjustment for inflation and cannot be decreased unless approved by the Illinois EPA in a permit modification.

57. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee shall demonstrate compliance with 35 IAC 724.243 by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the previous Permit Condition. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.243.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Illinois EPA
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

58. LIABILITY REQUIREMENTS. The Permittee shall demonstrate continuous compliance with the requirements of 35 IAC 724.247 and the documentation requirements of 35 IAC 724.251.

59. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

LAND DISPOSAL RESTRICTIONS

60. DISPOSAL PROHIBITION. Any waste identified in 35 IAC Part 728, Subpart C, or any mixture of such a waste with nonrestricted wastes, is prohibited from land disposal unless it meets the standards of 35 IAC Part 728, Subpart D, or unless it meets the requirements for exemptions under Subpart C. "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, or vault intended for disposal.

61. DILUTION PROHIBITION. The Permittee shall not in any way dilute a restricted waste or residual from treatment of a restricted waste as a substitute for adequate treatment in order to achieve compliance with 35 IAC 728, Subpart D (35 IAC 728.103).

62. WASTE ANALYSIS.

    a. The Permittee must test his waste or extract developed, using the test method identified in Appendix I of 40 CFR Part 268, or use knowledge of the waste, to determine if the waste is restricted from land disposal.

    b. For any waste with treatment standards expressed as concentrations in the waste extract, the Permittee must test the treatment residues or an extract of such residues developed using the test method described in Appendix I of 40 CFR Part 268, to assure that the treatment residues or extract meet the applicable treatment standard.

    c. If the treatment residues do not meet the treatment standards, or if the Permittee ships any restricted wastes to a different facility, the Permittee shall comply with the requirements applicable to generators in 35 IAC 728.107 and 728.150(a)(1).

63. STORAGE RESTRICTIONS

    a. The Permittee shall not store hazardous wastes restricted from land disposal under 35 IAC Part 728, Subpart C unless such wastes are stored only in containers or tanks, or containment buildings on-site, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, as required by 35 IAC 728.150.

    b. The Permittee must comply with the operating record requirements of 35 IAC 724.173.

64. NEW DETERMINATIONS OF PROHIBITED WASTES

Wastes which are prohibited from land disposal under 35 IAC Part 728, Subpart C, or for which treatment standards have been established under 35 IAC 728, Subpart D, subsequent to the date of issuance of this permit, shall be subject to the conditions number 59 through 62 above.

POST-CLOSURE

65. 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.

66. 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).

67. 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 60 days prior to each anniversary of the date on which the first post-closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year. This permit condition is applicable throughout the entirety of the post-closure care period.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of the post-closure plan.

c. Kept on record at the facility and updated. (35 IAC 724.244).

d. Maintained at the value approved by Illinois EPA with annual adjustment for inflation during the post-closure care period and cannot be decreased unless approved by the Illinois EPA in a permit modification.

68. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 and 703.241(a)(2) by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the Permit Condition 67. This financial assurance shall be maintained at such value throughout the post-closure care period and shall be adjusted accordingly pursuant to Permit Condition 67. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Illinois EPA
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

69. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

SECTION VIII: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA 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
II.B.2	Notify Illinois EPA if the wastewater/ leachate sent to ESP is found hazardous	Immediately
II.D	Notify Illinois EPA of unknown level drop or leaking dike	Within 7 days after problem is detected
II.F.1	Submit to the Illinois EPA of a proposed schedule for the commencement of closure activities to close the ESP	Within 1 year of the effective date of this permit.
II.F.2	Notify Illinois EPA closure of ESP begins and submit a sampling and analysis plan.	180 days prior to date of closure of ESP begins
II.F.5	Submit Certification of Closure	Within 60-day of completion of closure
III.F.3 -6	Submit to the Illinois EPA the Leachate Data Quarterly Monitoring Report; and additional data as per the condition	May 1; August 1; Nov 1; and Feb 1 of each year
III.F.7	Submit Class 1* Modification Request when previously undetected parameter in leachate is detected.	Within 30 days of leachate analysis.
III.G.2	Request permit modification to remove the liner or hazardous wastes	Prior to removing the liner or wastes
III.G.4.	Certify to the Illinois EPA that post-closure was performed in accordance with the approved post-closure plan	Within 60 days of the completion of the post-closure care period
IV.C.4	Notify Illinois EPA if any of the wells identified in Condition IV.C.1 and IV.C.2 are damaged, or the structural integrity has been compromised	Within 30 days of the date the damage is detected

Condition	Action	Due Date
IV.C.6	Provide Illinois EPA boring logs, construction diagrams, and data sheets from new or replacement wells	Within 30 days of the date installation is complete
IV.I.2	Groundwater monitoring data required each quarter, and additional data required in Conditions IV.E., IV.F, and IV.H.	Semi-annually
IV.I.3	Collect quarterly groundwater surface elevation data	Semi-annually
IV.I.4	Quarterly groundwater withdrawal rates	Semi-annually
IV.I.5	Gradient control measurements.	Semi-annually
IV.I.6	Statistical evaluations, as required by Condition IV.H	Every 5-years in GMZ Evaluation
IV.I.7	Groundwater flow rate and direction in the uppermost aquifer.	Semi-annually
IV.I.8	Collect groundwater samples per Condition IV.E.8 and depict the extent of dissolved contamination to define the extent of contamination.	Semi-annually
IV.I.9	The surveyed elevation of the top of well casing.	Every 5 years.
IV.I.10	Elevation of the bottom of each monitoring well.	Annually during the second quarter sampling event.
IV.I.11	Electronic Reporting	Semi-annually
V.F.3	Submit annual Cost Estimate for Corrective Action	By January 30 each year
V.G.1	Notify Illinois EPA of Newly Identified SWMU/AOC	Within 30-day of discovery
V.G.3	Submit to the Illinois EPA a SWMU Assessment Plan	Within 90 days of Illinois EPA's request
V.H.1	Notify Illinois EPA of a new releases from a SWMU	Within 30 days of such discovery

Condition	Action	Due Date
VII.11	Information requested by Illinois EPA and copies of records required to be kept by this permit.	Reasonable time.
VII.14	Notify Illinois EPA of planned physical alterations or additions	At least 15 days prior to planned change
VII.16	Notify Illinois EPA of changes which may result in permit noncompliance	Advanced written notice to the Illinois EPA
VII.17	Application for permit modification indicating permit is to be transferred.	No later than 90 days prior to scheduled change in ownership
VII.19	Submission of any information required in a compliance schedule.	As per Section VI.C of the renewal permit
VII.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
VII.21	Report all other instances of noncompliance	March 1 of each year along with Annual Report
VII.29	Notify Illinois EPA in writing of expected receipt of hazardous waste from foreign source	At least 4 weeks prior to receipt of waste.
VII.43	Implementation of Contingency Plan.	Immediately upon incident
	Notify appropriate state and local agencies with designated response roles.	Within 15 days of incident
	Notify appropriate local officials.	Immediately, if emergency coordinator's assessment indicates evacuation of local area is advisable.
	Notify the Illinois EPA via telephone if emergency coordinator determines there has been a release, fire or explosion which could threaten human health or the environment, outside the facility	Immediately after determination made

Condition	Action	Due Date
	Report to Illinois EPA details regarding incident which required implementation of contingency plan	Within 15 days after event
VII.49	Submit annual report required by 35 IAC 724.175.	March 1 of each year
VII.51	Application for permit modification amending closure plan.	Whenever there is a change that affects the closure plan
VII.52	Notify Illinois EPA of intention/ expectation of closure	At least 60 days prior to beginning closure
VII.56.a and VII.67.a	Adjust closure and post-closure cost estimates for inflation	Within 60 days before anniversary date, or within 30 days after close of the firm's fiscal year
VII.56.b and VII.67.b	Revision of closure and post-closure cost estimates	Withing 30 days of the close of the company's fiscal year
VII.59 and VII.69	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings.	Within 10 days after commencement of proceeding.

ATTACHMENT A

IDENTIFICATION OF APPROVED PERMIT APPLICATION

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

ATTACHMENT A
IDENTIFICATION OF APPROVED PERMIT APPLICATION

1. RCRA Post-Closure Draft Renewal Application dated May 17, 2018.

2. "RCRA Part B Permit Renewal Application" dated August 3, 2018 (completely replaced May 2018 draft application).

3. "Response to Illinois EPA Comments dated July 19, 2019" dated September 3, 2019.

4. "Response to Illinois EPA Comments dated May 5, 2020" dated June 19, 2020.

5. Additional Information, dated April 8, 2021.

6. Additional Information for B-145R2- Riverfront Property Renewal Application, dated June 22, 2021.

7. Supplemental Pond 1 Landfill Information to Section E, dated November 24, 2021.

8. Additional Information for B-145R2- Replacement Page, Cone of Depression (COD) Well G669/HPW61 Repairs, dated May 10, 2022.

9. Additional Information for B-145R2- Replacement Page, for Section B and Section C, dated April 12, 2023.

ATTACHMENT B

LOCATION MAP & DRAWING OF PERMITTED UNITS

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

Figure B-1: Site Location map

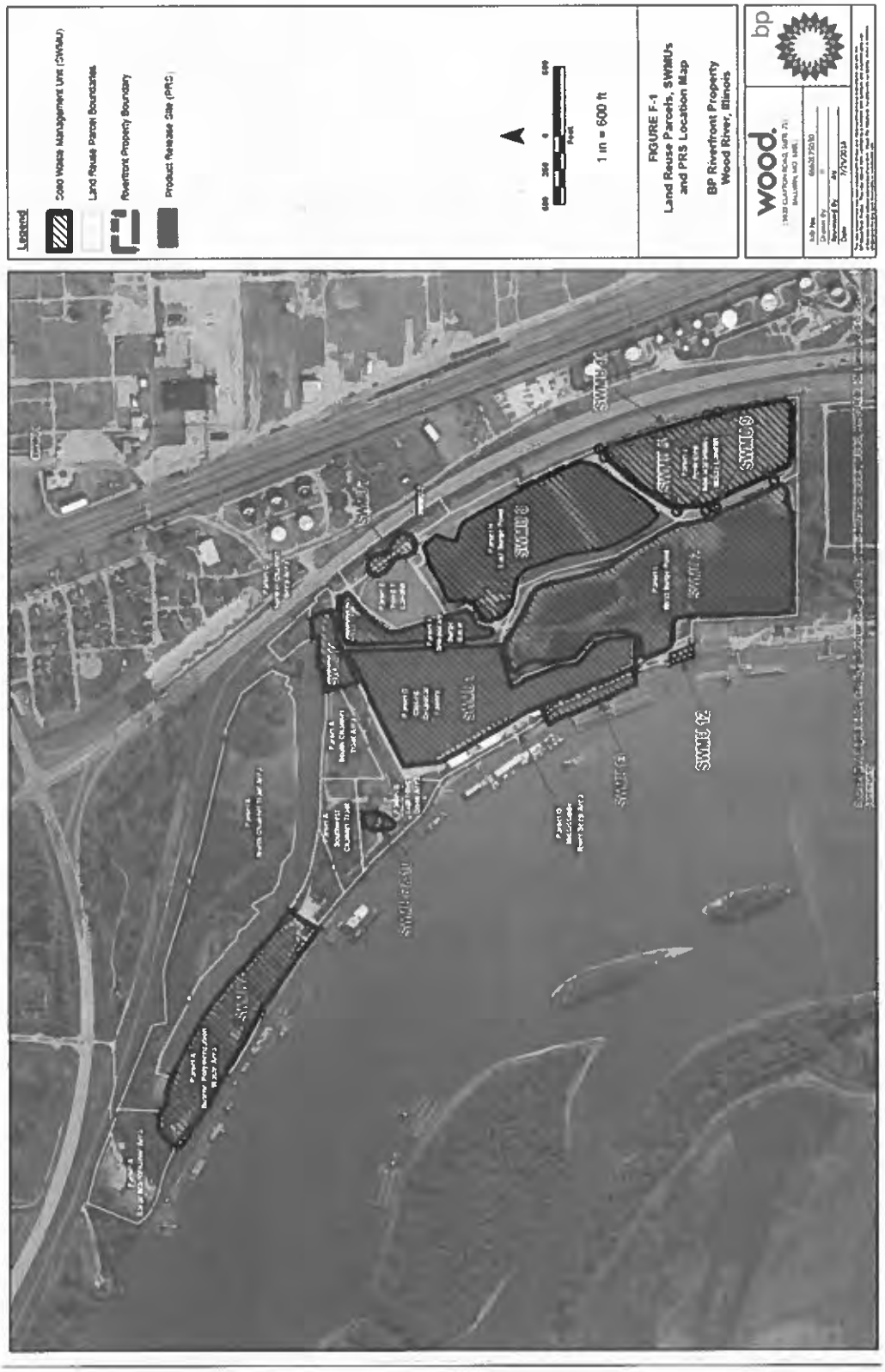


Figure B-2: Pond 1 Landfill

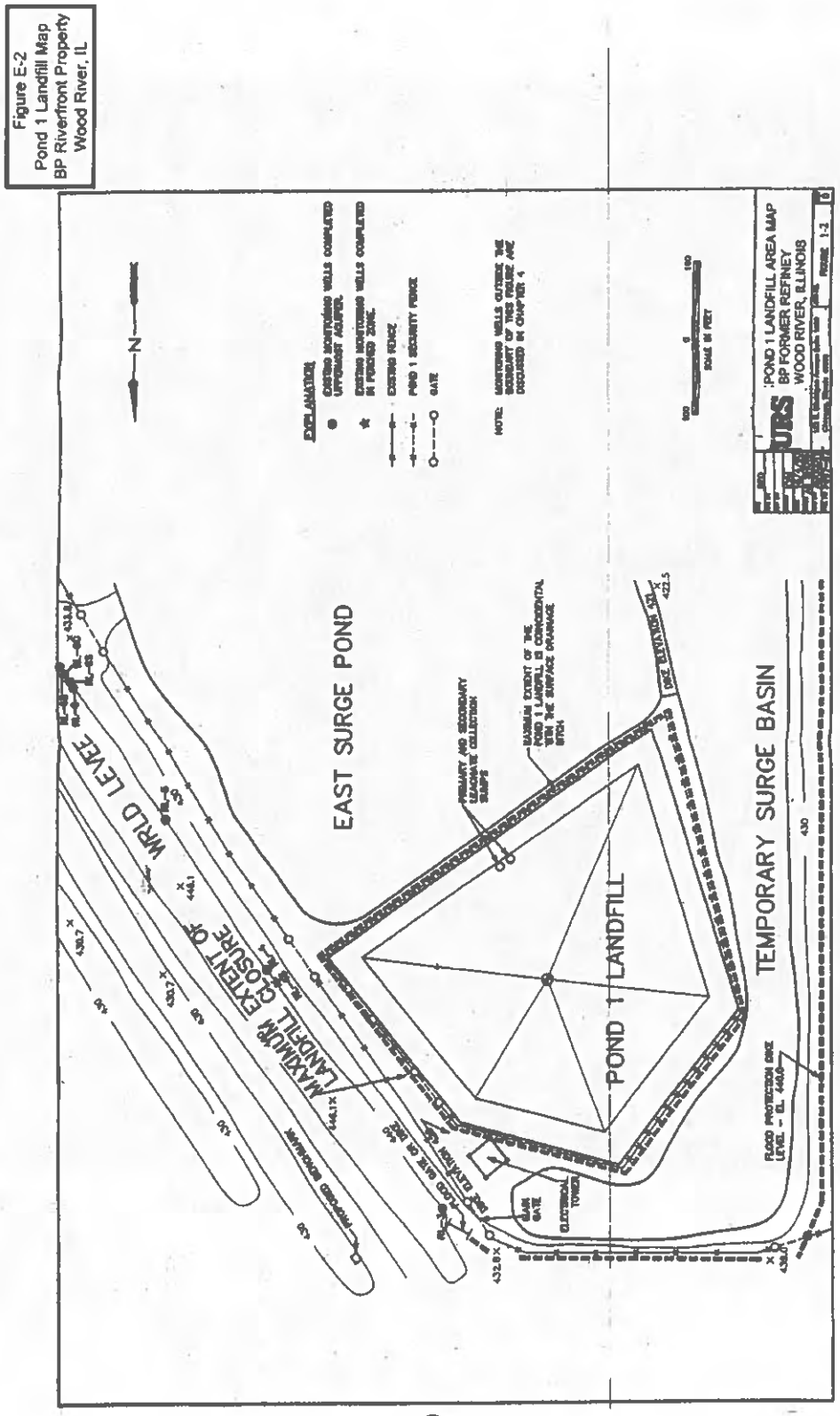


Figure B-3: East Surge Pond



ATTACHMENT C

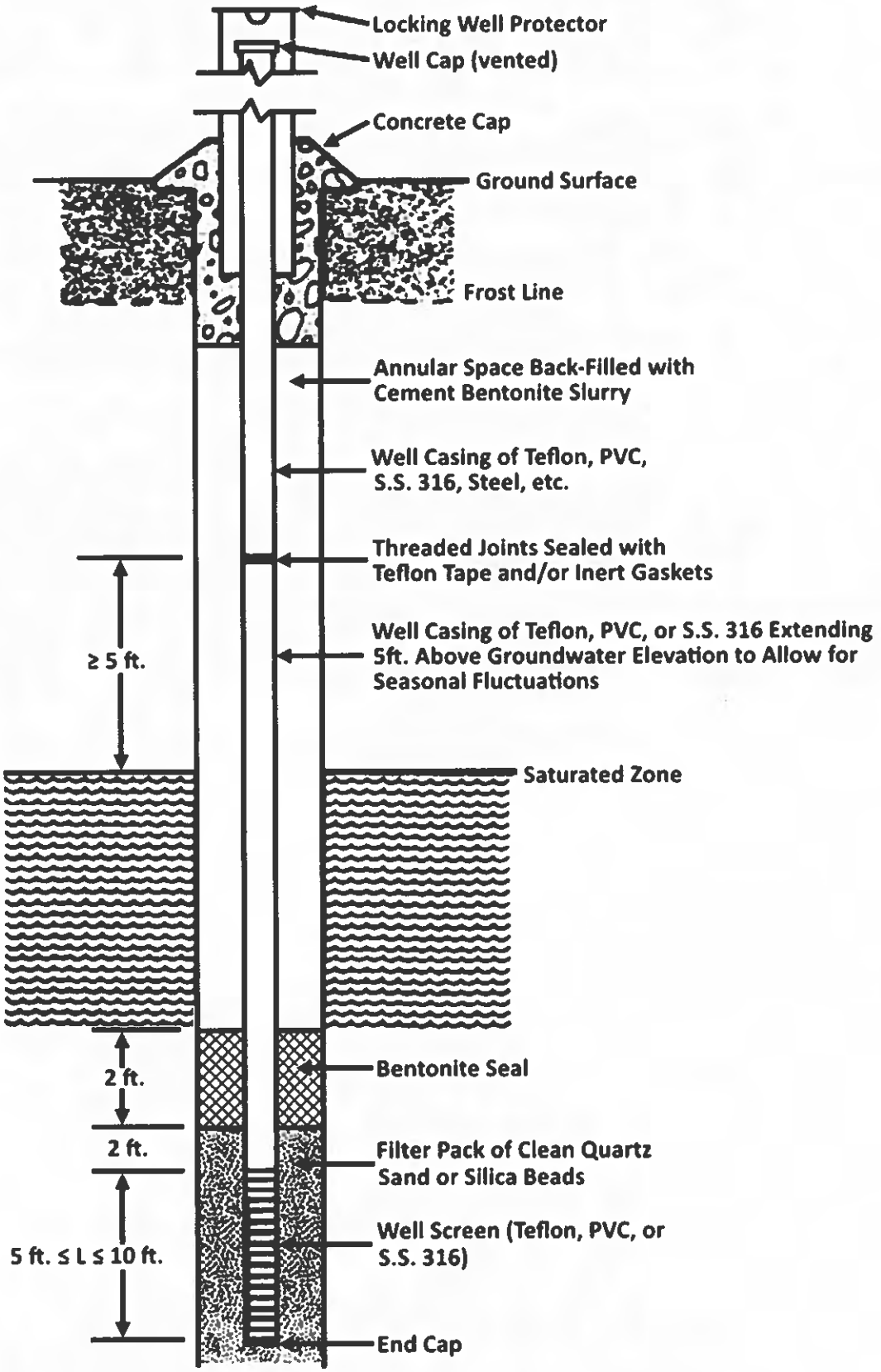
GROUNDWATER MONITORING ATTACHMENTS (Section IV)

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

Monitoring Well Diagram



ILLINOIS EPA MONITOR WELL PLUGGING AND ABANDONMENT PROCEDURES

	Well Construction		Plugging Procedure
I. Unconsolidated Sediment Wells	I-A	...if backfilled with cement grout above bentonite seal and/or sandpack:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through temi pipe. 5. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.
	I-B	...if backfilled with soft sediments (cuttings) above bentonite seal and/or sandpack:	1. Knock out and remove thin surface concrete plug, if present. 2. Re-auger entire length of well. 3. Remove well casing from re-augured borehole. 4. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 5. Insert tremi pipe (1" i.d. pvc) into augers and extend to bottom. 6. Slowly pump slurry under low pressure through tremi pipe. 7. Continue slow pumping until all formation water and the water slurry mix is displaced from top of casing. 8. Slowly withdraw tremi pipe - making sure bottom of pipe remains below pure slurry. 9. Pull a flight of augers (5" if in unstable materials and hole collapse is likely or 10" if in competent material and collapse is unlikely). 10. Top off cement slurry after each flight is removed.
	I-C	...if monitor well construction is unknown:	1. Follow procedures in I-A.
II. Bedrock Wells	II-A	...All bedrock monitor wells:	1. Cut casing off at desired depth. 2. Mix neat cement slurry (5 gal. water per 94 lb. bag cement). 3. Insert tremi-pipe (1" i.d. pvc) into well and extend to bottom. 4. Slowly pump slurry under low pressure through tremi pipe. 5. Slowly withdraw pipe making sure bottom of pipe remains below pure slurry. 6. Continue slow pumping until all formation water and the watery slurry mix is displaced from top of casing.

Illinois Environmental
Protection Illinois EPA

Field Boring Log

Page ____ of ____

County: _____

Site File No. _____ Federal ID No. _____

Site File Name: _____

Quadrangle: _____ Sec._____ T._____ R. _____

UTM (or State
Plane) Coord. N. (X) _____ E (Y): _____

Latitude ____° ____° ____°Longitude ____° ____° ____°

Drilling Location: _____

Drilling Equipment: _____

Boring No. _____ Monitoring Well No.: _____

Surface Elevation: _____ Completion Depth: _____

Auger Depth: _____ Rotary Depth: _____

Date: Start _____ Finish: _____

SAMPLES								Personnel
Graphic Log	Depth in Feet	Sample No.	Sample Type	Sample Recovery (X)	Potentiometer	N Value (Blow Counts)	OVA or HNU Readings	G – D – H – H –

Elev.	Description of Material	Remarks

Illinois Environmental Protection Illinois EPA **Well Completion Report**

Site Number: _____ County: _____

Site Name: _____ Well #: _____

State
Plane Coordinate: X____ Y____ (or) Latitude: ____° ____' ____" Longitude: ____° ____' ____" Borehole #: _____

Surveyed by: _____ IL Registration #: _____

Drilling Contractor: _____ Driller: _____

Consulting Firm: _____ Geologist: _____

Drilling Method: _____ Drilling Fluid (Type): _____

Logged By: _____ Date Started: _____ Date Finished: _____

Report Form
Completed By: _____ Date: _____

ANNULAR SPACE DETAILS

Type of Surface Seal: _____

Type of Annular Sealant: _____

Installation Method: _____

Setting Time: _____

Type of Bentonite Seal – Granular, Pellet, Slurry (Choose One)

Installation Method: _____

Setting Time: _____

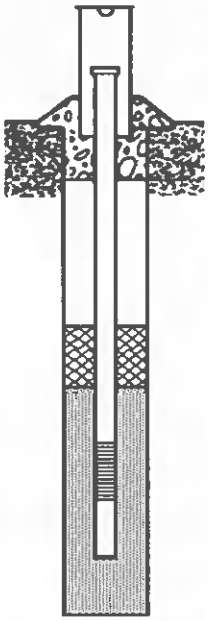
Type of Sand Pack: _____

Grain Size: _____ (Sieve Size)

Installation Method: _____

Type of Backfill Material: _____ (if applicable)

Installation Method: _____



Elevations (MSL)*	Depth (.01ft.) (BGS)	
_____	_____	Top of Protective
_____	_____	Top of Riser Pipe
_____	_____	Ground Surface
_____	_____	Top of Annular Sealant
_____	_____	Static Water Level (After Completion)
_____	_____	Top of Seal
_____	_____	Top of Sand Pack
_____	_____	Top of Screen
_____	_____	Bottom of Screen
_____	_____	Bottom of Well
_____	_____	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
River Pipe Below W.T.	SS304, SS316, PTFE, PVC, or Other
Screen	SS304, SS316, PTFE, PVC, or Other

CASING MEASUREMENTS

Diameter of Borehole (inches)	
ID of Riser Pipe (inches)	
Protective Casing Length (feet)	
Riser Pipe Length (feet)	
Bottom of Screen to End Cap (feet)	
Screen Length (1st slot to last slot) (feet)	
Total Length of Casing (feet)	
Screen Slot Size**	

**Hand-Slotted Well Screens are Unacceptable

Illinois Environmental Protection Illinois EPA

Bureau of Land • 1021 North Grand Avenue East • P.O. Box 19276 • Springfield • Illinois • 62794-9276

RCRA FACILITY GROUNDWATER, LEACHATE AND GAS REPORTING FORM

This form must be used as a cover sheet for the notices and reports, identified below as required by: (1) a facility's RCRA interim status closure plan; (2) the RCRA interim status regulations; or (3) a facility's RCRA permit. All reports must be submitted to the Illinois EPA's Bureau of Land Permit Section. This form is for use by Hazardous Waste facilities only. Reporting for Solid Waste facilities should be submitted on a separate form. All reports submitted to the Illinois EPA's Bureau of Land Permit Section must contain an original, plus a minimum of two copies.

Note: This form is not to be used with permit or closure plan modification requests. The facility's approved permit or closure plan will state whether the document you are submitting is required as a report or a modification request.

Facility Name: _____

Facility Address: _____

Site ID #: _____ Fed ID #: _____

Check the appropriate heading. Only one heading may be checked for each corresponding submittal. Check the appropriate sub-heading, where applicable. Attach the original and all copies behind this form.

☐ LPC-160 Forms

Groundwater	Leachate
___ Quarterly – Enter: 1, 2, 3, or 4	___ Quarterly – Enter: 1, 2, 3, or 4
☐ Semi-Annual	☐ Semi-Annual
☐ Annual	☐ Annual
☐ Biennial	☐ Biennial

☐ Groundwater Data (without LPC-160 Forms)

___ Quarterly – Enter: 1, 2, 3, or 4 ☐ Annual ☐ Semi-Annual ☐ Biennial

☐ Well Construction Information

- ☐ Well Construction Forms, Boring Logs and/or Abandonment Forms
- ☐ Well Survey Data (e.g., Stick-up Elevation Data)

☐ Notice of Statistically Significant Evidence of Groundwater Contamination (35 IAC 724.198)

☐ Notice of Exceedance of Groundwater Concentration Limit (35 IAC 724.199(h))

☐ Notice of Alternate Source or Error in Sampling Analysis or Evaluation of Groundwater (35 IAC 724.199(i))

☐ Gas Monitoring Reports

☐ Other (identify)

_____

_____

Formatting Requirements for the 01 Record of the Electronically Submitted Groundwater and Leachate Data

(the 01 Record portion of the LPC-160 is included for example purposes)

LLINOIS ENVIRONMENTAL PROTECTION ILLINOIS EPA
DIVISION OF LAND POLLUTION CONTROL
CHEMICAL ANALYSIS FORM

RECORD CODE: L P C S M 0 1 (1–7) TRANS CODE: A (8) Page 1 of ____

REPORT DUE DATE __ __/__ __/__ __ (36 M D Y 41) FEDERAL ID NUMBER _____

SITE INVENTORY NUMBER _____ (9–18) MONITOR POINT NUMBER (see Instructions) _____ (19–22)

REGION _____ CO. _____ DATE COLLECTED __ __/__ __/__ __ (23 M D Y 28)

FACILITY NAME _____

FOR IEPA USE ONLY

LAB _____ (29)

DATE RECEIVED __ __/__ __/__ __ (42 M D Y 47)

BACKGROUND SAMPLE (X) _____ (54) TIME COLLECTED (24 Hr. Clock) __ __ : __ __ (55 H M 58)

UNABLE TO COLLECT SAMPLE (see Instructions) _____ (59)

MONITOR POINT SAMPLED BY (see Instructions) _____ (60) _____ OTHER (SPECIFY)

SAMPLE FIELD FILTERED - INORGANICS (X) _____ (61) ORGANICS (X) _____ (62)

SAMPLE APPEARANCE _____ (63–102)

COLLECTOR COMMENTS _____ (103–142)

LAB COMMENTS _____ (150–199)

Il 532 1213
LPC 160 12/2011

This Illinois EPA is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Illinois EPA. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

KEY:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM01
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	G000
Spaces 23-28	Date Collected	000000
Space 29	Lab	
Spaces 30-35	Filler	
Spaces 36-41	Report Due Date	000000
Spaces 42-47	Date Received	000000
Spaces 48-53	Filler 2	
Space 54	Background Sample	
Spaces 55-58	Time Collected	0000
Space 59	Unable to Collect Sample	
Space 60	Monitoring Point Sampled By	
Space 61	Field Filtered – Inorganic	
Space 62	Field Filtered – Organic	
Spaces 63-102	Sample Appearance	
Spaces 103-142	Collector Comments	
Spaces 143-149	Filler 3	
Spaces 150-159	Lab Comments	

Formatting Requirements for the 02 Record of the Electronically Submitted Groundwater and Leachate Data
(the 02 Record portion of the LPC-160 is included for example purposes)

RECORD CODE | L | P | C | S | M | 0 | 2 | (1–7) TRANS CODE | A | (8) (COLUMNS 9-29 FROM ABOVE)

FIELD MEASUREMENTS CONSTITUENT DESCRIPTION AND REQUIRED UNIT OF MEASURE		STORET NUMBER	Remarks See Inst.	Replicate	< or >	Value
Q	TEMP OF WATER (unfiltered ° F)	00011. (30–34)	(35)	(36)	(37)	(38–47)
Q	SPEC COND (unfiltered µmhos)	00094.				
Q	pH (unfiltered units)	00400.				
Q	ELEV OF GW SURF (ft ref MSL)	71993.				
Q	DEPTH OF WATER (ft below LS)	72019.				
A	BTM WELL ELEV (ft ref MSL)	72020.				
Q	DEPTH TO WATER FR MEA PT (ft)	72109.				

IL 532 1213
LPC 160 12/2011

This Illinois EPA is authorized to require this information under Illinois Revised Statutes, 1979, Chapter 111 ½, Section 1004 and 1021. Disclosure of this information is required. Failure to do so may result in a civil penalty up to $25,000 for each day the failure continues a fine up to $1,000.00 and imprisonment up to one year. This form has been approved by the Forms Management Center.

All analytical procedures must be performed in accordance with the methods contained in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods," SW-846, 3rd Edition, September 1986 or equivalent methods approved by the Illinois EPA. Proper sample chain of custody control and quality assurance/quality control procedures must be maintained in accordance with the facility sampling and analysis plan.

***Only Keypunch with Data in Column 35 or Columns 38-47**

Key:

Spaces Numbered	Description	Format
Spaces 1-7	Record Code	LPCSM02
Space 8	Trans Code	A
Spaces 9-18	Site ID	0000000000
Spaces 19-22	Mon Pt ID	
Spaces 23-28	Date Collected	
Space 29	Lab	
Spaces 30-34	STORET Number	
Space 35	Remarks	
Space 36	Replicate	
Space 37	< or >	
Space 38-47	Value	

ATTACHMENT D

CORRECTIVE ACTION ATTACHMENTS (Section V)

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

D-1. Summary of Corrective Action and Permit Related Submittals at BP/Riverfront

The following is a list of the corrective action related submittals which have been made to date by BP and that the Illinois EPA approved them. Each submittal was assigned a log number by Illinois EPA and is presented in the order it was received.

Log No.	Topic of Submittal	Date Approved
-----	GMZ Proposal	4/6/94
CA-1	RFI Phase I Wkpln and PRS Corrective Action Plan (for 10 SWMUs and 1 PRS).	9/7/94
CA-1	RFI Phase I Report	12/2/96
CA-2	Conceptual Phase II/III Wkplan (for 10 SWMUs and 1 PRS)	8/6/97
CA-3	FCSA Characterization Report	10/7/97
CA-4	LOD Monitoring Program	1/14/98 (disapproved)
CA-5	Updated GMZ	1/14/98 (disapproved)
CA-6	Phase II Workplan for the CDF and MRSA.	8/7/98
CA-7	CDF Cover Evaluation Workplan	6/10/98
CA-8	CDF Well Evaluation Workplan	11/18/98
CA-9	FCSA Phase II workplan	Superseded by CA-15
CA-10	Updated GMZ	12/5/00 (disapproved)
CA-11	LOD Characterization Report	2/26/01 (disapproved)
CA-12	CDF Cover Evaluation Report	9/7/99
CA-13	CDF and MRSA Phase II/III report	8/17/00
CA-14	Workplan for Vegetative Cover Pilot Study at CDF.	6/15/99
CA-15	FCSA Phase II Workplan, Revision 1	Superseded by CA-20
CA-16	CDF Well Evaluation Report	11/28/00
CA-17	Tree Hydraulic Control Pilot Study Workplan -CDF	10/5/99
CA-18	CDF Slurry Wall Investigation Workplan	5/10/01
CA-19	Plan to Remove 36" and 72" Outfalls (FCSA)	8/2/00
CA-20	36" and 72" Outfall Removal Report (at FCSA); and Phase II/III RFI for FCSA	11/13/03
CA-21	Response to IEPA's CA-13 letter re: the CDF/ MRSA	Superseded by CA-26&27
CA-22	Response to Cond. 8 of IEPA's CA-16 letter re: CDF	6/4/01
CA-23	Proposed GW Program for CDF	Superseded by CA-29
CA-24	Phase II/III Workplan (for 10 SWMUs and 1 PRS).	8/9/01
CA-25	Initial CA725 Determination	2/11/02
CA-26	CMP Report for CDF	1/10/02
CA-27	Determination of Class II GW for MRSA	2/6/02
CA-28	CMP Report for MRSA	2/6/02
CA-29	GW Monitoring Program for CDF	9/13/02
CA-30	CA750 Determination	6/11/02
CA-31	Re-Evaluation of GMZ	4/24/02
CA-32	Parcel A workplan	9/5/02
CA-33	FCSA, Class II Determination	9/5/02
CA-34	FCSA RFI Phase II report	11/13/03

Log No.	Topic of Submittal	Date Approved
CA-35	Comments on IEPA's 2/11/02 CA725 approval letter (B-147-CA-25)	6/14/02
CA-36	CDF CMP Report, Addendum 1	6/14/02
CA-37	CCR/Ph II RFI Wkpln, Parcel B and SW Chan Tract	11/15/02
CA-38	Revised Schedule for completing CA	11/14/02
CA-39	Phase II RFI Work Plan -Hydrocarbon Pool (SWMU 7)	1/29/03
CA-40	MRSA Stage 1 Corrective Measures Report	6/4/03
CA-41	CM Design Report for the MRSA	4/28/03
CA-42	Revised Schedule for completing CA	Superseded by CA-48
CA-43	FCSA Trench Interim Measures Const. Report	11/13/03
CA-44	CDF Stage 1 CM Liquid Extraction System Installation	10/30/03
CA-45	CDF 2003 Phytoremediation Status Report	10/11/05
CA-46	Parcel A Investigation Report and Closure Plan	3/8/05
CA-47	Phase I CMP for FCSA	10/28/05
CA-48	Revised CA Schedule	12/30/04
CA-49	Interim Measures to Seal Joints of 84" Sewer at FCSA	4/12/05
CA-50	Phase II RFI Report for SWMU 7 (Hydrocarbon Pool)	1/11/06
CA-51	MRSA Corrective Action Completion Report (Sheet Pile)	1/12/06
CA-52	Extension request for submittal of Final Construction Report for MRSA Sheet Pile Wall/Interceptor Trench	12/16/04
CA-53	Response to IEPA Letter dated 12/15/04 regarding Permitted Non-hazardous Waste Landfill (PNWL).	4/27/05
CA-54	Revised CA Schedule (response to CA-48 letter)	9/21/05
CA-55	Document of recording of Ordinance & MOU for Parcel A	5/1/07
CA-56	Request to postpone replacement of G101 in FCSA.	11/20/06
CA-58	Plan to move forward and status of the FCSA	1/4/07
CA-59	Establishing Background Values for PNWL	8/1/06
CA-60	Submittal assigned this log number subsequently determined not to be associated with this corrective action program and was removed from the tracking system.	1/19/2023
CA-61	FCSA Underground Pipeline Inv Work Plan	Rec'd 3/17/07, Combined with CA-64
CA-62	Draft ELUC for Parcel A and documentation of removal of impacted soil from Barge Maintenance Area	5/1/07
CA-63	Parcel B Land Reuse Investigation Report & Closure Plan	Comments provided by IEPA on 1/24/07(soil) and 5/11/09(gw)
CA-64	Corrective Measures Study for SWMU 7	6/12/09
CA-65	Revised background values for PNWL	8/21/07
CA-66	Proposed GW monitoring locations for PNWL and well abandonment forms for G07S and G12S at PNWL	5/20/09
CA-67	Final Corrective Measures Plan for the CDF	8/1/07
CA-68	Re-Evaluation of GMZ	Rec'd 4/25/07
CA-69	Revised Appendix J and Figure 6-1 for Parcel B.	Rec'd 6/1/07
CA-70	Recorded ELUC for Parcel A	1/14/08
CA-71	Statistical Proposal for CDF	9/31/09

Log No.	Topic of Submittal	Date Approved
CA-72	White Paper –Vertical Parceling	Rec'd 7/2/07
CA-73	Improvements to the FCSA Interim Measures	Rec'd 8/24/07
CA-74	Demo that PNWL exceedances of background values are not due to significant change in gw quality	5/20/09
CA-75	Proposed BG Values for Well G11S at PNWL.	5/20/09
CA-76	Demo for GW Monitoring at PNWL.	5/20/09
CA-77	Final Design and Construction Work Plan for CDF	11/18/08
CA-78	GW Demonstration PNWL on exceedance of background not significant	5/20/09
CA-79	Groundwater Demonstration and PNWL.	5/20/09
R-CA-1	Demo that PNWL exceedances of background are not due to significant change in gw quality	5/20/09
R-CA-2	Parcel A Uppermost Aquifer GW Data Inventory within Butene Polymerization Waste Area	Rec'd 12/16/08
R-CA-3	Demo that PNWL exceedances of background are not due to significant change in gw quality	Rec'd 4/13/09
R-CA-4	Response to IEPA's 3/31/09 Vertical Parceling Letter.	Rec'd 6/01/09
R-CA-5	Construction Document Report - Final Corrective Measure-CDF	Rec'd 6/29/09
R-CA-6	Revised Background Values for PNWL	Rec'd 7/20/09
R-CA-7	Demo that PNWL exceedances are not due to significant changes in gw quality.	1/19/2010
R-CA-8	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	1/9/2010
R-CA-9	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	12/17/2012
R-CA-10	Response to 10/02/09 Letter regarding FCSA (see B-145-CA-73 above)	1/10/2011
R-CA-11	Proposal to Remove FPH and MNA program @ SWMU 7	3/16/2011
R-CA-12	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill. Also includes an Assessment Monitoring Plan	12/17/2012
R-CA-13	Site Wide Geology Report (note: the approval letter for this report is different than the 12/17/12 letter addressing several submittals associated with the PNWL and log numbers CA-9, 12, 16, 24, 26, 28 and 29)	12/17/2012
R-CA-14	Corrective Measure to address FPH plume at LOD Area (different letter than the 3/6/13 letter for CA-15 and CA-17)	3/6/2013
R-CA-15	Summary of GW Removal Activities in Parcel B/FCSA	3/6/2013 (disapproval)
R-CA-16	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	12/17/2012
R-CA-17	Revised Pages of Parcel B (FCSA)Land Reuse Investigation	3/6/2013 (Disapproval)
R-CA-18	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	12/17/2012
R-CA-19	CCR Workplan Uppermost Aquifer for Parcel A	6/15/16

Log No.	Topic of Submittal	Date Approved
R-CA-20	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	12/17/2012
R-CA-21	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill (4Q, 2010)	12/17/2012
R-CA-22	Proposed background value for PNWL	12/17/2012
R-CA-23	Annual Observation Monitoring Program, Evaluation of SSIs associated with the Riverfront GW Monitoring Program	7/24/2014
R-CA-24	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	12/17/2012
R-CA-25	Additional information regarding SWMU 7 submitted in response to IEPA's 3/6/11 letter (see R-CA-11 above)	03/26/14
R-CA-26	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 2Q 2011	12/17/2012
R-CA-27	Semi-Annual Observation Monitoring Program, Evaluation of SSIs associated with the Riverfront GW Monitoring Program	7/24/2014
R-CA-28	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 3Q 2011	12/17/2012
R-CA-29	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 4Q 2011	12/17/2012
R-CA-30	Parcel G Current Report/Characterization Workplan	01/22/2013
R-CA-31	Background values for Wells G090 and G091at PNWL	12/17/2012
R-CA-32	Semi-Annual Observation Monitoring Program, Evaluation of SSI's associated with the Riverfront GW monitoring program	7/24/2014
R-CA-33	Re-evaluation of GMZ	8/28/13
R-CA-34	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill--1Q12	03/26/14
R-CA-35	Request to incorporate Annual Liquid Level Report into Annual CDF OM&M Report	Rec'd 05/30/12
R-CA-36	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill 2Q 2012	03/26/14
R-CA-37	SSIs identified during 2Q 2012 for CA groundwater monitoring program	7/24/2014
R-CA-38	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 3Q 2012	03/26/14
R-CA-39	Ext request for responding to 12/17/12 letter re: PNWL (see R-CA-9, 12, 16, 18, 20, 21, 22, 24, 24, 26, 28, 29 and 31above)	2/19/15
R-CA-40	Ext request for responding to 12/17/12 letter re: Sitewide Geology Report and ROST Study (see R-CA-13 above)	11/26/14

Log No.	Topic of Submittal	Date Approved
R-CA-41	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill Q4 2012	03/26/14
R-CA-42	Evaluation of SSIs for the CA groundwater monitoring program	7/24/2014
R-CA-43	Figures in response to 12/17/12 IEPA Letter re: PNWL	2/19/2015
R-CA-44	Response to 12/17/12 letter re: PNWL. Includes gw demo, revised b/g values and proposed assessment monitoring plan	2/19/2015
R-CA-45	Response to comments for the Sitewide Geology Report (see R-CA-13 and R-CA-40 above)	11/26/2014
R-CA-46	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	2/19/2015
R-CA-47	Response to 8/28/13 IEPA comments on Reevaluation of the GMZ (see R-CA-33 above)	7/15/2014
R-CA-48	Response to IEPA letters of March 6, 2013 (regarding the Light Oils Dock) and January 10, 2011 (regarding the Former Channel Seep Area)	5/20/2016
R-CA-49	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 4 Q 2013	3/2/2015
R-CA-51	Demonstration that exceedances of BG values at the PNWL are not associated with the landfill	3/2/2015
R-CA-52	Response to Conditions 4-9 of 3/26/14 IEPA Letter RE: SWMU 7 (see R-CA-25 above)	3/31/2015
R-CA-53	Response to Condition 3&10 of 3/26/14 Letter Re: SWMU7 & MNA Status Update (see R-CA-25 above)	3/31/2015
R-CA-54	SWMU 7 Progress Report	3/31/2015
R-CA-55	Monitored Natural Attenuation Status Report @ SWMU 7	3/31/15
R-CA-56	Updated O&M Manual for MRSA	Rec'd 9/4/14
R-CA-57	Request to incorporate the annual liquid report into the Annual OM&M report for the CDF	Rec'd 9/22/14
R-CA-58	Supplemental gw sampling and gw demo report for the PNWL	3/2/2015
R-CA-59	Response to IEPA's 7/15/14 letter regarding the GMZ evaluation l (see R-CA-47 above)	1/19/2023
R-CA-60	2nd Progress Report re: LNAPL recovery efforts at SWMU 7	3/31/2015
R-CA-61	Response to Comments re: Site-Wide Geology Report	Appr'd (Amy Butler)
R-CA-62	SWMU 7 update regarding hydrocarbon gauging, hydrocarbon recovery activities and MNA monitoring	3/31/2015
R-CA-63	Progress Report for LNAPL Recovery Efforts at SWMU 7	8/26/2016
R-CA-64	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 1Q15	4/10/17
R-CA-65	Levee Access Status Update/Extension Request for Work at SWMU 7	8/26/2016
R-CA-66	Benzene Results for G090 and G116 @ PNWL	Rec'd 6/17/2015
R-CA-67	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	4/10/2017
R-CA-68	Evaluation of Potential Statistically Significant Increase	Rec'd 4/23/2015

Log No.	Topic of Submittal	Date Approved
R-CA-69	SWMU 7 Hydrocarbon Recovery 90-Day Update	8/26/2016
R-CA-70	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	4/10/2017
R-CA-71	90-day progress report for LNAPL recovery activities at SWMU 7	8/26/2016
R-CA-72	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill for 4Q2015	4/10/2017
R-CA-73	SWMU 7 Hydrocarbon Recovery Update	8/26/2016
R-CA-74	Request to Consolidate Required Reports	Rec'd 1/19/2016
R-CA-75	SWMU 7 Monitored Natural Attenuation Status Report	8/26/2016
R-CA-76	Demonstration that exceedances of BG values in certain gw monitoring wells at the PNWL are not associated with the landfill	4/10/2017
R-CA-77	Response to Condition 2 of IEPA 5/20/16 letter (see R-CA-48—pertains to the Light Oils Dock and Former Channel Seep Area)—requests extension for submitting proposed ELUC for Parcel B	Rec'd 8/16/2016
R-CA-78	Response to Conditions 3 and 4 of IEPA 5/20/16 letter (seeB-14 R-CA-48—pertains to the Light Oils Dock and FCSA)	Rec'd 6/1920/16
R-CA-79	Response to Conditions 2 thru 5 of IEPA 6/15/16 letter (seeB-145 R-CA-19 regarding Parcel A)	04/12/2019
R-CA-80	Parcel B ELUC	Rec'd 10/17/2016
R-CA-81	Response to IEPA's 8/26/16 letter regarding SWMU 7	Rec'd 10/2520/16
R-CA-82	Follow-Up to PNWL 7 Day Notification of BG Exceedances—3Q16	4/10/17
R-CA-83	30 Day Demonstration Report	4/10/17
R-CA-84	Repairs Made to Observation Well R110	Rec'd 3/21/2017
R-CA-85	1Q2017 PNWL 30-day Demonstration Report	Rec'd 7/14/2017
R-CA-86	4Q2016 Demonstration Report	Rec'd 4/24/2017
R-CA-87	30-Day Demonstration Report	Rec'd 8/14/2017
R-CA-88	30-Day Groundwater Demonstration Report	Rec'd 11/13/2017
R-CA-89	Parcel A Groundwater Report	04/12/2019
R-CA-90	Plan for Groundwater Monitoring Plan for Compliance Commitment Agreement	Rec'd 1/22/18
R-CA-91	4Q17 PNWL 30-day Demonstration Report	Rec'd 2/26/18
R-CA-92	4Q2017 demonstration report (SSIE)	08/06/19
R-CA-93	1Q2018 PNWL GW Demo Report	Rec'd 5/23/18
R-CA-94	GW Monitoring Optimization Report	Rec'd 6/29/18
R-CA-95	2Q2018 PNWL GW Demo Report	Rec'd 8/10/18
R-CA-96	PNWL 3Q18 10-Day Notification	04/19/2019
R-CA-97	Site-wide Arsenic/ Inorganic Demo Report	06/24/2019
R-CA-98	PNWL 4Q19 30-Day GW Demo Report	04/19/2019
R-CA-101	PNWL 1Q19 Demo Report	Rec'd 05/23/2019
R-CA-102	4th quarter demonstration report (Statistically Significant Increase Evaluation)	02/08/2020
R-CA-103	2Q19 PNWL 30-Day GW Demo Report	Rec'd 08/22/2019

Log No.	Topic of Submittal	Date Approved
R-CA-104	Site-wide update regarding site-wide inorganics and metals evaluation	Rec'd 11/06/2019
R-CA-105	2nd quarter demonstration report (Statistically Significant Increase Evaluation)	Rec'd 10/28/2019
R-CA-106	3Q19 PNWL 30-Day Groundwater Demonstration Report	Rec'd 11/25/2019
R-CA-107	Evaluation of SSI for semiannual groundwater monitoring	02/28/2020
R-CA-108	4Q19 PNWL 30-Day Groundwater Demonstration Report	Rec'd 02/25/2020
R-CA-109	Proposed modification to 2Q 20202 GW Gauging & Monitoring in response to COVID-19 pandemic	Rec'd 05/19/2020
R-CA-110	4th Quarter 2019 Demonstration Report	Rec'd 05/21/2020
R-CA-111	1 Q20 PNWL 30-Day Demonstration Report	Rec'd 05/26/2020
R-CA-112	3rd quarter 2020 PNWL30-day GW demonstration report	Rec'd 11/23/2020
R-CA-113	Site-wide inorganics and metal evaluation work plan update	Rec'd 12/01/2020
R-CA-114	GMZ Reevaluation Report	Rec'd 12/21/2020
R-CA-115	30-Day GW Demonstration Report. Permitted Non-Hazardous Waste Landfill - Third Quarter 2021	Rec'd 11/29/2021
R-CA-116	Results of the Site-Wide Inorganics & Metals Evaluation Report submitted on 12-20-18	Rec'd 1/26/2022
R-CA-117	Proposed upgrades to the Cone of Depression (COD) Well System, Additional information received on 5/2/2022, 8/1/2022	Rec'd 3/16/2022
R-CA-118	Monitoring Well Condition	Rec'd 3/21/2022
R-CA-119	1Q22 30-Day GW Demonstration Report for the permitted non-hazardous waste Landfill (PNWL)	Rec'd 05/26/2022
R-CA-120	Proposed alternative for riverfront sentinel wells and abandonment of current riverfront sentinel wells	Rec'd 7/18/2022
R-CA-121	Cone of Depression (COD) Well G669/HPW61 Repairs	Rec'd 05/09/2022
R-CA-122	Proposed sentinel well locations	Rec'd 2/22/2022
R-CA-123	4Q21 30-day demonstration report for the PNWL	Rec'd 2/25/2022
R-CA-125	Groundwater management zone hydraulic gradient control notification	Rec'd 3/16/2022
R-CA-126	2nd Semi-Annual 2021 Demonstration Report	Rec'd 5/3/2022
R-CA-127	Monitoring Well Condition Letter for G35D and G403	Rec'd 5/1/2022

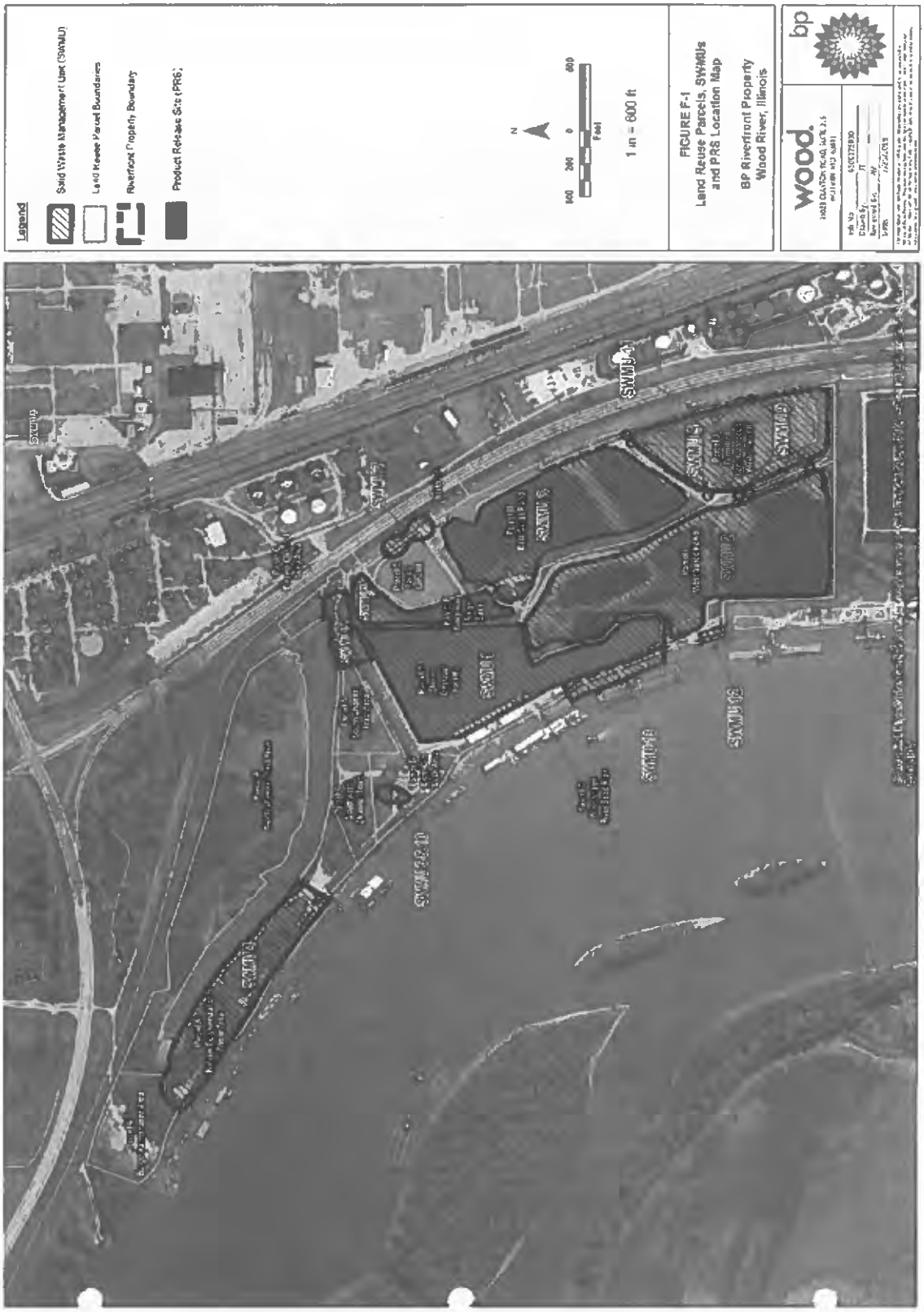

Legend
Solid Waste Management Unit (SWMU)
Land Reuse Parcel Boundaries
Riverfront Property Boundary
Product Release Site (PRS)
N
800 400 0 800
Feet
1 in = 800 ft
FIGURE F-1
Land Reuse Parcels, SWMUs and PRS Location Map
BP Riverfront Property
Wood River, Illinois
wood.
bp
SWMU 1
SWMU 2
SWMU 3
SWMU 4
SWMU 5
SWMU 6
SWMU 7
SWMU 8
SWMU 9
SWMU 10
SWMU 11
SWMU 12

Figure D-2

ATTACHMENT E

CORRECTIVE MEASURES PROGRAM REQUIREMENTS

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

ATTACHMENT E

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 is compared to remediation objectives developed in accordance with Title 35 Illinois Administrative Code (35 IAC) 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 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 areas of concern to follow these five 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 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 corrective measures program 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 areas of concern. All such documents must be reviewed and approved by 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 areas of concern and provides a conceptual design for these measures. The main criteria for Illinois EPA review is 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 totally 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 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:

a. 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.

b. 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. Describe the corrective measure 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 some type of physical corrective measure (e.g., a final cover system, some 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"-12" 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"-12" 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.

7. 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 F

CONSTRUCTION CERTIFICATION

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

ATTACHMENT F
Construction Certification

This statement is to be completed by both the owner/operator and the registered professional engineer upon completion of construction in accordance with 35 IAC Section 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Illinois EPA
Bureau of Land #33
Permit Section
1021 North Grand Avenue East
Springfield, Illinois 62702

FACILITY NAME: BP Products North America, Inc.

IEPA's SITE CODE: LPC #1191155009

U.S. EPA ID NO.: ILD980503106

PART B PERMIT LOG #145R2

PERMIT (OR MODIFICATION) ISSUANCE DATE:

PERMIT CONDITION NO. REQUIRING CERTIFICATION:

The _____ has been constructed in accordance with the specifications in the Permit. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction of 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.

_____

Signature of Owner/Operator

Name and Title

_____

Signature of Registered P.E.

Name of Registered P.E. and
Illinois Registration Number

Date

(P.E. SEAL)

ATTACHMENT G

CLOSURE, POST-CLOSURE AND CORRECTIVE ACTION COST ESTIMATE SUMMARY

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

ATTACHMENT G
CLOSURE, POST-CLOSURE, AND CORRECTIVE ACTION COST ESTIMATE SUMMARY

These estimates are based on using 2020 dollars and include the cost of: (1) activities carried out each year (i.e., annual costs); and (2) one-time or non-annual costs. Post-closure care for Pond 1 Landfill requires the cost of the 30-year of post-closure care and one time certification cost. The East Surge Pond is currently operated to store nonhazardous wastewaters including the nonhazardous leachate from the adjacent onsite Permitted Non-Hazardous Waste Landfill in accordance with this permit. The ESP must be eventually closed in accordance with a plan approved by the Illinois EPA. The approved corrective action cost estimates account for costs associated with Parcels A, B, C, D, F, G, I, SWMU 7, PRS-1 and groundwater corrective action for the Riverfront facility.

COST ESTIMATES

ACTIVITY	Pond 1 Landfill (HWMU)	East Surge Pond	BP Riverfront SWMUs
Closure		$538,420	
Post-Closure	$2,364,068 in 2020 *		
SWMUs and Groundwater Corrective Action			$10,359,514

ATTACHMENT H

POST-CLOSURE INSPECTION SCHEDULE

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

ATTACHMENT H
POST-CLOSURE INSPECTION SCHEDULE

Inspection Schedule

Post-closure inspections for the Pond 1 Landfill will be conducted on a weekly, quarterly and an after-storm event basis. Documentation of all inspections, surveys, repairs performed, or replacements required to properly maintain the facility will be recorded on the inspection logs/ repair logs and stored as a part of the Operations, Maintenance, and Monitoring (OM&M) Manual. The OM&M Manual will be maintained at the BP Main Plant Office or a local Waste Management, Inc., office or storage facility. General post-closure inspection procedures will include the following:

1. Visually inspect the perimeter fence and all gates. Check for fence integrity and note any areas of damage. Note the working condition of each gate and check to ensure that all locks and other security systems are in place and functioning.

2. Visually inspect each benchmark. Report any missing benchmarks and note any damage to the benchmarks.

3. Visually inspect the landfill cover, drainage system, and surrounding areas. Note any evidence of cover erosion, settling, or vegetative stress. Also note any unusual conditions such as odors, ponded water, or bubbling. Report any areas requiring further inspection or repairs so arrangements can be made to efficiently make all necessary repairs.

4. Visually inspect each leachate collection riser and note any damage. Check and record the liquid level in each riser. If the liquid level is found to be approaching or above the maximum acceptable level, make arrangements for leachate removal. Record the amount withdrawn, if applicable.

5. Visually inspect each groundwater well protective casing for damage. Check the protective casing and lock to ensure they are functioning and have not been tampered with. Note area around wells for erosion, settling or negative stress.

6. Visually inspect any required safety and emergency equipment. Report missing and/or damaged equipment.

7. Visually inspect the run-on and run-off control measures. Note any erosion, missing riprap, or other disrepair.

Following each inspection, a copy of the inspection log will be sent to the appropriate BP personnel for review. Arrangements will also be made to repair or replace any items in order to maintain the site at a condition equal to that in the application.

Post-Closure Maintenance (Pond 1 Landfill)

Maintenance activities will respond to the needs determined from the inspections. Items that may require repair include:

- Flood Protection Dike;
- security control fencing;
- areas of differential settlement, subsidence and displacement;
- slopes damaged by erosion;
- run-on and run-off control structures;
- leachate collection systems; and
- benchmarks

Groundwater monitoring wells will be repaired or replaced as needed and will be decommissioned upon Illinois EPA approval.

The final cover system will be mowed at least annually and fertilized as needed (except for areas where shrubbery or other structures are present).

Corrective action for the cover materials will be taken if the following problems occur:

- ponding;
- cracks greater than one inch wide;
- gas problems;
- odor problems;
- larger areas of dead or stressed vegetation (areas greater than 50 square feet);
- vegetation with taproots growing in areas not designed to accommodate such;
- vector problems; or
- leachate pop outs or seeps.

Corrective action measures for these types of problems could include regrading, addition of soils to repair cracks or to eliminate ponding, or re-seeding to re-establish vegetation.

Maintenance (East Surge Pond)

Maintenance activities will respond to the needs determined from the inspections. Items that may require repair include:

- water level staff gauge;
- lift station pumps/ sumps;
- gates/ valves; culverts
- dredging
- dikes
- vegetation
- clay liner

ATTACHMENT I

CERTIFICATION OF COMPLETION OF CLOSURE

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

Illinois Environmental Protection Illinois EPA

CERTIFICATION OF COMPLETION OF RCRA CLOSURE

BP Products North American Inc./Riverfront Property (1191155009) – Madison County
USEPA ID: ILD980503106
RCRA Permit Log No. B-145R2

To meet the requirements of 35 IAC 725.215, this statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 IAC 702.126) and by a qualified professional engineer upon completion of closure of the East Surge Pond (ESP). Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste management unit, known as the East Surge Pond (ESP), at BP Products North American Inc./Riverfront Property has been closed in accordance with the specifications in the approved closure plan. A report documenting that closure has been carried out in accordance with the approved closure plan is attached.

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.

A 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 ILCS5/44(h))

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

ATTACHMENT J

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

STATE ID# 1191155009

ILD980503106

POST-CLOSURE PERMIT LOG NO. B-145R2

Illinois Environmental Protection Illinois EPA

CERTIFICATION OF COMPLETION OF POST-CLOSURE CARE

BP Products North American Inc./Riverfront Property (1191155009) – Madison County
USEPA ID: ILD980503106
RCRA Permit Log No. B-145R2

To meet the requirements of 35 IAC 724.220, this statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 IAC 702.126) and by a qualified professional engineer upon completion of post-closure care of the Pond 1 Landfill. Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste management unit closed as a landfill, known as the Pond 1 Landfill, has been closed in accordance with the specifications in the approved closure plan. Post-Closure care required for the Pond 1 Landfill has been provided and completed in accordance with the RCRA Permit. A report documenting that required post-closure care have been carried out and completed in accordance with the approved post-closure care plan is attached.

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.

A 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 ILCS5/44(h))

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

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

217/524-3301

Certified Mail
Return Receipt Requested

JUL 24 2024

9589 0710 5270 0389 7077 26

GFL Environmental, Inc.
Mr. Matthew Coulter
4700 N Sterling Ave.
Peoria, Illinois, 61615

Re: 1438120003 -- Peoria County
Peoria Disposal Company
ILD000805812
Log No. B-24R2
RCRA Administrative Record – 24D

Dear Mr. Coulter:

Attached is a draft renewed Resource Conservation and Recovery Act (RCRA) Hazardous Waste Management permit (draft permit) and fact sheet for the above-referenced facility. The draft 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 (35 Ill. Adm. Code) 705.144.

Under the provisions of 35 Ill. Adm. Code 705.141(d), the draft 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 permit, fact sheet, and renewal permit application are available for review at the Peoria Public Library; Business, Science and Technology Department; Government Documents Section, located at 107 NE Monroe Street, Peoria, Illinois 61602. 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 September 9, 2024.

During the comment period, the applicant or any interested party may submit comments to the Illinois EPA on the draft permit. At the close of the comment period, the Illinois EPA will prepare a response to significant comments. Comments on the draft permit may be submitted to:

Sarah Brubaker, Office of Community Relations (#5)
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276

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 Ill. Adm. Code 705.212.

Any questions concerning this draft permit, please contact Kelly Huser at 217/524-3867. Any groundwater specific questions, please contact Gabe Kammel-O'Donnell at 217/524-7922.

Sincerely,

Jacqueline M Cooperider

Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC: KDH: 1438120003-RCRA-B24R2-draft.docx
KDH TNH JMC
Attachments: Fact Sheet
Draft Renewed RCRA Permit

cc: Kris Thompson, GFL Environmental, Inc.

FACT SHEET
for
DRAFT RENEWED RCRA PERMIT
Peoria Disposal Company
Peoria Illinois
STATE ID NO. 1438120003
FEDERAL ID NO. ILD000805812
RCRA PERMIT LOG NO. B-24R2

This fact sheet has been prepared pursuant to the requirements of Title 35 Illinois Administrative Code (35 Ill. Adm. Code) 705.143. The fact sheet is intended to be a 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) permit (draft permit). This draft permit requires Peoria Disposal Company (PDC) to continue to operate and maintain its hazardous waste management facility as discussed in this fact sheet. Pursuant to 35 Ill. Adm. Code 705.143(a), this fact sheet is sent to the applicant and to any other person who requests it.

I. INTRODUCTION

The draft permit for PDC contains all standard conditions required by 35 Ill. Adm. Code Parts 702, 703, and 724; and the applicable conditions of 35 Ill. Adm. Code Part 724 for all regulated units at the facility. PDC conducts a variety of hazardous and solid waste management operations, including storage in tanks, containers, storage building, and surface impoundment and treatment in tanks. PDC previously conducted disposal in landfill units; however, these landfill units no longer accept waste, have been properly closed, and are now regulated under the post-closure care requirements of the draft permit. Currently, PDC is not treating hazardous waste. The original hazardous waste management permit was issued to PDC on September 30, 1987 and expired on November 4, 1997. Since PDC submitted a timely application for renewal, the original permit remained effective until the first renewed permit became effective on January 1, 2008, which expired on January 1, 2018. Since PDC submitted a timely application for the second renewal, the first renewed permit remained effective, while review was conducted for this second renewed permit. PDC became a subsidiary of GFL Environmental, Inc. on October 1, 2021.

No new capacity, hazardous waste units, or hazardous waste management operations are proposed as a part of this draft permit. PDC is permitted to receive non-hazardous waste from off-site generators for treatment. To continue treatment of hazardous waste, PDC is required to submit a new Waste Analysis and Treatment Plan to the Illinois EPA for approval. All landfill areas are now closed and are under post-closure care at the facility.

II. DESCRIPTION OF FACILITY

A. General

The PDC facility is located at 4349 Southport Road, Peoria, Illinois. It is a commercial facility involved in storage of hazardous waste, treatment of non-

hazardous waste, and post-closure care of closed landfill areas involved in hazardous and solid waste management. The facility was previously permitted to treat hazardous waste.

The permitted facility encompasses approximately 120 acres, of which about sixty-four (64) acres were permitted for hazardous waste disposal. The purpose of the draft permit is to require that all hazardous waste management units (HWMUs) are managed in accordance with all applicable rules and regulations. The draft permit covers such areas as design and construction of the units, operating procedures, inspection schedules, procedures to prevent hazards, contingency plans, employee training, groundwater monitoring, plans for the closure of units where management operations have ceased, and plans for post-closure care of the units where waste is left in place. A facility diagram is provided at the end of this fact sheet.

B. Site Description and Location

The PDC facility comprises a part of the Southwest Quarter of Section Twenty-five (25) and a part of the Northwest Quarter of Section Thirty-six (36) in Township Nine (9) North, Range Seven (7) East of the Fourth Principle Meridian, Peoria County, Illinois. The PDC facility is located approximately one (1) mile south of the intersection of West Reservoir Boulevard and Southport Road near Pottstown, Illinois.

III. HAZARDOUS AND NON-HAZARDOUS WASTE MANAGEMENT ACTIVITIES

The Permittee conducts hazardous and solid waste management activities in one (1) container storage unit, one (1) storage tank, one (1) treatment tank, one (1) storage building, one (1) surface impoundment, and seven (7) closed landfill areas. The Permittee is also permitted for up to fourteen (14) additional storage tanks that may be constructed in the future. The Permittee is not treating hazardous waste; however, the storage of hazardous waste is permitted.

Previously, PDC received hazardous waste from off-site waste generators, ensured that the waste met the facility's acceptance criteria, treated the waste when necessary to meet the Land Disposal Restrictions (LDRs) pursuant to 35 Ill. Adm. Code Pat 728, and then disposed of the waste off-site. Currently PDC is only treating non-hazardous waste at the site and then it is shipped off-site for disposal. Leachate from the closed hazardous waste landfill and non-contact stormwater runoff is collected in the surface impoundment. The landfill and surface impoundment are further equipped with leak detection systems to help ensure that contaminated water (leachate) does not escape through the liner system into the underlying soils. Groundwater beneath the facility is monitored to ensure that it is not impacted by the operations at the site. More specific information about each section of the draft permit is presented below.

A. Containers

Section II of the draft permit contains conditions for proper management of containers in accordance with the procedures and operating specifications. PDC may store up to ten (10) roll-off containers (maximum total containment volume 137.8 cubic yards) of non-hazardous waste prior to treatment and/or awaiting disposal in the container storage/staging area located north of Runoff Retention Basin 1.

B. Tank Systems

Section III of the draft permit contains conditions for proper management of tanks in accordance with the procedures and operating specifications; and constructing, operating, and maintaining the containment system in accordance with the design plans and operating specifications. The Permittee has constructed one (1) hazardous waste storage tank to date (Tank T-4). This tank is used for storage of up to 20,000 gallons of leachate withdrawn from the hazardous waste landfill. The Permittee has also constructed one (1) hazardous waste treatment tank (Stabilized Base Mixer); however, the tank is only used for the treatment of non-hazardous waste. This tank was previously used for stabilization of up to 8.7 cubic yards of hazardous waste per batch prior to disposal. The treatment of hazardous waste ended on January 1, 2020. The Permittee can construct up to an additional fourteen (14) tanks as described in Section III of the draft permit and the approved renewal permit application.

C. Containment Building

Section IV of the draft permit contains conditions for proper management of containment buildings in accordance with the procedures and operating specifications. A containment building, known as the Waste Stabilization Facility, is permitted for storage of hazardous waste and storage and treatment of non-hazardous wastes by solidification. The Permittee is not allowed to treat hazardous waste. Four (4) storage bays for incoming non-hazardous waste contain a maximum of eighty-eight (88) cubic yards. After treatment in the Stabilized Base Mixer, the waste is moved to the curing area, which contains a maximum of 770 cubic yards of treated waste. The containment building is constructed with a liner system, leachate collection sumps, and a leak detection system.

D. Surface Impoundment

Section V of the draft permit contains conditions for proper management of the surface impoundment in accordance with the procedures and operating specifications. A surface impoundment, known as Runoff Retention Basin 1 (RRB1), contains a maximum of 2.2 million gallons of stormwater runoff and leachate from the hazardous waste landfill. Since the stormwater has come in contact with the leachate, the stormwater is considered leachate, and is managed as a hazardous waste. Leachate from RRB1 is treated in the on-site hazardous wastewater treatment plant,

which is separately permitted by the Illinois EPA's Bureau of Water and is then discharged to the Greater Peoria Sanitation District. RRB1 is lined with two synthetic liners with leak detection between the primary and secondary liner. In addition, RRB1 is located over a 3-foot layer of low-permeability soil material.

E. Post-Closure

Section VI of the draft permit contains conditions for proper management of the landfill unit in accordance with the procedures and operating specifications. A hazardous waste landfill consisting of seven (7) landfill areas (Barrel Trench Area, Section A, Section B, Trench C-1, Trench C-2, Trench C-3, and Trench C-4) operated by PDC is now closed and is subject to post-closure care. The closed landfill areas comprise approximately sixty-four (64) acres of the facility. The units have a total waste capacity of approximately 2,638,580 cubic yards. Two (2) closed areas (Barrel Trench Area and Section A) are constructed over compacted soil liners. A third closed area (Section B) contains a synthetic liner with a leachate collection system over a compacted soil liner. All remaining landfill areas (Trenches C-1 through C-4) have two (2) synthetic liners with leachate collection and leak detection over a compacted soil liner.

In addition, Section VI of the draft permit contains conditions for post-closure care maintenance, monitoring, and recordkeeping of all units where waste is left in place after closure. The post-closure care period for the closed landfill began on January 7, 2014 when final closure was approved for the last disposal area at the facility. The post-closure care period will continue for a minimum of (30) years after that date. The facility will be required to continue with post-closure care, through a permit modification request to extend the post-closure care period, as long as hazardous waste and risks associated with the waste remain in place at the facility. Groundwater monitoring will continue until post-closure care certification has been issued. Inspections during this period must identify any maintenance needed. The integrity of the final cover system, including soil and membrane caps, and vegetation must be maintained. A detailed written record of activities performed must be kept at the facility.

F. Groundwater Monitoring

Sections VII and VII-A of the draft permit contain conditions for groundwater monitoring to allow for the detection of any releases from the landfill that could potentially impact the uppermost aquifer. The facility has twenty-three (23) existing wells to monitor the groundwater in the uppermost aquifer: eighteen (18) downgradient wells and five (5) upgradient wells. Groundwater parameters monitored in the uppermost aquifer below the facility indicate, at the present time, no impacts have occurred; therefore, a groundwater detection monitoring program (GDMP) meeting the requirements 35 Ill. Adm. Code 724.198 shall be implemented. In addition to the GDMP, the facility has six (6) existing wells to monitor

groundwater in the shallow groundwater zones at the facility. Therefore, a shallow zone groundwater observation monitoring program must be implemented and is intended to detect any releases from the landfill to the shallow groundwater zone that could potentially impact the uppermost aquifer at the facility.

G. Corrective Action

Section XI of the draft permit imposes conditions requiring corrective actions for any release that might occur from solid waste management units or areas of concern at the facility. As part of PDC's corrective action requirements, they must inspect and maintain the cover over a solid waste management unit known as the Pre-RCRA Landfill under the post-closure care requirements of this permit.

IV. STANDARD PERMIT CONDITIONS

Section VIII of the draft permit contains standard conditions that are regulatory requirements of 35 Ill. Adm. Code 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. These conditions include the effectiveness of the permit, permit actions, permit severability, permit expiration, monitoring, retention of records, permit transfer and compliance schedules.

V. CONSIDERED ACTIONS OTHER THAN RCRA

A. The air emissions from a hazardous waste management facility are regulated under RCRA, the Clean Air Act (CAA), the Illinois Environmental Protection 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. PDC has a lifetime operating permit for sources for air emissions (Title V Air Permit No. 82020021).

B. Discharge of any waste from a hazardous waste management facility into the water of the State, is required to have National Pollutant Discharge Elimination System (NPDES) permit, issued by the Illinois EPA under Section 39(b) of the Illinois Environmental Protection Act. PDC has a NPDES General Stormwater Permit (NPDES Permit No. IL0064777).

VI. PROCEDURES FOR REACHING A FINAL DECISION

Pursuant to 35 Ill. Adm. Code 705.162(a)(2), the public is given at least forty-five (45) days to review and comment on the draft permit conditions prior to the Illinois EPA taking any final permitting action on the application for this draft permit. The comment period will begin on July 26, 2024, the date of publication of the public notice in a major local newspaper of general circulation. The comment period will end on September 9, 2024.

Copies of the permit application, draft permit, and fact sheet are available for review at:

Peoria Public Library; Business, Science and Technology Department
Government Documents Section
107 NE Monroe Street
Peoria, Illinois 61602
309-497-2000

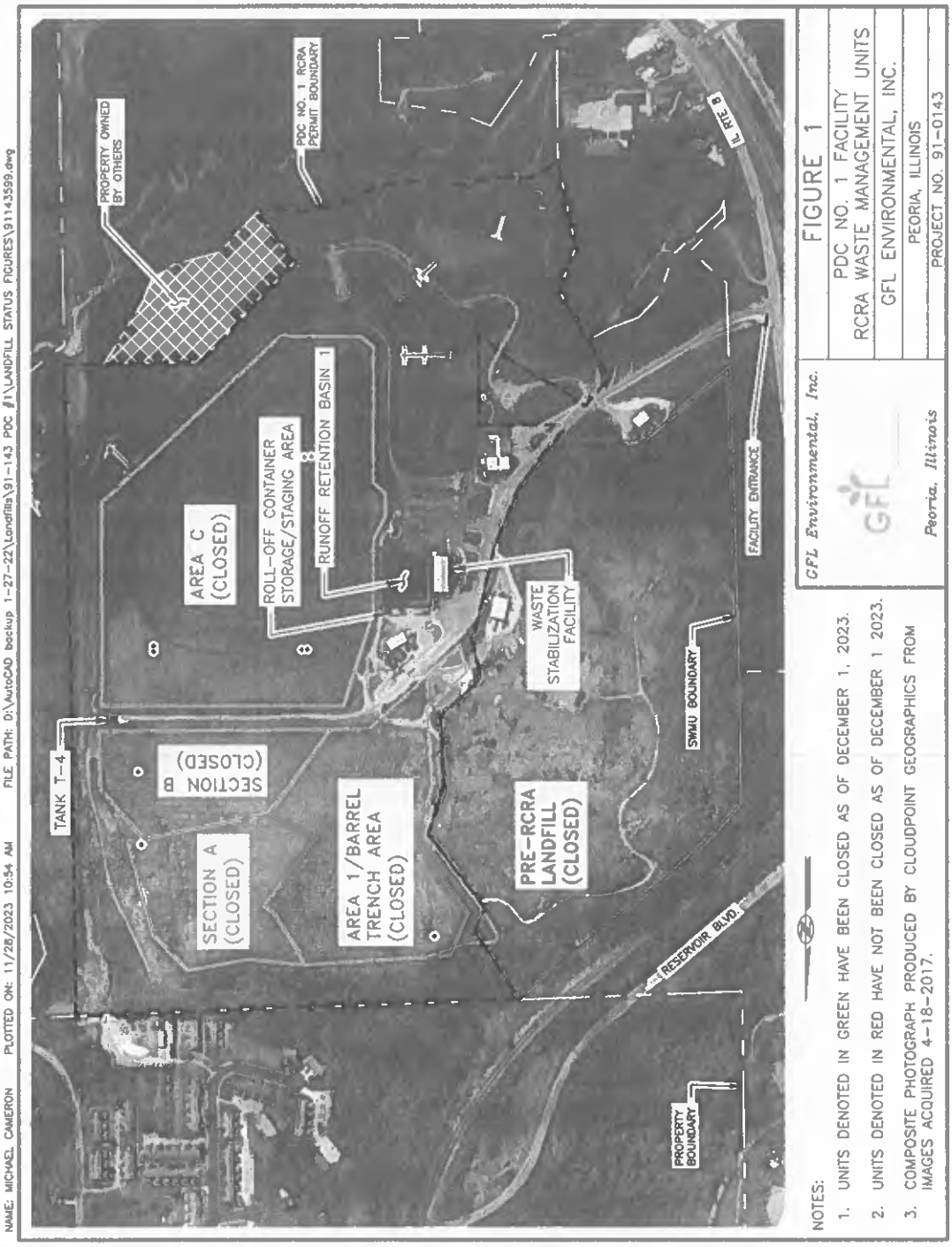
The administrative record contains the permit application, draft permit, fact sheet, and other supporting documents and correspondence submitted to the Illinois EPA. The administrative record can be made available for public inspection by appointment only at the Illinois EPA's Springfield headquarters from 9:00 a.m. to 5:00 p.m., Monday through Friday. Inspections of the administrative record must be scheduled in advance by contacting Ms. Sarah Brubaker of the Illinois EPA at the address listed below.

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 permit application. A request for a public hearing must be submitted in writing, must indicate opposition to the draft permit and must state the nature of the issues proposed to be raised at the hearing. Public notice of the 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 permit, or to request a public hearing, please contact:

Sarah Brubaker, Office of Community Relations #5
Illinois Environmental Protection Agency
1021 North Grand Avenue East
Post Office Box 19276
Springfield, Illinois 62794-9276
(217) 786-0790

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 decisions is appealed.


PROPERTY OWNED BY OTHERS
PDC NO. 1 RCRA PERMIT BOUNDARY
ILRTE 8
AREA C (CLOSED)
ROLL-OFF CONTAINER STORAGE/STAGING AREA
RUNOFF RETENTION BASIN 1
WASTE STABILIZATION FACILITY
FACILITY ENTRANCE
SWMU BOUNDARY
TANK T-4
SECTION B (CLOSED)
SECTION A (CLOSED)
AREA 1/BARREL TRENCH AREA (CLOSED)
PRE-RCRA LANDFILL (CLOSED)
RESERVOIR BLVD.
PROPERTY BOUNDARY
NOTES:
1. UNITS DENOTED IN GREEN HAVE BEEN CLOSED AS OF DECEMBER 1, 2023.
2. UNITS DENOTED IN RED HAVE NOT BEEN CLOSED AS OF DECEMBER 1 2023.
3. COMPOSITE PHOTOGRAPH PRODUCED BY CLOUDPOINT GEOGRAPHICS FROM IMAGES ACQUIRED 4-18-2017.
GFL Environmental, Inc.
Peoria, Illinois
FIGURE 1
PDC NO. 1 FACILITY
RCRA WASTE MANAGEMENT UNITS
GFL ENVIRONMENTAL, INC.
PEORIA, ILLINOIS
PROJECT NO. 91-0143
NAME: MICHAEL CAMERON PLOTTED ON: 11/28/2023 10:54 AM FILE PATH: D:\AutoCAD backup 1-27-22\Landfills\91-143 PDC #1\LANDFILL STATUS FIGURES\91143599.dwg

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

RCRA HAZARDOUS WASTE PERMIT

1438120003 – Peoria County
Peoria Disposal Company
ILD000805812
Permit Log No. B-24R2
RCRA Administrative Record – 24D
Permit Draft

Issue Date: DRAFT
Effective Date: DRAFT
Expiration Date: DRAFT

PERMITTEE
Peoria Disposal Company
Attn: Mr. Matthew Coulter
4700 N. Sterling Ave.
Peoria, Illinois 61615

FACILITY LOCATION
4349 Southport Road
Peoria, Illinois 61615

A renewed Resource Conservation Recovery Act (RCRA) hazardous waste permit is hereby issued to Peoria Disposal Company, as Owner, Operator and Permittee pursuant to Section 39(d) of the Illinois Environmental Protection Act and Title 35 Illinois Administrative Code (35 Ill. Adm. Code) Subtitle G.

PERMITTED HAZARDOUS WASTE ACTIVITY

This permit requires Peoria Disposal Company to conduct the following hazardous waste activities in accordance with the approved permit application and the conditions in this permit:

1. **Storage** in Containers (S01), Tanks (S02), Surface Impoundment (S04), and Containment Building (S06)
2. **Treatment** (Non-Hazardous) in Tanks (T01), and Containment Building (T94)
3. **Post-Closure Care** of the closed Barrel Trench, Section A, Section B, and Trenches C-1 through C4.
4. **Groundwater Monitoring** Detection Monitoring Program
5. **Corrective Action** for the Pre-RCRA Closed Landfill.

This permit consists of the conditions contained herein and those in the 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 Ill. Adm. Code Parts 702, 703, 705, and 720 through 729 in effect on the effective date of this permit.

This permit is issued based on the information submitted in the approved permit application identified in Attachment J of this permit and any subsequent amendments. Any inaccuracies found in the information provided in the permit application may be grounds for the termination or modification of this permit (see 35 Ill. Adm. Code 702.187 and 702.186) and potential enforcement action (415 ILCS 5/44(h)).

DRAFT
Jacqueline M. Cooperider, P.E.
Permit Section Manager
Bureau of Land

JMC: KDH :1438120003-RCRA-B24R2-draft.docx

RCRA PERMIT ISSUED TO
Peoria Disposal Company
1438120003 – PEORIA COUNTY
ILD000805812
Log No. B-24R2

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SECTION I – GENERAL FACILITY DESCRIPTION

A. OWNER AND OPERATOR

1. The facility is owned and operated by Peoria Disposal Company (PDC) (a subsidiary of GFL Environmental, Inc.), herein referred to as the "Permittee." (35 Ill. Adm. Code 702.121, 702.123, and 703.181)

Peoria Disposal Company
4700 North Sterling Avenue
Peoria, Illinois 61615

B. LOCATION

1. Location of Facility

The facility is located approximately one (1) mile south of the intersection of West Reservoir Boulevard and Southport Road near Pottstown, Illinois. PDC owns approximately 120 acres at this location of which sixty-four (64) acres were permitted for hazardous waste disposal. The facility is located at:

Peoria Disposal Company
4349 Southport Road
Peoria, Illinois 61615

The facility contact is the Regional Environmental Compliance Manager and can be reached at 309/273-3563.

2. Facility Map

The location of the regulated units within the facility is shown on Attachment I.

C. DESCRIPTION OF HAZARDOUS AND NON-HAZARDOUS WASTE MANAGEMENT ACTIVITIES

The Permittee is a multi-faceted waste management company, including hauling, non-hazardous waste treatment, hazardous and non-hazardous waste storage, post-closure care, emergency response and remedial action. The entire PDC facility covers approximately 120 acres.

1. Containers

Operating Permitted Unit

- Up to ten (10) roll-off containers may be stored in the container storage/staging

area located north of the surface impoundment known as Runoff Retention Basin 1 (RRB1).

2. Wastewater Treatment System

A wastewater treatment system for hazardous liquids is located at the facility. The operation of the wastewater treatment itself is regulated by the Illinois EPA's Bureau of Water.

Operating Permitted Unit

- One (1) tank has been constructed for storage of incoming hazardous liquids and leachate from the closed landfill. This tank may contain a maximum of 20,000 gallons and has secondary containment to collect any leaks or spills from the tank system.

Proposed to be Constructed Permitted Units

- Up to three (3) additional leachate storage tanks are permitted for future construction. These tanks, if built, will be identical in construction and operation to the existing tank.

3. Solids Storage Building

Proposed to be Constructed Permitted Units

- A solids storage building is proposed to be constructed consisting of a container storage area, nine (9) hazardous waste storage tanks and other appurtenances/ancillary equipment (backhoe, etc.) necessary to operate the facility safely and in an environmental manner. The solids storage building will have a secondary containment system to collect spills and leaks and a leak detection system between the concrete foundation and the HDPE liner.

4. Waste Stabilization Facility (WSF)

Operating Permitted Unit

- A WSF is present to solidify non-hazardous wastes. The WSF has a secondary containment system to collect leaks or spills, and a leak detection system between the concrete foundation and a high-density polyethylene (HDPE) liner.

Proposed to be Constructed Permitted Units

- Two (2) proposed storage silos will be used to store dry, powdery wastes for eventual treatment in the WSF. These units will have a concrete vault as a secondary containment system.

5. Surface Impoundment

Operating Permitted Unit

- A double-lined hazardous waste surface impoundment known as RRB1 is present at the facility. This impoundment was once used to store run-off from the active area of the hazardous waste landfill. It has been and continues to be used for the storage of liquid hazardous wastes, including leachate from the hazardous waste landfill and non-contact storm water.

6. Landfill

Post-Closure Permitted Unit

- Of the approximately 120-acre RCRA facility, approximately sixty-four (64) acres are occupied by the closed seven (7) hazardous waste landfill areas. PDC had conducted the closure of the hazardous waste landfill areas in phases over time and submitted certification of closure of the final portion of these areas on January 3, 2014. The Illinois EPA has accepted the certification of closure of the entire landfill unit (including the seven (7) landfill areas) and the post-closure care for this hazardous waste landfill began on January 7, 2014.

7. Groundwater

- The groundwater detection monitoring program includes twenty-three (23) existing wells to monitor the groundwater in the uppermost (Lower Sand) aquifer: eighteen (18) downgradient wells and five (5) upgradient wells. In addition, the shallow zone groundwater observation monitoring program (Upper Till) includes six (6) wells which are intended to detect any releases from the landfill to the Upper Till. Wells will be sampled semi-annually during the operation, closure, and post-closure. Groundwater samples are analyzed for parameters based on waste characteristics and groundwater characteristics.

SECTION II: CONTAINERS

A. SUMMARY

This Section presents permit conditions for the storage of hazardous waste in bulk transport trailers according to the regulatory requirements of 35 Ill. Adm. Code 724, Subpart I (Containers) and Subpart G (Closure).

The Permittee may store up to ten (10) roll-off containers in the container storage/staging area located north of the Runoff Retention Basin 1 (the surface impoundment identified in Section V).

B. WASTE IDENTIFICATION

1. The storage of all hazardous waste containers shall be located in the approved storage area identified below:

Location	Maximum Containment Volume	Maximum Number and Type of Containers
Container staging/storage area	138.7 cubic yards	10 roll-off containers

2. The Permittee may only store the hazardous waste identified in Attachment C. Non-hazardous wastes may also be stored in the RCRA storage area provided the wastes are handled in an identical fashion to incoming hazardous wastes approved by the Illinois EPA in accordance with conditions of this permit.

3. The Permittee is prohibited from storing waste not identified in Condition II.B.2 in the permitted unit.

C. DESCRIPTION/CONDITION OF CONTAINERS

1. If a container holding waste is not in good condition (e.g., severe rusting, apparent structural defects) or if it begins to leak, the Permittee must transfer the waste from that container to a container that is in good condition or manage the waste in accordance with the approved permit application. This type of action must be recorded in the facility's operating record.

2. Each container containing hazardous waste shall be clearly marked with the words "Hazardous Waste" and the date upon which each period of accumulation begins.

3. Prior to being placed in the storage area, the contents of each container shall be clearly marked on a label attached to the side of the container in accordance with Title 40

Code of Federal Regulations (40 CFR) Part 172. If a container's label falls off, becomes illegible, is damaged or is removed while it is in the storage area, it must be replaced immediately. The container's label shall include the generic name of the waste in the container and its alpha numeric identification.

D. COMPATIBILITY OF WASTE WITH CONTAINERS

The Permittee must use a container made of or lined with material, which will not react with, and are otherwise compatible with the waste to be stored, so that the ability of the container to contain the waste is not impaired.

E. MANAGEMENT OF CONTAINERS

The Permittee shall comply with the following management practices:

1. A container holding waste must always be closed during storage, except when it is necessary to add or remove waste.

2. A container holding waste must not be opened, handled, or stored in a manner that may rupture the container or cause it to leak.

F. INSPECTION

The Permittee shall inspect the container area weekly, in accordance with Attachment A to detect leaks and deterioration of containers and the containment system caused by corrosion or other factors. Results of all inspections and activities undertaken to correct deficiencies shall be documented in the facility's operating record.

1. Appropriate action to clean-up any release of waste from a leaking or deteriorated container shall be carried out immediately upon discovery.

2. If a portion of the containment system is found to be in a deteriorated condition, the Permittee shall immediately remove all waste containers from the deteriorated area. No waste may be placed in the deteriorated area until the containment system has been repaired.

G. CONTAINMENT

1. The Permittee shall operate and maintain the containment system according to the design plans and operating specifications contained in the approved permit application.

2. The Permittee shall perform a complete inspection of the surface coating yearly and perform annual maintenance to ensure the integrity of the coating.

H. CLOSURE REQUIREMENTS

At closure, all waste and waste residues must be removed from the container storage area. Remaining containers, liners, bases, and soil containing or contaminated with waste or waste residue must be decontaminated or removed. Closure of the container storage areas shall be carried out in accordance with the closure plan in the approved permit application, as modified below:

1. The Permittee shall notify the Illinois EPA in writing of its intent to close the container storage area at least forty-five (45) days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit the sampling and analysis plan to be used in demonstrating the storage area has been properly decontaminated. Closure shall not begin without approval from the Illinois EPA. The Illinois EPA review of this plan will be subject to the permit appeal provisions contained in Section 39(a) and 40(a) of the Environmental Protection Act (Act). The response from the Illinois EPA shall establish:

   a. The sampling plan;

   b. What contaminants/parameters must be analyzed for; and

   c. The levels at which decontamination is considered complete.

2. The concrete surfaces shall be visually inspected, photographed and all residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces shall be steam cleaned and triple rinsed. All sweepings, wash and rinse water shall be collected and managed as a hazardous waste, unless the Permittee can document that the waste is not hazardous as defined in 35 Ill. Adm. Code 721.103. A qualified Illinois licensed professional engineer must certify that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil or an approved sampling plan must be used to establish clean closure.

3. The Permittee shall provide post-closure care in accordance with 35 Ill. Adm. Code 724, Subpart G for the container storage area in the event that all the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the approved closure plan identified in Condition II.H.1. If it is determined that the closure requirements cannot be met and post-closure care for the container storage area is required, this permit will be modified to require post-closure care for the container storage area, in accordance with 35 Ill. Adm. Code 724, Subparts G and H.

4. Should post-closure care, as described in Condition II.H.3, become necessary, the Permittee shall submit an application for modification to this permit, including an amended closure and post-closure care plan for this unit. The application must be submitted within thirty (30) days following discovery that clean closure cannot be

accomplished. If a determination is made to not pursue clean closure prior to the implementation of the closure plan for the container storage area, the modification request shall be made no later than sixty (60) days after the determination is made.

5. Financial assurance for closure and post-closure of the container storage area, if required in accordance with Condition II.H.3 and Condition II.H.4, shall be provided within thirty (30) days following modification of the permit. The approved closure cost estimate for this unit is identified in Attachment E.

6 Within sixty (60) days after closure of the container storage area has been completed, the Permittee shall submit certification to the Illinois EPA that the unit has been closed in accordance with the approved closure plan. The closure certification form in Attachment H or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code 702.126. The qualified Illinois licensed professional engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Illinois licensed professional engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the container storage area until the Illinois EPA approves the closure certification for the unit and allows for release of financial assurance in writing. Illinois EPA's review of closure certifications for partial or final closure will be conducted in accordance with 35 Ill. Adm. Code 724.278.

A Closure Documentation Report must be submitted with the closure certification. This report must include the following information:

a. The volume of waste and waste residue removed, including wastes resulting from decontamination activities;

b. A description of the method of waste handling and transport;

c. Copies of the waste manifests;

d. A description of the sampling and analytical methods used;

e. A summary of all releases of waste at the container storage area including the date of the release, approximate amount of waste released, and the type of waste released;

f. A chronological summary of closure activities and the cost involved;

g. Tests performed, methods and results; and

h. Color photographs of closure activities which document conditions before, during and after closure.

7. The Permittee shall obtain any necessary permits for waste disposal prior to initiating excavation activities. The Permittee shall not create regulated waste pile units by storing the excavated hazardous waste in piles. The ninety (90) day accumulation time exemption (35 Ill. Adm. Code 722.117) only applies to containers and tanks.

8. Hazardous waste operations and emergency response activities conducted under this permit must be in accordance with the requirements of 29 CFR Part 1910.

9. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code 724.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Sections 39(a) and 40(a) of the Act.

10. The Permittee shall analyze all samples individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846, Testing Methods for Evaluating Solid Wastes and the Illinois EPA's Guidance for Preparing RCRA Closure Plans. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTE

1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same container, unless the procedures specified in the approved permit application are followed.

   Incompatible wastes or materials must not be placed in the same container unless precautions are taken to prevent reactions which:

   a. Generate extreme heat or pressure, fire or explosions, or violent reactions.

   b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment.

   c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions.

   d. Damage the structural integrity of the device or facility.

   e. Through other like means, threaten human health or the environment.

The basic methods for preventing such reactions are to:

a. Treat one or both of the incompatible wastes/materials to render them compatible prior to placing them in the container.

b. Physically separate the incompatible wastes/materials in the containers so that it is not possible for the incompatible wastes/materials to come in contact with each other.

2. The Permittee shall not place hazardous waste in an unwashed container that previously held an incompatible waste or material.

3. The Permittee shall not store containers holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments unless separated from the other material or protected from them by means of a dike, berm, wall, or other devices.

J. GENERAL OPERATING REQUIREMENTS

The Permittee shall operate the container storage area in accordance with the approved permit application subject to the following conditions:

1. The Permittee may receive hazardous waste for storage in containers provided the following requirements are met.

a. The material must be a waste which has been identified in Attachment C;

b. The waste must be analyzed in accordance with the approved waste analysis plan; and

c. The waste must be accompanied by a properly completed Illinois manifest unless the generator is: (1) a very small quantity generator as defined in 35 Ill. Adm. Code 720.110; or (2) subject to the exemption as defined in 35 Ill. Adm. Code 722.114.

2. Cleanup of all spills inside the secondary containment areas must begin immediately upon discovery and be completed within twenty-four (24) hours. Secondary containment must be inspected immediately after cleanup for cracks, gaps or other defects (failure of the coating) which would allow waste to migrate to the underlying soil. If any deterioration is discovered, the Permittee shall immediately remove all waste from the deteriorated area.

3. The Permittee shall remove any precipitation which accumulates in the secondary containment system within twenty-four (24) hours of the time such accumulation is discovered.

4. For any waste(s) subject to the land disposal restrictions contained in 35 Ill. Adm. Code Part 728, the Permittee shall comply with all applicable waste analysis, notification and record keeping requirements contained in 35 Ill. Adm. Code Part 728.

SECTION III: TANK SYSTEMS

A. SUMMARY

This section contains permit conditions for the fifteen (15) hazardous waste storage tanks and one (1) non-hazardous waste treatment tank according to the regulatory requirements of 35 Ill. Adm. Code 724, Subpart J (Tank Systems) and Subpart G (Closure).

1. The Permittee may store liquid hazardous waste in up to four (4) tanks (T-1 to T-4). However, currently only one (1) leachate storage tank (T-4) has been constructed and is in operation. T-4 is located near the east edge of the site as shown on Attachment I. Construction requirements in Condition III.J must be met for the three (3) additional tanks proposed to be located near the hazardous liquid treatment unit. The capacity of each tank is 20,000 gallons.

2. Nine (9) tanks (SS-1 to SS-9) are permitted for either storage of hazardous wastes or treated wastes waiting for disposal; however, none have yet to be constructed. The total capacity of these tanks is 464,508 gallons. Construction requirements in Condition III.J must be met.

3. Two (2) silos (S-1 and S-2) are permitted for storage of dry, fine hazardous waste prior to stabilization; however, neither have yet to be constructed. The capacity of each tank is 32,613 gallons. Construction requirements in Condition III.J must be met.

4. One (1) tank, referred to as the Stabilized Base Mixer, is present at the facility which is used to stabilize non-hazardous waste. This unit is in the WSF described in Section IV of this permit. The Permittee is not allowed to treat hazardous waste in this unit.

5. All tanks must have secondary containment.

B. WASTE IDENTIFICATION

1. The Permittee may treat a total volume of 8,060 gallons/hour of non-hazardous waste in a Stabilized Base Mixer tank subject to the terms of this permit. The Permittee is not allowed to treat hazardous waste.

2. The Permittee may only store hazardous waste identified in Attachment C to this permit. The Permittee may accept non-hazardous waste if the wastes are managed in accordance with the conditions of this permit that apply to hazardous waste placed in the same unit.

3. The Permittee may store hazardous wastes and treat non-hazardous wastes in the tanks listed below subject to the terms of this permit:

Tank No.	Capacity (Gallons)	Material of Construction	Dimensions	Status	Minimum Shell Thickness in Inches (")
T-1	20,000	fiberglass	11'6"x25'0" w 45° cone bottom	proposed	0.1875
T-2	20,000	fiberglass	11'6"x25'0" w 45° cone bottom	proposed	0.1875
T-3	20,000	fiberglass	11'6"x25'0" w 45° cone bottom	proposed	0.1875
T-4	20,000	fiberglass	11'6"x25'0" w 45° cone bottom	existing	0.1875
Stabilized Base Mixer*	194 ft^3	steel	12'x 6'4" x4'6"	existing	3/8" sacrificial wear liner
SS-1	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-2	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-3	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-4	67,320	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-5	67,320	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-6	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-7	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-8	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
SS-9	47,124	concrete	20'x14'x22.5'	proposed	1/4" sacrificial wear liner
S-1	32,613	steel	36'x12'dia w/cone 9' 4 9/16" L	proposed	0.1875
S-2	32,613	steel	36'x12'dia w/cone 9' 4 9/16" L	proposed	0.1875

* - Treatment Tank

C. CONTAINMENT AND DETECTION OF RELEASES

1. The Permittee shall construct, operate, and maintain the tank systems according to the detailed plans and reports contained in the approved permit application.

2. The Permittee shall construct, maintain, and operate the secondary containment systems in accordance with the detailed design plans and descriptions contained in the approved permit application.

3. For ancillary equipment, a leak test or other integrity assessment as approved by the Illinois EPA must be conducted annually.

4. In the event of a leak or a spill from the tank system, from a secondary containment system, or if a system becomes unfit (i.e., failure of the coating) for continued use, the Permittee shall remove the system from service immediately and complete the following actions: (35 Ill. Adm. Code 724.296(a) through (f))

   a. Stop the flow of hazardous/non-hazardous waste into the system and inspect the system to determine the cause of the release.

   b. Remove all waste as necessary from the system within twenty-four (24) hours of the detection of the leak to prevent further release and to allow inspection and repair of the system. If the Permittee finds that it will be impossible to meet this time period, the Permittee shall notify the Illinois EPA verbally within 24-hours and demonstrate that a longer time period is required. In addition, a written submission describing the incident must be submitted to Illinois EPA within five (5) days of the release.

      If the collected material is a hazardous waste, it must be managed in accordance with all applicable requirements of 35 Ill. Adm. Code Parts 722 through 724.

   c. Contain visible releases to the environment. The Permittee shall immediately conduct a visual inspection of all releases to the environment and based on that inspection: (1) prevent further migration of the leak or spill to soils or surface water; and (2) remove and properly dispose of any visible contamination of the soil or surface water.

   d. Close the system in accordance with the closure plan, contained in the approved permit application, unless the following actions are taken:

      i. For a release caused by a spill that has not damaged the integrity of the system, the Permittee shall remove the released waste and make any necessary repairs to fully restore the integrity of the system before returning the tank system to service.

ii. For a release caused by a leak from the primary tank system to the secondary containment system, the Permittee shall repair the primary system prior to returning it to service.

5. The Permittee shall remove all liquids, either from spills or precipitation, contained in the secondary containment system within twenty-four (24) hours.

D. GENERAL OPERATING REQUIREMENTS

1. The Permittee shall not place waste or treatment reagents in a tank system if they could cause the tank, its ancillary equipment, or the containment system to rupture, leak, corrode, or otherwise fail.

2. The Permittee shall use appropriate controls and practices to prevent spills and overflows from tank or containment systems using the methods specified in the approved permit application.

   a. Tanks T-1 through T-4 shall be operated with automatic waste feed shut-off valves connected to a continuously monitored liquid level sensors which are activated when the tank is one (1) foot (~95%) below the top of the full tank.

   b. The solid storage tanks shall be operated with two (2) feet of freeboard. All unloading of trucks shall be under direct observation if the level of waste in the tank is within two (2) feet of the freeboard mark.

3. The Permittee, in the event of a leak or a spill in the tank system, shall comply with the practices and procedures described in the approved permit application and 35 Ill. Adm. Code 724.296, and notify the Illinois EPA in accordance with Section III.G.

4. All hazardous and non-hazardous special wastes received at the facility must be accompanied by a properly completed Illinois manifest in accordance with 35 Ill. Adm. Code Part 809.

5. A trained and qualified employee of the facility shall be present at all times when waste is being transferred from a tank truck to a receiving tank.

E. TANK SYSTEM CERTIFICATION

1. The Permittee shall obtain and keep on file at the facility written statements by those persons required to certify the design of the tank system and supervise the installation of the tank system.

2. The Permittee shall obtain and keep on file at the facility a written assessment of the existing tank system integrity. The assessment shall be certified by a qualified Illinois licensed professional engineer.

F. INSPECTIONS

1. The Permittee must inspect the tank systems in accordance with Attachment A.

2. The bulk liquid unloading area shall be inspected in the following manner:

   The area shall be inspected for the presence of spills and releases after each truck has been unloaded. If observed, such releases shall be cleaned up immediately. Documentation of these inspections and any corrective actions taken shall be included in the operating record for the facility.

3. The Permittee shall inspect each tank system to assess its condition. This inspection shall consist of a visual inspection, a pressure test, and an ultrasonic thickness test in accordance with the following procedures:

   a. A hydrostatic leak test or other integrity assessment as approved by the Illinois EPA shall be conducted annually on the tank ancillary equipment.

   b. For steel tanks:

      i. An ultrasonic thickness test shall be conducted annually on the tank.

      ii. A detailed visual inspection of the tank's interior shall be conducted every fifth (5th) year to ensure the tank's integrity. During this internal inspection, the internal surface shall be inspected for rust, cracks and thin areas. Corrective action as specified by a qualified Illinois licensed professional engineer or corrosion technician shall be taken if the internal inspection indicates that the interior surface of a tank system has been detrimentally affected by the hazardous waste which has been stored in it. Tanks shall be entered in accordance with 29 CFR 1910.94(d)(11). The first inspection of any proposed tanks shall be within five (5) years of becoming operational.

   c. For all fiberglass tanks:

      1. A detailed visual inspection of the tank's interior shall be conducted every fifth (5^{th}) year to ensure the tank's integrity. During this internal inspection, the interior surface shall be inspected for softening, indentations, cracks, exposed fibers, aging, checking, lack of surface resin, delamination, translucency/discoloration, air bubbles and thin areas. Corrective action as specified by the manufacturer of these tanks shall be taken if the internal inspection indicates that the interior surface of a tank system has been detrimentally affected by the hazardous wastes which have been stored in it.

d. For all concrete tanks:

i. A detailed visual inspection of the tank's interior shall be conducted annually to ensure the tank's integrity.

e. The inspection of each tank shall be certified by a qualified Illinois licensed professional engineer, or corrosion technician, or other qualified inspector if allowed by the Professional Engineering Act of 1989 in accordance with the manufacturer's instructions, recommendations, and specifications.

f. All waste and wash water generated during evacuation of the tanks shall be managed as a hazardous waste, unless the permittee can document that the waste is not hazardous as defined in 35 Ill. Adm. Code 721.103.

g. Results of the inspection shall be submitted to the Illinois EPA within sixty (60) days of the inspection date and shall also be included in the facility's operating record.

h. If the results of these inspections indicate a tank system is leaking or is experiencing excessive corrosion or deterioration the procedures set forth in 35 Ill. Adm. Code 724.296 shall be followed.

G. REPORTING AND RECORDKEEPING

1. The Permittee shall report to the Illinois EPA's, Bureau of Land (BOL) Peoria Field Operation Office within twenty-four (24) hours when a leak or spill occurs in the tank system or secondary containment system unless the spill or leak of hazardous waste is less than or equal to one (1) pound in quantity and it is immediately contained and cleanup up.

2. Within thirty (30) days of detecting a release to the environment from the tank system or secondary containment system, the Permittee shall report the following information in writing to the Illinois EPA's Springfield Headquarters and Illinois EPA's BOL Peoria Field Operation Office:

a. Likely route of migration of the release;

b. Characteristics of surrounding soil (including soil composition, geology, hydrogeology, and climate);

c. Results of any monitoring or sampling conducted in connection with the release;

d. Proximity to downgradient drinking water, surface water, and populated areas; and

e. Description of response actions taken or planned.

3. The Permittee shall submit to the Illinois EPA all certifications of major repairs to correct leaks within seven (7) days from returning the tank system to service. (35 Ill. Adm. Code 724.296(f))

H. CLOSURE REQUIREMENTS

Closure of the tank systems shall be carried out in accordance with the closure plan in the approved permit application, as modified below:

1. The Permittee shall notify the Illinois EPA in writing of its intent to close the tank system at least forty-five (45) days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit the sampling and analysis plan to be used in demonstrating a tank system has been properly decontaminated and clean closed. The plan shall be approved by the Illinois EPA in writing prior to being implemented. The Illinois EPA's review of this plan will be subject to the permit appeal provisions contained in Section 39(a) and 40(a) of the Act. The response from the Illinois EPA shall establish:

   a. The sampling plan;

   b. What contaminants/parameters must be analyzed for; and

   c. The levels at which decontamination is considered complete.

2. The surfaces shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the surfaces must be steam cleaned and triple rinsed. All wash and rinse water shall be collected. For tank systems which include secondary containment systems which met the requirements of 35 Ill. Adm. Code 724.293 at the time of installation, the secondary containment must be certified by a qualified Illinois licensed professional engineer indicating that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil. If such a certification cannot be made, soil sampling and analysis must be conducted to establish clean closure.

   Sweepings collected during closure of any tank system shall be managed as a hazardous waste. All wash water and rinse water generated during the closure of these units shall also be managed as a hazardous waste unless it can be shown to be exempt under 35 Ill. Adm. Code 721.103.

3. The Permittee shall provide post-closure care in accordance with 35 Ill. Adm. Code Part 724 for a tank system if all the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the closure requirements outlined in this permit and in the approved closure plan. If it is determined that the

closure requirements cannot be met and post-closure care is required, the tank system shall be considered a landfill and the post-closure care plan in the approved application will be modified as required to provide adequate post-closure care for the affected tank system in accordance with 35 Ill. Adm. Code 724, Subparts G and H.

4. Should post-closure care, as described in Condition III.H.3, become necessary, the Permittee shall submit an application for modification to this permit, including an amended closure plan and post-closure care plan for the affected tank system within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made not to pursue clean closure prior to the implementation of the closure plan for the tank system, the modification request shall be made no later than sixty (60) days after the determination is made.

5. Financial assurance for closure and post-closure care of any tank system being closed as a landfill, when required in accordance with Conditions III.H.3 and III.H.4, shall be updated within thirty (30) days following modification of the permit under the provisions of Condition III.H.4. The approved closure cost estimate for the existing tanks at the facility is identified in Attachment E.

6. Within sixty (60) days after closure of the tank system is complete, the Permittee shall submit certification to the Illinois EPA that the unit has been closed in accordance with the approved closure plan.

   The closure certification form in Attachment H to this permit or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code 702.126. The qualified Illinois licensed professional engineer or an engineer working under his direct supervision must be present during all major activities during the closure, (e.g., decontamination, soil sampling, soil removal, backfilling and final cover placement). The frequency of inspections by the qualified Illinois licensed professional engineer must be sufficient to determine the adequacy of each major activity. Financial assurance must be maintained for the tank system until the Illinois EPA approves the closure certification for the unit and allows for release of financial assurance in writing. Illinois EPA's review of closure certifications for partial or final closure will be conducted in accordance with 35 Ill. Adm. Code 724.297.

   A Closure Documentation Report is to be submitted with the closure certification which includes the following items, if applicable:

   a. The volume of waste and waste residue removed, including wastes resulting from decontamination activities;

   b. A description of the method of waste handling and transport;

c. Copies of the waste manifests;

d. A description of the sampling and analytical methods used;

e. A chronological summary of closure activities and the cost involved;

f. Tests performed, methods, and results;

g. Color photographs of closure activities which document conditions before, during, and after closure; and

h. A scale drawing of all excavated or decontaminated areas and sample locations.

7. The Permittee shall obtain any necessary permits for waste disposal prior to initiating excavation activities. The Permittee shall not create regulated waste pile units by storing the excavated hazardous waste in piles. The permit exemption (35 Ill. Adm. Code 722.117) only applies to containers and tanks.

8. Hazardous waste operations and emergency response activities conducted under this permit must be in accordance with the requirements of 29 CFR Part 1910.

9. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code 724.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions of Sections 39(a) and 40(a) of the Act.

10. The Permittee shall analyze all samples individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846, Testing Methods for Evaluating Solid Wastes and the Illinois EPA's Guidance for Preparing RCRA Closure Plans. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

I. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the same tank system, unless the procedures specified in the approved permit application are followed.

   Precautions must be taken to prevent reactions which:

   a. Generate extreme heat or pressure, fire or explosions, or violent reactions.

b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment.

c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions.

d. Damage the structural integrity of the device or facility.

e. Through other like means, threaten human health or the environment.

2. The Permittee shall not place waste in a tank system that has not been decontaminated and that previously held an incompatible waste or material.

J. GENERAL CONSTRUCTION REQUIREMENTS

The Permittee is permitted to construct/install the tanks (including ancillary equipment, secondary containment, and other necessary appurtenances) identified in Section III.B. These tanks may only be constructed in accordance with the approved permit application, subject to the following modifications:

1. Within thirty (30) days after completing construction and prior to any waste being placed or stored in a tank or its corresponding ancillary equipment, the Permittee shall submit to the Illinois EPA a certification from a qualified Illinois licensed professional engineer. This certification must demonstrate that the tank system meets the requirements of 35 Ill. Adm. Code 724.292. The certification shall contain the information described in Attachment F and the additional information listed below:

   a. A report documenting the new tank system was inspected for the presence of the following items:

      i. weld breaks;
      ii. punctures;
      iii. scrapes of protective coatings;
      iv. cracks;
      v. corrosion;
      vi. other structural damage or inadequate construction/installation.

      All defects noted during this inspection must be remedied prior to covering, enclosing or placing the tank system in use.

   b. A copy of the leak test performed on all of the new tanks and ancillary equipment, including a description of any repairs performed on the system to remedy the leak(s).

c. Certification that the tanks and ancillary equipment were designed and installed in a manner that is supported and protected against physical damage and excessive stress due to settlement, vibration, expansion, or contraction.

2. The Illinois EPA shall review the certification described in Condition III.J.1 to ensure the tank systems and their secondary containment meets the requirements of 35 Ill. Adm. Code 724.292 and 724.293. The Illinois EPA will respond with any comments to this certification in writing within fifteen (15) days from the receipt of the certification. The Illinois EPA review of this certification will be subject to the permit appeal provisions contained in Section 39(a) and 40(a) of the Illinois Environmental Protection Act.

SECTION IV: CONTAINMENT BUILDING

A. SUMMARY

The Permittee may utilize a containment building, designated as the Waste Stabilization Facility (WSF) for: (1) storage of hazardous waste; and (2) storage and treatment of non-hazardous wastes that contain free liquids or require treatment. The Permittee is not allowed to treat hazardous waste. Four (4) storage bays for incoming waste contain a combined maximum of eighty-eight (88) cubic yards. After treatment in a mixer, the waste is moved to the curing area, which can contain a maximum of 658 cubic yards of treated waste. The WSF is constructed with a liner system, leachate collection sumps, and a leak detection system. To continue treatment of hazardous waste, PDC is required to submit a new Waste Analysis and Treatment Plan to the Illinois EPA for approval and submit a certification by a qualified Illinois licensed professional engineer that the containment building continues to meet the requirements of 35 Ill. Adm. Code 724.1101.

B. WASTE IDENTIFICATION

1. The Permittee may store at the WSF:

   a. the hazardous waste identified in Attachment C; and

   b. non-hazardous waste if the wastes are managed in accordance with the conditions of this permit that apply to hazardous waste placed in the same unit.

2. The Permittee may store and treat the following wastes (non-hazardous only) within the various units in the WSF, subject to the terms of this permit:

Description of Units	**Capacity (cubic yards)**	**Description of Hazardous Wastes**
Receiving Bays		See Attachment C for waste list and hazardous waste numbers.
B-1	22	
B-2	22	
B-3	22	
B-4	22	
Curing Area	658	
Mix Cell A	168	
Mix Cell B	56	

3. The Permittee is prohibited from storing or treating waste in the permitted unit not identified in Condition IV.B.2.

C. DESIGN AND OPERATING REQUIREMENTS

1. The Permittee shall operate the WSF in accordance with the approved permit application.

2. The Permittee shall design, construct, maintain, and operate the leachate collection and removal system, and a leak detection system in accordance with the design plans and operating practices contained in the approved permit application.

3. The Permittee shall design, construct, operate, and maintain the run-on control system in accordance with the design plans, specifications, and operating practices contained in the approved permit application.

4. The Permittee shall design, construct, operate, and maintain the run-off management system in accordance with the design plans, specifications, and operating practices contained in the approved permit application.

5. The Permittee shall empty or otherwise manage run-on and run-off collection and holding facilities to maintain the design capacity of the system(s) in accordance with the design plans and operating practices specified in the approved permit application.

6. The Permittee must maintain the primary barrier free of significant cracks, gaps, corrosion, and other deterioration in accordance with 35 Ill. Adm. Code 724.1101(c)(1)(A).

7. The Permittee shall maintain the level of the stored/treated material within the walls of the WSF so that the height of the waste does not exceed the requirements of 35 Ill. Adm. Code 724.1101(c)(1)(B).

8. The Permittee shall prevent track-out from the WSF in accordance with 35 Ill. Adm. Code 724.1101(c)(1)(C).

9. The Permittee shall operate and maintain the negative pressure system in accordance with 35 Ill. Adm. Code 724.1101(c)(1)(D) to ensure compliance with the no visible fugitive dust emissions requirement.

10. The Permittee shall require all workers to wear respirators anytime they are within the structure (i.e., at or near the receiving bays, the treatment area or the inside curing area) and the facility is processing (receiving/treating) waste, except that workers inside the sealed cab and office are not required to wear a respirator.

11. The Permittee may perform treatment of dusty non-hazardous waste through the addition of moisture in accordance with the procedures outlined below:

    a. Shipments of waste to be moisturized shall be routed to the WSF in accordance with the procedures for all shipments that require treatment.

    b. The mixing unit to receive the waste must be emptied of any previously managed wastes as per standard procedures to maintain the waste's status as not subject to the land disposal restriction standards in 35 Ill. Adm. Code Part 728. The existing "Mixer Cleaning Documentation" form included in the approved permit application may serve to document this step.

    c. Only potable "city" water may be used for moisturization to maintain the waste's status as not subject to the land disposal restriction standards at 35 Ill. Adm. Code Part 728. This is to ensure that no wash waters or water from any other source that may have contacted hazardous waste in the WSF is used.

    d. The waste and water must be thoroughly blended to ensure uniformity of the treated waste's consistency.

    e. The Stabilization Clerk must assign a batch number and complete a "Waste Treatment Record" form included in the approved permit application.

    f. The treated waste shall be loaded into a roll off box(es) and transported to Gate Control prior to land disposal. Gate Control personnel must verify that an authorization form, completed by the Stabilization Clerk, has been issued for that batch, visually inspect the treated waste to verify it has been adequately moisturized and, conversely, inspect for free-standing liquid and perform a paint filter test to ensure the waste was not over-treated and does not meet the definition of a liquid waste.

    g. The treated waste must receive Gate Control clearance before being transported to the landfill.

    h. For purposes of Condition IV.C.11, dusty waste shall be defined as those wastes that are able of generating particulate matter as defined in 35 Ill. Adm. Code 211.4510 during loading, unloading, or mixing such that the particulate matter may be generated in sufficient volume to cause air pollution as defined in Section 3.115 of the Act.

D. INSPECTIONS

1. The Permittee shall inspect the WSF (including the liner and any appurtenance for control of run-on and run-off) on a weekly basis and in accordance with Attachment A.

2. The Permittee shall inspect the WSF immediately after storms (3 inches or more of rain in a 24-hour period).

3. The Permittee shall inspect the WSF leak detection system at least once weekly.

4. The Permittee shall conduct each inspection to detect evidence of the following:

   a. Deterioration, malfunctions, or improper operation of the run-on and run-off control system and liner.

   b. Presence of leachate in, and proper functioning of, leachate collection, detection and removal systems.

E. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials in the same area, unless the procedures specified in the approved permit application are followed, to prevent reactions which:

   a. Generate extreme heat or pressure, fire or explosions, or violent reactions;

   b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

   c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

   d. Damage the structural integrity of the device or facility; and

   e. Through other like means, threaten human health or the environment.

2. The Permittee shall separate a pile of waste from any incompatible waste or other material that is incompatible with any waste or other material that is stored nearby in containers, other areas, open tanks, or surface impoundments by means of a dike, berm, wall, or other suitable devices.

3. The Permittee shall not place wastes in the same area where incompatible wastes or materials were previously piled, until the base has been decontaminated sufficiently to ensure compliance with Condition IV.E.1.

F. CLOSURE REQUIREMENTS

At closure, all waste and waste residues must be removed from the WSF. Closure of the WSF shall be carried out in accordance with the closure plan in the approved permit application, subject to the following modifications:

1. The Permittee shall notify the Illinois EPA in writing of its intent to close the WSF at least forty-five (45) days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit the sampling and analysis plan to be used in demonstrating that these areas have been properly decontaminated and clean closed. The plan shall be approved by the Illinois EPA in writing prior to being implemented. Illinois EPA's review of this plan will be subject to the permit appeal provisions contained in Section 39(a) and Section 40(a) of the Act. The response from the Illinois EPA shall establish:

   a. The sampling plan;

   b. What contaminants/parameters must be analyzed for; and

   c. The levels at which decontamination is considered complete.

2. The concrete surfaces comprising the WSF shall be visually inspected, photographed and any residue adhering to the surface must be removed by scraping and/or brushing. Following this, the concrete surfaces must be steam cleaned and triple rinsed. All sweepings, wash water and rinse water shall be collected and managed as a hazardous waste, unless the Permittee can document that the waste is not hazardous as defined in 35 Ill. Adm. Code 721.103. A qualified Illinois licensed professional engineer must certify that the surface has no cracks, gaps or other defects which would allow waste to migrate through to the underlying soil. Otherwise, sampling in accordance with an approved sampling plan, shall be conducted to verify the underlying soil is uncontaminated.

3. The Permittee shall provide post-closure care in accordance with 35 Ill. Adm. Code Part 724 for the WSF if all the hazardous wastes or contaminated soils cannot be practicably removed or decontaminated in accordance with the closure requirements outlined in the permit and in the approved closure plan. If it is determined that the closure requirements cannot be met and post-closure care is required, this permit shall be modified to require post-closure care for the WSF in accordance with 35 Ill. Adm. Code 724, Subparts G and H.

4. Should post-closure care, as described in Condition IV.F.3, become necessary, the Permittee shall submit an application for permit modification, including an amended closure and post-closure care plan for the WSF, within thirty (30) days following discovery that clean closure cannot be accomplished. If a determination is made to not pursue clean closure prior to the implementation of the closure plan for the WSF, the modification request shall be made no later than sixty (60) days after the determination is made.

5. Financial assurance for closure and post-closure care of the WSF, if required in accordance with Condition IV.F.3, shall be provided within thirty (30) days following

modification of the permit under the provisions of Condition IV.F.4. The approved closure cost estimate for this unit is identified in Attachment E.

6. Within sixty (60) days after closure of the WSF is complete, the Permittee shall submit certification to the Illinois EPA that the unit has been closed in accordance with the approved closure plan.

   The closure certification form in Attachment H or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code Section 702.126. The qualified Illinois licensed professional engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Illinois licensed professional engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the WSF until the Illinois EPA approves the closure certification for the unit and allows for release of financial assurance in writing. Illinois EPA's review of closure certification for partial or final closure will be conducted in accordance with 35 Ill. Adm. Code 724.1102.

   A Closure Documentation Report must be submitted with the closure certification which includes the following items, if applicable:

   a. The volume of waste and waste residue removed, including wastes resulting from decontamination activities;

   b. A description of the method of waste handling and transport;

   c. Copies of the waste manifests;

   d. A description of the sampling and analytical methods used;

   e. A chronological summary of closure activities and the cost involved;

   f. Tests performed, methods and results;

   g. Color photographs of closure activities which document conditions before, during and after closure; and

   h. A scale drawing of all excavated or decontaminated areas and sample locations.

7. The Permittee shall obtain any necessary permits for waste disposal prior to initiating excavation activities. The Permittee shall not create regulated waste pile units by storing the excavated hazardous waste in piles. The permit exemption (35 Ill. Adm. Code 722.117) only applies to containers and tanks.

8. Hazardous waste operations and emergency response activities conducted under this permit must be in accordance with the requirements of 29 CFR Part 1910.

9. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code 724.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions contained in Section 39(a) and Section 40(a) of the Act.

10. The Permittee shall analyze all samples individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846, Testing Methods for Evaluating Solid Wastes and the Illinois EPA's Guidance for Preparing RCRA Closure Plans. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

G. RECORDKEEPING AND REPORTING

Throughout the active life of the WSF, if the Permittee detects a condition that could lead to or has caused a release of hazardous waste, the Permittee must repair the condition promptly, in accordance with the following procedures:

1. Upon detection of a condition that has led to a release of hazardous waste (e.g., upon detection of leakage from the primary barrier) the Permittee must:

    a. Enter a record of the discovery in the facility operating record;

    b. Immediately remove the portion of the WSF affected by the condition from service;

    c. Determine what steps must be taken to repair the WSF and establish a schedule for accomplishing the cleanup and repairs; and

    d. Within seven (7) days after the discovery of the condition, notify the Illinois EPA of the condition, and within fourteen (14) working days, provide a written notice of the condition to the Illinois EPA with a description of the steps taken to repair the WSF, and the schedule for accomplishing the work.

2. The Illinois EPA will review the information submitted, make a determination regarding whether the WSF must be removed from service completely or partially until repairs or cleanup are complete, and notify the Permittee of the determination and underlying rationale in writing.

3. Upon completion of all repairs and cleanup, the Permittee must notify the Illinois EPA in writing and provide a verification, signed by a qualified Illinois licensed

professional engineer, that the repairs and cleanup have been completed according to the written plan submitted in accordance with Condition IV.G.1.

SECTION V: SURFACE IMPOUNDMENT

A. SUMMARY

A hazardous waste surface impoundment, designated as Runoff Retention Basin 1 (RRB1), may contain a maximum of 2.2 million gallons of liquid consisting of non-contact stormwater and leachate collected from the leachate collection systems of the landfill areas. The liquid in RRB1 must be managed as listed hazardous waste (waste code F039). RRB1 has been constructed with a double synthetic liner system and a leak detection system.

This section presents permit conditions for RRB1 according to the regulatory requirements of 35 Ill. Adm. Code 724, Subpart G (Closure) and Subpart K (Surface Impoundments).

B. WASTE IDENTIFICATION

1. RRB1 is located within the facility as shown on Attachment I.

2. The Permittee may store the following hazardous and non-hazardous wastes in RRB1, subject to the terms of this permit:

Surface Impoundment Designation	**Capacity (million gallons)**	**Description of Hazardous Waste**
Runoff Retention Basin 1 (RRB1)	2.2	See Attachment C for Waste List and Hazardous Waste Numbers.

3. The Permittee is prohibited from storing waste in RRB1 not identified in Condition V.B.2.

C. DESIGN AND OPERATING REQUIREMENTS

1. The Permittee shall operate and maintain the leak detection system between the liners in accordance with the design plans and reports contained in the approved permit application. The Permittee shall manage the leachate collected from the leak detection system as a hazardous waste.

2. The Permittee shall operate and maintain the RRB1 to prevent overtopping in accordance with the detailed design plans and operating practices contained in the approved permit application.

3. The Permittee shall maintain the RRB1 dikes according to the detailed design plans and operating practices contained in the approved permit application.

D. REPORTING

1. The Permittee shall notify the Illinois EPA in writing within seven (7) days after detecting either a leak in the RRB1 dike or a sudden drop in the liquid level (and the drop is not known to be caused by changes in the flows into or out of the RRB1).

E. INSPECTIONS

1. The Permittee shall inspect the RBB1 (including the liner, cover systems, leak detection system, and appurtenances for control of overtopping) in accordance with Attachment A.

2. If the RRB1 is removed from service for more than six (6) months, then prior to returning to service, the Permittee shall obtain a certification from a qualified Illinois licensed professional engineer that the RRB1's dike, including that portion of any dike which provides freeboard, has structural integrity. The certification must be submitted to the Illinois EPA prior to returning to service.

F. SPECIAL REQUIREMENTS FOR IGNITABLE WASTES

The Permittee shall not place ignitable waste in the RRB1.

G. SPECIAL REQUIREMENTS FOR INCOMPATIBLE WASTES

1. The Permittee shall not place incompatible wastes, or incompatible wastes and materials, in the RRB1, unless the procedures specified in the approved permit application are followed.

2. In accordance with the regulations, incompatible wastes or materials must not be placed in the RRB1 unless precautions are taken to prevent reactions which:

   a. Generate extreme heat or pressure, fire or explosions, or violent reactions;

   b. Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health or the environment;

   c. Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions;

   d. Damage the structural integrity of the device or facility; and

   e. Through other like means, threaten human health or the environment.

H. CLOSURE REQUIREMENTS

At closure, all waste, liners, and equipment must be removed from the RRB1. Closure of the RRB1 shall be carried out in accordance with the closure plan in the approved permit application, subject to the following modifications:

1. The Permittee shall notify the Illinois EPA in writing of its intent to close the RRB1 at least sixty (60) days prior to the date closure is expected to begin. Along with this notification, the Permittee shall submit the sampling and analysis plan to be used in demonstrating that this unit will be clean closed. The plan shall be approved by the Illinois EPA in writing prior to being implemented. The Illinois EPA's review of this plan will be subject to the permit appeal provisions contained in Section 39(a) and Section 40(a) of the Act. The response from the Illinois EPA shall establish:

   a. The sampling plan;

   b. What contaminants/parameters must be analyzed for; and

   c. The levels for which the unit may be considered clean closed.

2. Sampling in accordance with an approved sampling plan, shall be conducted to verify the underlying soil is uncontaminated.

3. The Permittee shall maintain and monitor the groundwater monitoring system and comply with other applicable regulations of 35 Ill. Adm. Code 724, Subpart F during the closure period.

4. The Permittee shall provide post-closure care in accordance with 35 Ill. Adm. Code Part 724 for the RRB1 if all the contaminated soils cannot be practicably removed with the closure requirements outlined in the permit and in the approved closure plan. If it is determined that the closure requirements cannot be met and post-closure care is required, this permit shall be modified to require post-closure care for the RRB1 in accordance with 35 Ill. Adm. Code 724, Subparts G and H.

5. Should post-closure care, as described in Condition V.H.4, become necessary, the Permittee shall submit an application for permit modification, including an amended closure and post-closure care plan for the RRB1, within thirty (30) days following a determination that clean closure cannot be accomplished. If a determination is made to not pursue clean closure prior to the implementation of the closure plan for the RRB1, the modification request shall be made no later than sixty (60) days after the determination is made.

6. Financial assurance for closure and post-closure care of the RRB1, if required in accordance with Condition V.H.4, shall be provided within thirty (30) days following modification of the permit under the provisions of Condition V.H.5.

7. Within sixty (60) days after closure of the RRB1 is complete, the Permittee shall submit certification to the Illinois EPA that the unit has been closed in accordance with the approved closure plan.

   The closure certification form in Attachment H or a certification with identical wording must be used. Signatures must meet the requirements of 35 Ill. Adm. Code 702.126. The qualified Illinois licensed professional engineer should be present at all critical, major points (activities) during the closure. These might include soil sampling, soil removal, backfilling, final cover placement, etc. The frequency of inspections by the qualified Illinois licensed professional engineer must be sufficient to determine the adequacy of each critical activity. Financial assurance must be maintained for the RRB1 until the Illinois EPA approves the closure certification for the unit and allows for release of financial assurance in writing. The Illinois EPA's review of closure certification for partial or final closure will be conducted in accordance with 35 Ill. Adm. Code 724.328.

   A Closure Documentation Report must be submitted with the closure certification which includes the following items, if applicable:

   a. The volume of waste and contaminated soils removed, including wastes resulting from decontamination activities;

   b. A description of the method of waste handling and transport;

   c. Copies of the waste manifests;

   d. A description of the sampling and analytical methods used;

   e. A chronological summary of closure activities and the cost involved;

   f. Tests performed, methods and results;

   g. Color photographs of closure activities which document conditions before, during and after closure; and

   h. A scale drawing of all excavated areas and sample locations.

8. The Permittee shall obtain any necessary permits for waste disposal prior to initiating excavation activities. The Permittee shall not create regulated waste pile units by storing the excavated hazardous waste in piles. The permit exemption (35 Ill. Adm. Code 722.117) only applies to containers and tanks.

9. Hazardous waste operations and emergency response activities conducted under this permit must be in accordance with the requirements of 29 CFR Part 1910.

10. If the Illinois EPA determines that implementation of this closure plan fails to satisfy the requirements of 35 Ill. Adm. Code 724.211, the Illinois EPA reserves the right to amend the closure plan. Revisions of closure plans are subject to the appeal provisions contained in Section 39(a) and Section 40(a) of the Act.

11. The permittee shall analyze all samples individually (i.e., no compositing). Sampling and analytical procedures shall be conducted in accordance with the latest edition of SW-846, Testing Methods for Evaluating Solid Wastes and the Illinois EPA's Guidance for Preparing RCRA Closure Plans. Sample size per interval shall be minimized to prevent dilution of any contamination. Apparent visually contaminated material within a sampling interval shall be included in the sample portion of the interval to be analyzed.

12. The approved closure cost estimate for the RRB1 is identified in Attachment E.

SECTION VI: POST-CLOSURE

A. SUMMARY

This Section presents permit conditions for the landfill according to the regulatory requirements of 35 Ill. Adm. Code 724, Subpart G (Post-Closure).

The Permittee operates an approximate 120-acre facility, of which sixty-four (64) acres consisted of seven (7) hazardous waste disposal areas (identified in Condition VI.B.1) that make up the hazardous waste landfill (landfill) at the facility. The Illinois EPA received certification of closure of the final portion of the sixty-four (64) acre landfill on January 7, 2014. Post-closure care for the landfill, consisting of the seven (7) landfill areas, was determined to have started on January 7, 2014 when the Illinois EPA accepted the certification of closure on March 28, 2014.

The post-closure care period for the landfill shall continue for at least thirty (30) years. Groundwater monitoring will continue through the post-closure care period for established monitoring wells. Inspections during this period must identify any maintenance needed. The integrity of the final cover system, including soil and membrane cap, and vegetation must be maintained. A detailed written record of these activities must be kept at the facility.

B. UNIT IDENTIFICATION

1. The Permittee shall provide post-closure care for the landfill (seven (7) hazardous waste disposal areas), identified in the following table and described in the approved permit application, subject to the terms and conditions of this permit:

Landfill Area Name	**Approximate Capacity (cubic yards)**	**Approximate Surface Area (acres)**
Barrel Trench (Area 1)	35,000	14
Section A	6,500	8
Section B	190,000	10
Trench C-1 (Area C)	425,929	7.3
Trench C-2 (Area C)	453,846	6.4
Trench C-3 (Area C)	775,939	7.3
Trench C-4 (Area C)	982,865	11
Total	2,870,079	64

2. The location and horizontal extents of the landfill areas are identified on the map in Appendix L-1 of the approved permit application and Attachment I. The lowest elevation of the sumps in the landfill areas are at or above elevation 578 feet mean seal level (ft-MSL). The highest elevation of the final cover system is at or below

elevation 670 ft-MSL. The slopes of the final cover system are no steeper than a 5% grade. The landfill areas were designed to achieve a minimum static slope factor of safety greater than or equal to 1.5 and a seismic factor of safety greater than or equal to 1.3.

3. The bottom liner system(s) of the landfill areas was constructed as follows.

   - Two (2) areas (The Barrel Trench Area and Section A) have compacted soil liners;
   - One (1) area (Section B) has compacted soil under HDPE liner and a leachate collection system above both liners; and
   - The remaining areas (Trenches C-1 through C-4) have a double HDPE liner with leachate collection and leak detection system, all over a compacted soil liner.

4. The components of the final cover system consist of the following from top to bottom.

   - 12" blended topsoil layer;
   - 24" minimum protective random fill;
   - Geotextile (prevents migration of fines & clogging of HDPE drainage net);
   - HDPE drainage net;
   - HDPE smooth 40-mil minimum synthetic cover liner (geomembrane);
   - 18" thick impervious fill layer; and
   - 12" thick impervious fill subgrade – random fill (thickness varies).

5. A survey plat indicating the location and dimensions of the landfill areas with respect to permanently surveyed benchmarks was prepared and certified by an Illinois professional land surveyor. The notes on the plat state the owner's and operator's obligation to restrict disturbance of the landfill areas in accordance with the applicable requirements in 35 Ill. Adm. Code 724, Subpart G. These notes state:

   a. The waste materials contained in the hazardous waste disposal units are considered RCRA hazardous wastes.

   b. Any material removed from the hazardous waste disposal units during future activities must be managed as a hazardous waste in accordance with 35 Ill. Adm. Code Subtitle G: Waste Disposal.

   c. The use of this area is restricted.

6. The Plat of Survey (part of PIN 13-36-126-005) and Drawing No. 313631 were filed with the Peoria County Recorder's Office in Peoria, IL on January 29, 2014. The record data is Document No. 2014-001755.

The Plat of Survey was attached to the deed to the property and serves as an instrument which is normally examined during title search that will in perpetuity notify any potential purchaser of the property that:

a. The waste material in the hazardous waste disposal units is considered a RCRA hazardous waste;

b. Use of the area is restricted; and

c. A survey plat and record of the type, location and quantity of waste material in the hazardous waste disposal units was filed with the Illinois EPA and the County Recorder.

C. POST-CLOSURE CARE PERIOD

1. The post-closure care period for the landfill (seven (7) landfill areas) began on January 7, 2014, the date of completion of closure of the final portion of the landfill areas listed in Condition VI.B.1. Post-closure care for the landfill will continue for at least thirty (30) years after that date.

   Post-closure care shall continue to be extended for an additional 30-year period or until such time as no unacceptable risks to human health and the environment are present in the landfill, as determined by the Illinois EPA.

2. On or prior to January 7, 2043 (one year before January 7, 2044), the Permittee must submit a Class 2 permit modification request to the Illinois EPA in accordance with 35 Ill. Adm. Code 703.241(a)(2) and 35 Ill. Adm. Code 703 Appendix A.E.2 to extend the post-closure care of the landfill for an additional 30-year period or until such time as not unacceptable risks to human health and the environment are present in the landfill, as determined by the Illinois EPA, as specified in Condition VI.C.1.

3. The Illinois EPA may include restrictions upon the future use of the site if necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. After administrative and judicial challenges to such restrictions have been exhausted, the Illinois EPA shall file such restrictions of record in the Office of the Recorder of the county in which the hazardous waste disposal site is located.

4. The Permittee shall not allow the property where the landfill areas identified in Condition VI.B.1 are located to be used in a way that could disturb the integrity of the final cover, liners any components of the containment system, or function of the facility's monitoring systems unless the Illinois EPA finds, by way of a permit modification, that such use is necessary for either of the following reasons:

a. It is necessary to the proposed use of the property, and will not increase the potential hazard to the public health or the environment, or

b. It is necessary to reduce a threat to human health or the environment.

5. The Illinois EPA may require, at partial and final closure, continuation of the security requirements during part or all of the post-closure care period.

D. INSPECTIONS

1. The Permittee shall inspection the components, structures, and equipment at the site in accordance with the inspection schedule in Attachment B and the conditions in this permit.

2. The Permittee shall inspect the closed landfill areas identified in Condition VI.B.1 at least semi-annually and within seventy-two (72) hours of any rainfall event of three (3) or more inches in a twenty-four (24) hour period for evidence of any of the following:

a. Deterioration, malfunctions, or improper operation of run-on and run-off systems.

b. The deterioration of the cover systems.

3. Appropriate corrective action shall be taken if problems, including erosion, blockage of channels, slope failure, etc. are observed at any time. If corrective action is taken, the area involved shall be reinspected one (1) month following completion of the work to ensure the corrective actions have adequately corrected the problem(s) noted.

4. Results of all inspections and a description of any remedial actions taken shall be documented in the facility's operating record and maintained for the entire post-closure care period.

E. MONITORING. MAINTENANCE, AND RECORDKEEPING

1. The Permittee shall keep and maintain a written operating record that includes all the records, reports, notification, monitoring data, testing or analytical data, and corrective action data required by 35 Ill. Adm. Code 724.173 and the conditions in this permit, for the entirety of the post-closure care period. The operating record shall be kept onsite at the facility and available for Illinois EPA review.

2. The Permittee shall comply with the requirements for landfills described in the approved permit application and the conditions of this permit as follows:

a. Maintain the integrity and effectiveness of the final cover, including making repairs to the cap as necessary to correct the effects of settling, subsidence, erosion, cracking or other events.

   Corrective action shall be taken if ponding has been observed, if cracks or erosion channels greater than one (1) inch wide have formed, if gas, odor, vegetative or vector problems arise, if leachate popouts or seeps are present, or if vegetation with tap roots is found to be growing in areas which are not designed to accommodate such.

b. Continue to operate the landfill leachate collection and removal systems until the volume of leachate is such that leachate can no longer be removed from the systems.

c. Prevent run-on and run-off from eroding or otherwise damaging the final cover. At a minimum the run-on control system shall be capable of preventing flow onto the landfill area during peak discharge from a 24-hour, 25-year storm event. At a minimum the run-off control system shall be capable of collecting and controlling the volume of water resulting from a 24-hour, 25-year storm event.

d. Maintain and monitor the groundwater monitoring systems and comply with all other applicable requirements of 35 Ill. Adm. Code 724, Subpart F (Groundwater Protection) during the post-closure care period.

e. Protect and maintain surveyed benchmarks used in complying with surveying and recordkeeping requirements.

F. NOTICES AND CERTIFICATION

1. A request to change the approved post-closure plan must be submitted in the form of a permit modification request. This request must be in accordance with applicable requirements of 35 Ill. Adm. Code Parts 702, 703, and 724 and must include a copy of the amended post-closure plan for approval by the Illinois EPA.

2. If the Permittee or any subsequent owner or operator of the land upon which a hazardous waste disposal unit is located wishes to remove hazardous wastes and hazardous waste residues, the liner, if any, or contaminated soils, a modification request to this permit in accordance with the applicable requirements in 35 Ill. Adm. Code Parts 703, 705, and 724 must be submitted for the Illinois EPA's review and approval. The owner or operator must at a minimum demonstrate that the removal of hazardous wastes will satisfy the criteria of 35 Ill. Adm. Code 724.217(c).

3. If the Permittee seeks to demonstrate that they should be allowed to end the post-closure care period (e.g., all leachate removed, all waste has been removed, and

leachate and groundwater monitoring results do not indicate a potential for migration of waste at levels which may be harmful to human health and the environment), the Permittee shall submit a proposed Environmental Covenant (EC) for the future land use and long-term management of the property on which the closed landfill units are located. The proposed EC shall be submitted at least one year prior to the date the Permittee expects to submit the Certification of Completion of Post-Closure.

Pursuant to Section 39(g) of the Environmental Protection Act, the purpose of the EC is to place restrictions upon the future use of the site necessary to protect public health and the environment, including permanent prohibition of the use of the site for purposes which may create an unreasonable risk of injury to human health or the environment. The EC shall be pursuant to a consent order between the Permittee and the State of Illinois and in the format specified by Illinois EPA.

4. If the Permittee seeks to exit post-closure care, the Permittee shall submit the following documents to the Illinois EPA Bureau of Land Permit Section by registered mail no later than sixty (60) days after completion of the established post-closure care period for the landfill areas listed in Condition VI.B.1:

   a. A properly completed Certification of Completion of Post-Closure that states the post-closure care for the landfill was performed in accordance with the specifications in the approved post-closure plan in the approved permit application and the conditions in this permit. The owner and operator and a qualified Illinois licensed professional engineer must sign the certification.

   b. A Post-Closure Documentation Report that documents the post-closure care conditions and activities at the facility during the post-closure care period. The Post-Closure Documentation Report must include the following:

      i. Background information about the facility and the unit subject to the post-closure care certification. Describe the facility and RCRA permit history of the unit.

      ii. A detailed description of the unit subject to the post-closure care certification that includes:

         1. The unit's design, including liner system, sumps, leachate collection, leak detection, gas systems, and cover system including stormwater run-off and run-on controls. Provide this information in both a narrative form and scaled drawings.

         2. How it was operated, and how it was closed.

3. When it was operated, and when it was closed.

4. The wastes disposed of in the unit (including waste codes).

5. A scaled map showing location of the unit within the facility. Include all wells in the groundwater monitoring system for the unit on this map.

6. A survey of the unit when it was certified closed and at the time the Post-Closure Documentation Report is submitted (e.g., when the post-closure period ended). The surveys must be certified by a professional land surveyor.

iii. A general discussion on the inspection and maintenance of, and repairs to, the cover system, leachate collection, leak detection, gas collection, stormwater run-off & run-on controls, and wells in the groundwater monitoring system. Describe any problems and/or repairs to these systems that were addressed over the post-closure care period in chronological order. Show the locations of each of the repairs to these systems during post-closure care on a scaled drawing of the unit.

iv. A discussion on the groundwater monitoring program, including any corrective measures that were completed during the post-closure care period and a summary of the three (3) most recent years of groundwater data. Identify the horizontal and vertical extent of any groundwater contaminant plume from the unit that existed at the beginning of the post-closure care period and every five (5) years after that. The facility must have complied with all requirements of 35 Ill. Adm. Code Parts 620 and 724 in order to certify completion of post-closure care activities.

v. Colored photos of unit(s) at post-closure completion. Photo documentation of the unit should include at least one (1) aerial (satellite) photo and representative photos of above-ground design features of the unit.

vi. Illinois EPA LPC-PA23 Form.

c. Documentation that the EC required by Condition VI.F.3 has been placed on the deed to the property on which the landfill areas are located and has been filed with the County Recorder's Office.

5. The certification of completions of post-closure care shall not be approved by the Illinois EPA until the Permittee demonstrated that the EC required by Condition VI.F.3 has been properly filed with the appropriate governmental office (e.g., State of Illinois, or County Recorder's office).

6. Illinois EPA shall notify the owner or operator that it is no longer required to maintain financial assurance for post-closure care of that unit in accordance with 35 Ill. Adm. Code 724.220 and 724.245(i) within sixty (60) days after receiving an approvable application and certifications from the owner or operator and a qualified Illinois licensed Professional Engineer that the post-closure care has been completed in accordance with the approved post-closure plan. Should the Illinois EPA determine that post-closure care has not been in accordance with the approved post-closure plan and conditions of this permit, the Illinois EPA shall provide the owner or operator with a detailed written statement of any such determination that post-closure care has not been in accordance with the approved post-closure plan and conditions of this permit.

SECTION VII: GROUNDWATER DETECTION MONITORING PROGRAM

A. SUMMARY

Groundwater parameters monitored in the uppermost aquifer below the facility indicate that, at the present time, no groundwater impacts have occurred. Therefore, a groundwater detection monitoring program meeting the requirements of 35 Ill. Adm. Code 724.198 shall be implemented at the facility.

The Permittee has twenty-three (23) existing wells to monitor groundwater in the Lower Sand that are utilized for the groundwater detection monitoring program. The average depth to groundwater in the deep wells is 145 feet below ground surface. The groundwater detection monitoring program will therefore consist of eighteen (18) downgradient wells and five (5) upgradient wells.

B. IMPLEMENTATION

1. The Permittee shall implement the detection monitoring program upon the effective date of this permit. On that date, the groundwater monitoring requirements set forth in this permit shall supersede those previously established.

2. The Permittee shall carry out the detection monitoring program specified in this permit on the groundwater beneath the PDC Landfill Facility in Peoria, Illinois. The uppermost aquifer in the vicinity of the facility has been identified as the sand and gravel deposits occurring in the Lower Sand. For the purpose of this permit and in accordance with the 35 Ill. Adm. Code Part 620 regulations, the uppermost aquifer has been designated Class I: Potable Resource Groundwater.

3. The Point of Compliance, defined as the vertical surface located at the hydraulically downgradient limit of the waste management area that extends down into the uppermost aquifer underlying the regulated unit, is delineated by the well identified as the point of compliance well in Condition VII.C.1.

C. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells and piezometers at the locations identified in the following table to allow for the collection of groundwater samples and elevations from the uppermost aquifer. The locations of these wells and piezometers are specified in the approved permit application.

Groundwater Detection Monitoring Program Wells

Well No.	Position (upgradient or downgradient)	Note	Area	Well Depth (Ft-bgs[4])	Bottom of Well Elevation (Ft-MSL[2])	Well Screen Interval (Ft-MSL[2])
A122	Upgradient		BT	146.0	457.6	458.1-468.1
R128	Upgradient		BT	130.4	461.0	461.5-471.5
R132	Upgradient		BT	127.0	462.7	463.2-473.2
A133	Upgradient		BT	111.0	468.3	468.8-478.8
A134	Upgradient		BT	123.0	465.5	466.0-476.0
G120	Downgradient	1, 3	A	184.0	428.9	429.4-449.4
R121	Downgradient		A	145.8	459.7	460.2-470.2
G140	Downgradient		WT	201.4	455.6	456.1-466.1
R119	Downgradient	1	B	193.6	423.8	424.0-434.0
A126	Downgradient		B	153.5	457.7	458.2-468.2
G139	Downgradient		B	173.5	456.1	456.6-466.6
R125	Downgradient		B	157.0	457.7	458.2-468.2
R113	Downgradient	1	C	194.0	416.0	416.5-436.5
R129	Downgradient		C	169.0	458.8	459.3-469.3
R130	Downgradient		C	162.0	460.3	460.8-470.8
R131	Downgradient		C	154.0	460.0	460.5-470.5
G136	Downgradient		C	123.0	449.1	449.6-459.6
G137	Downgradient		C	141.0	447.4	447.9-457.9
R138	Downgradient		C	163.5	449.4	449.9-459.9
G135	Downgradient		C	144.81	451.39	461.15-451.4
G142	Downgradient		A	166.57	437.63	447-437.6
G143	Downgradient		B	183.6	451.87	461.9-451.9
G144	Downgradient		C	175.2	453.01	462.65-453

Notes:

1 = PVC Well, twenty foot screen
2 = (Ft-MSL) Feet above Mean Sea Level
3 = Point of Compliance Well
4 = (Ft-bgs) Feet Below Ground Surface

Area monitored by designated wells:

A = Section A
B = Section B

C = Area C
BT = Barrel Trench
WT = Wastewater Treatment Unit (Non-hazardous)

Well Designations:

G = Groundwater Monitoring Well
R = First Groundwater Monitoring Replacement Well
A = Second Groundwater Monitoring Replacement Well

2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the Monitoring Well Diagram which can be found on the Illinois EPA's website, unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed must be continuously sampled and logged on Illinois EPA boring logs which can also be found on the Illinois EPA's website.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition VII.C.1 are damaged, or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this 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 and 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.

4. 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 geologic 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.

5. The Permittee shall submit boring logs, construction diagrams and data sheets from installation and development of a new or replacement well to the Illinois EPA at the following address 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 following address within thirty (30) days of the date that the well is plugged and abandoned. All 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

6. All wells/piezometers shall be equipped with protective caps and locks. Monitoring wells or piezometers located in high traffic areas must be protected with bumper guards.

7. All groundwater monitoring wells and piezometers not utilized in the groundwater monitoring system, but retained by the facility must be constructed and maintained in accordance with 77 Ill. Adm. Code Part 920 regulations. Monitoring wells and piezometers that are improperly constructed must be abandoned in accordance with Conditions VII.C.3.

D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at groundwater monitoring wells identified in Condition VII.C.1, at upgradient, downgradient, and point of compliance locations semi-annually during the active life (including closure and post-closure care) of the landfill. Samples collected during the semi-annual events of each year shall be analyzed for the following field parameters and hazardous waste constituents.

List G1 – Semi-Annual Groundwater Sampling

Field Parameters	Storet Number	Reporting Units
pH	00400	Standard
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 Bottom of Well#	72020	Ft-MSL
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Measuring Point (top of casing)##	72110	Ft-MSL

\# Shall be determined during the second 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 VII.F.2.

Hazardous Waste Constituents	Storet Number	Reporting Units
Inorganics		
Barium, Ba (dissolved)	01005	ug/l
Cadmium, Cd (dissolved)	01025	ug/l
Chromium (dissolved)	01030	ug/l
Iron, Fe (dissolved)	01046	ug/l
Lead, Pb (dissolved)	01049	ug/l
Manganese, Mn (dissolved)	01056	ug/l
Nickel, Ni (dissolved)	01065	ug/l
Zinc, Zn (dissolved)	01090	ug/l
Calcium, Ca (dissolved)	00915	mg/l
Chloride, Cl (dissolved)	00941	mg/l
Cyanide, CN (total)	00720	ug/l
Sodium, Na (dissolved)	00930	mg/l
Sulfate, SO_4 (dissolved)	00946	mg/l
Organics		
Vinyl chloride	39175	ug/l
Chloroethane	34311	ug/l
Methylene chloride	34423	ug/l
1,1-dichloroethane	34496	ug/l
Tetrachloroethene	34475	ug/l
1,1,1-trichloroethane	34506	ug/l
Trichlorofluoromethane	34488	ug/l
Chlorobenzene	34301	ug/l
Total Organic Carbon, TOC	00680	mg/l
Semi-Volatile Organics		
Phenols	32730	ug/l

List G2 -- Annual Groundwater Sampling

Hazardous Waste Constituents	Storet Number	Reporting Units
Inorganics		
Antimony (total)	01097	ug/l
Arsenic (total)	01002	ug/l
Barium, Ba (total)	01005	ug/l
Beryllium (total)	01012	ug/l
Boron (total)	01022	ug/l
Cadmium, Cd (total)	01025	ug/l
Chloride, Cl (total)	00941	ug/l
Chromium (total)	01030	ug/l
Cyanide, CN (total)	00720	ug/l
Fluoride (total)	00951	ug/l
Iron, Fe (total)	01046	ug/l
Lead, Pb (total)	01049	ug/l
Manganese, Mn (total)	01056	ug/l
Nickel, Ni (total)	01065	ug/l
Nitrate-Nitrogen	00620	mg/l
Silver (total)	01077	ug/l
Sulfate (total)	00945	ug/l
Total Dissolved Solids (TDS)	70300	ug/l
Organics		
Alachlor	77825	ug/l
Benzene	34030	ug/l
Bis(2-ethylhexyl)phthalate	39100	ug/l
Ethylbenzene	78113	ug/l
Simazine	39055	ug/l
Toluene	34010	ug/l
Xylene (total)	81551	ug/l
1,2-Dichloroethane	34531	ug/l
2,4,5-TP (Silvex)	39760	ug/l
2,4-Dichlorophenoxyacetic Acid	39730	ug/l
2-Butanone (MEK)	81595	ug/l
4-Methyl-2-Pentanone (MIBK)	78133	ug/l
Methanol	77885	ug/l
n-Butanol	77034	ug/l
2,4-Dimethylphenol	34606	ug/l

Organics		
Endosulfan I	34361	ug/l
Semi-Volatile Organics		
Phenols	32730	ug/l

Note: All constituents with the "(dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter. Should a parameter be detected in groundwater and found to be statistically above background, the subsequent monitoring event must include total (unfiltered) analysis and a comparison to the appropriate 35 Ill. Adm. Code Part 620, Class I, Groundwater Quality Standard must then take place.

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate concentration limits proposed by the facility must be approved by the Illinois EPA.

3. The Permittee shall establish background values in accordance with the procedures specified in the approved permit application as well as the following procedures:

   a. Background groundwater quality (BGQ) for a monitoring parameter or constituent shall be based on data from quarterly sampling of the upgradient groundwater monitoring wells for one (1) year.

   b. In developing the database used to determine a background value for each parameter or constituent, the Permittee shall take a minimum of four (4) replicate samples from each upgradient well during each of the four (4) quarterly background sampling events. An equal number of replicate samples will be taken from each upgradient well to ensure equal weightings in statistics.

   c. For those monitoring parameters or constituents not detected above the practical quantitation limit (PQL) during background gathering, the PQL shall be the established background value.

E. DETECTION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each monitoring well at the compliance point identified in Condition VII.C.1 semi-annually during the active life of the regulated unit (including the closure and post-closure care periods). The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e. means, variances, etc.).

2. The Permittee shall determine the groundwater flow rate and direction in the uppermost aquifer semi-annually and report to the Illinois EPA, at least annually, from monitoring wells identified in Condition VII.C.1

3. The Permittee shall evaluate the results of the analysis required by Condition VII.D.1 and identify:

   a. The concentration of any constituent detected which was not detected in the previous sampling event.

   b. The concentration of any constituent detected which exhibits a progressive increase over four (4) consecutive sampling events.

4. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition VII.D.1 each time groundwater quality is determined at the point of compliance. In determining whether such a change has occurred, the Permittee must compare the groundwater quality at each monitoring well identified in Condition VII.C.1 to the BGQ derived in accordance with the statistical procedures specified in the approved permit application.

5. The Permittee shall perform the evaluations described in Conditions VII.E.1, VII.E.2, VII.E.3 and VII.E.4 within sixty (60) days after completion of semi-annual sampling.

F. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to Ft-MSL at each well each time groundwater is sampled in accordance with Condition VII.I.3.

2. The Permittee shall determine the surveyed elevation of "stick-up" referenced to Ft-MSL when the well is installed (with as-built diagrams) and every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition VII.I.5.

3. Elevation, as referenced to Ft-MSL, of the bottom of each monitoring well (Storet No. 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

G. SAMPLING AND ANALYTICAL PROCEDURES

1. The Permittee shall use the techniques and procedures described in the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition VII.C.1:

a. Samples shall be collected using the techniques described in the approved permit application.

b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in the approved permit application.

c. Samples shall be analyzed in accordance with the procedures specified in the approved permit application.

d. Samples shall be tracked and controlled using the chain-of-custody procedures specified in the approved permit application.

2. Samples will be collected first from upgradient wells, proceeding to non-contaminated downgradient wells, and then proceeding to the downgradient wells which are known to be contaminated.

3. Purging of groundwater must continue until field parameters (pH, specific conductance, temperature, and turbidity) have stabilized within approximately 10% over at least two (2) measurements collected over three (3) to five (5) minute intervals. If a well is purged to dryness or is purged such that the full recovery exceeds two (2) hours, the well should be sampled as soon as sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

4. Purged groundwater must be collected, containerized, and disposed of properly. Water collected during purging activities must be collected then immediately managed as leachate.

5. Analytical methods to be utilized by the facility must be in accordance with the latest promulgated version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846).

6. Quality assurance/quality control procedures which meet the general requirements of SW-846 must be implemented during all sampling and analysis efforts. In addition, sample collection, handling, preservation, preparation, and analysis must be conducted in accordance with the procedures set forth in SW-846.

H. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Condition VII.E, the Permittee shall use the following procedures:

1. When a constituent's background value has a sample coefficient of variation less than 1.00, the Permittee shall conduct the following statistical procedures:

The Permittee shall take at least four (4) samples from each well at the compliance point and determine whether the difference between the mean of the constituent at each well (using all portions taken) and the background value established for the constituent is significant at the 0.05 level using the Averaged Replicate t-test, as described in Attachment D. If the test indicates that the difference is significant, the Permittee shall repeat the same procedure within ten (10) days (with at least the same number of portions as used in the first test) with a fresh sample from the monitoring well. If this second round of analysis indicates that the difference is significant, the Permittee shall conclude that a statistically significant change has occurred.

2. Where the PQL is used for a background value a tolerance range of two (2) times the PQL will be established. If an observed value is above the tolerance range or any two (2) or more parameter values for that well exceed the established PQL, the Permittee shall repeat the procedure within ten (10) days after receiving the laboratory data with a fresh sample from that well. If the observed value from the second sampling again fails any of the comparisons, the Permittee shall conclude that a significant increase has occurred.

3. When a constituent's background value has a sample coefficient of variation greater than or equal to 1.00, the Permittee shall submit a proposed statistical procedure to the EPA for review and approval that is appropriate for the distribution of the data used to establish background values and provides a reasonable balance between the probability of falsely identifying a non-contaminating regulated unit and the probability of failing to identify a contaminating regulated unit. The procedure shall be implemented upon approval by the Illinois EPA.

4. The Permittee shall review monitoring results from four (4) consecutive sampling events to determine if increasing or decreasing pH trends occur. If four (4) consecutive events of an increasing or decreasing trend is noted, then the Permittee shall collect a confirmation sample for reanalysis from the monitoring well. If the observed value from the second round of sampling again fails the above-described procedure, then the Permittee shall conclude that a statistically significant change has occurred.

I. REPORTING AND RECORDKEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Conditions VII.D, VII.E, VII.F, VII.G and VII.H in the facility's operating record. The data must include all computations, calculated means, variances, t-statistic values and t-statistic results or results of statistical test that the Illinois EPA has determined to be equivalent.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions VII.D, VII.E, VII.F, and VII.H shall be collected

and reported, as identified in the following table. All additional information required by the groundwater monitoring program (as specified in Conditions VII.D, VII.E, VII.F and VII.H) shall also be submitted to the Illinois EPA at the address listed in Condition VII.C.5 in accordance with this schedule.

Samples to be collected during the months of:	Results submitted to the Illinois EPA by the following:	Parameters to be monitored:
April – June	July 15	Lists G1 and G2
October – December	January 15	List G1

3. Groundwater surface elevation measured pursuant to Condition VII.F.1. shall be collected semi-annually and submitted to the Illinois EPA in accordance with the schedule in Condition VII.I.2.

4. The Permittee shall report the groundwater flow rate and direction in the uppermost aquifer as required by Condition VII.E.2 by July 15 each year.

5. The Permittee shall report the surveyed elevation, as required by Condition VII.F.2, of the top of the well casing "stick-up," referenced to Ft-MSL in accordance with the following schedule:

   a. For wells identified in Condition VII.C.1, 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 semi-annual sampling event), or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well (Storet No. 72020) identified in Condition VII.C.1, as referenced to Ft-MSL, is to be reported at least annually in accordance with Condition VII.F.3 by July 15 each year. This measurement shall be taken during the second semi-annual sampling event each year.

7. Information required by Conditions VII.I.2, VII.I.3, VII.I.5 and VII.I.6 must be submitted in an electronic format. The information is to be submitted in accordance with the schedule found in Condition VII.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's website.

8. The Permittee shall submit a completed "RCRA Facility Groundwater, Leachate and Gas Reporting Form" (LPC-592) found on the Illinois EPA's website, as a cover sheet for any notices or reports required by the permit for identification purposes. Only one 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 submitted to the Illinois EPA. The form is not to be used for permit modification requests.

9. 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.

10. If the Permittee determines, pursuant to Condition VII.E.4 that there is a statistically significant increase for any of the parameters specified in Condition VII.D.1 at any monitoring well at the point of compliance, the Permittee shall:

    a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.

    b. Sample the groundwater in all wells listed in Condition VII.C.1 and determine the concentration of all constituents identified in 35 Ill. Adm. Code 724, Appendix I such that the results will accompany the permit modification required by Condition VII.I.10.d.

    c. For any 35 Ill. Adm. Code 724, Appendix I compounds found in the analysis pursuant to this condition, the Permittee may resample within one (1) month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during the initial 35 Ill. Adm. Code 724, Appendix I analysis will form the basis for compliance monitoring.

    d. Submit to the Illinois EPA a permit modification request to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the increase is discovered. The application must include the following information:

        i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well at the point of compliance;

ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;

iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and

iv. For each hazardous constituent found at the point of compliance, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition VII.I.10.b are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought alternate concentration limits under Condition VII.I.10.d.iv for every hazardous constituent identified under Condition VII.I.10.b. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.

f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition VII.I.10.d.iv. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.

11. If the Permittee determines, pursuant to Condition VII.E.4, that there is a statistically significant increase above the background values for the parameters specified in Condition VII.D.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification request in accordance with Condition VII.I.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

To make this demonstration, the Permittee shall:

a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.

c. Submit to the Illinois EPA a permit modification request to make any appropriate changes to the groundwater detection monitoring program in accordance with 35 Ill. Adm. Code 703, Subpart G. This permit modification request must be submitted within ninety (90) days of the date that the increase is discovered.

d. Continue to monitor in accordance with the detection monitoring program at the facility.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the detection monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit a permit modification request to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the Permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section 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 issuance, and new regulations.

SECTION VII-A: SHALLOW ZONE GROUNDWATER OBSERVATION MONITORING PROGRAM

A. SUMMARY

In addition to the groundwater detection monitoring program utilized to monitor the uppermost aquifer (Lower Sand) at the facility, the Permittee has six (6) existing wells to monitor groundwater in the shallow groundwater zones (Upper Till) at the facility. These groundwater monitoring wells are intended to detect any releases from the landfill to the Upper Till that could potentially impact the uppermost aquifer (Lower Sand) at the facility.

B. IMPLEMENTATION

1. The Permittee shall implement the shallow zone groundwater observation monitoring program upon the effective date of this Permit. On that date, the shallow zone observation monitoring requirements set forth in this permit shall supersede those previously established.

2. The Permittee shall carry out the shallow zone observation monitoring program specified in this permit on the groundwater beneath the PDC Landfill Facility in Peoria, Illinois. For the purpose of this permit the shallow groundwater zone consists of silty clay till occurring in the Upper Till.

C. WELL LOCATION AND CONSTRUCTION

1. The Permittee shall install and maintain groundwater monitoring wells at the locations identified in the following table to allow for the collection of groundwater samples and elevations from the shallow groundwater zone:

Groundwater Observation Monitoring Program Wells

Well No.	Note	Area	Well Depth (ft-bgs)	Bottom of Well Elevation (Ft-MSL)	Well Screen Interval (Ft-MSL)
G207	1	B	61.0	556.4	570.0-575.0
G208	1	C	61.0	554.2	570.0-575.0
G213	1	C	42.9	545.9	545.9-550.9
G220	1	A	47.5	561.6	561.6-571.6
R243	2	WT	55.0	585.4	585.4-595.4
G242	2	A	35.3	606.6	561.3-571.3

Notes:

1 = PVC Well
2 = Stainless Steel/PVC Well

Area monitored by designated wells:

A = Section A
B = Section B
C = Area C
WT = Wastewater Treatment Unit (Non-hazardous)

Well Designations:

G = Groundwater Monitoring Well
R = First Groundwater Monitoring Replacement Well

2. Construction of any new monitoring well/piezometer must be at a minimum in accordance with the Monitoring Well Diagram found on the Illinois EPA's website, unless otherwise approved in writing by the Illinois EPA. Any new monitoring well/piezometer to be installed must be continuously sampled and logged on Illinois EPA boring logs which can also be found on the Illinois EPA's website.

3. The Permittee shall notify the Illinois EPA within thirty (30) days in writing if any of the wells identified in Condition VII-A.C.1 are damaged or the structural integrity has been compromised. A proposal for the replacement of the subject well shall accompany this 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 and 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.

4. 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 geologic 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.

5. The Permittee shall submit boring logs, construction diagrams, and data sheets from installation and development of a new or replacement well to the Illinois EPA at the following address 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 following address within thirty (30) days of the date that the well is plugged and abandoned. All 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

6. All wells shall be equipped with protective caps and locks. Monitoring wells located in high traffic areas must be protected with bumper guards.

7. All wells not utilized in the groundwater monitoring system, but retained by the facility, must be constructed and maintained in accordance with 77 Ill. Adm. Code Part 920 regulations. Monitoring wells that are improperly constructed must be abandoned in accordance with Condition VII-A.C.3.

D. MONITORING PARAMETERS

1. The Permittee shall determine groundwater quality at groundwater monitoring wells identified in Condition VII-A.C.1, semi-annually during the active life (including closure and post-closure care) of the landfill. Samples collected during the semi-annual sampling events of each year shall be analyzed for the following field parameters and hazardous waste constituents.

List G1 – Semi-Annual Groundwater Sampling

Field Parameters	Storet Number	Reporting Units
pH	00400	Standard
Specific Conductance	00094	micromos/cm
Temperature of Water Sample	00011	(°F)
Turbidity	45626	Ntus
Depth to Water (below land surface)	72019	Feet

Field Parameters	Storet Numbers	Reporting Units
Depth to Water (below measuring point)	72109	Feet
Elevation of Bottom of Well *	72020	Ft-MSL
Elevation of Groundwater Surface	71993	Ft-MSL
Elevation of Measuring Point (top of casing) **	72110	Ft-MSL

* Shall be determined during the second 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 VII-A.F.2.

Hazardous Waste Constituents	Storet Number	Reporting Units
Inorganics		
Barium, Ba (dissolved)	01005	ug/l
Cadmium, Cd (dissolved)	01025	ug/l
Chromium (dissolved)	01030	ug/l
Iron, Fe (dissolved)	01046	ug/l
Lead, Pb (dissolved)	01049	ug/l
Manganese, Mn (dissolved)	01056	ug/l
Nickel, Ni (dissolved)	01065	ug/l
Zinc, Zn (dissolved)	01090	ug/l
Calcium, Ca (dissolved)	00915	mg/l
Chloride, Cl (dissolved)	00941	mg/l
Cyanide, CN (total)	00720	ug/l
Sodium, Na (dissolved)	00930	mg/l
Sulfate, SO_4 (dissolved)	00946	mg/l
Organics		
Vinyl chloride	39175	ug/l
Chloroethane	34311	ug/l
Methylene chloride	34423	ug/l
1,1-dichloroethane	34496	ug/l
Tetrachloroethene	34475	ug/l
Chlorobenzene	34301	ug/l
Benzene	34030	ug/l
Phenols	32730	ug/l
Toluene	34010	ug/l
Xylene (total)	81551	ug/l
Trans-1,2-Dichloroethene	34531	ug/l
Trichlorofluoromethane	34488	ug/l

Organics		
1,1,1-Trichloroethane	34506	ug/l
Methyl Ethyl Ketone	81595	ug/l
Acetone	81552	ug/l
Total Organic Carbon, TOC	00680	mg/l

Note: All constituents with the "(dissolved)" label to the right shall be determined using groundwater samples which have been filtered through a 0.45 micron filter. Should a parameter be detected in groundwater and found to be statistically above background, the subsequent monitoring event must include total (unfiltered) analysis and a comparison to the appropriate 35 Ill. Adm. Code 620, Class I, Groundwater Quality Standard must then take place.

2. Alternate concentration limits may be established in accordance with 35 Ill. Adm. Code 724.194(b) where the Permittee can determine a constituent will not pose a substantial hazard to human health or the environment. The alternate concentration limits proposed by the Permittee must be approved by the Illinois EPA.

E. SHALLOW ZONE OBSERVATION MONITORING PROGRAM

1. The Permittee shall determine groundwater quality at each well identified in Section VII-A.C.1 semi-annually during the active life of a regulated unit (including the closure and post-closure care periods) for constituents found in List G1 of Condition VII-A.D.1. The Permittee shall express the groundwater quality at each monitoring well in a form necessary for the determination of statistically significant changes (i.e., means, variances, etc.)

2. The Permittee shall determine groundwater flow rate and direction in the shallow zone semi-annually and report to the Illinois EPA, at least annually, from monitoring wells identified in Condition VII-A.C.1.

3. The Permittee shall evaluate the results of analysis required by Condition VII-A.D.1 and identify:

   c. The concentration of any constituent detected which was not detected in the previous sampling event.

   d. The concentration of any constituent detected which exhibits a progressive increase over four (4) consecutive sampling events.

4. The Permittee shall determine whether there is a statistically significant increase, (or decrease in the case of pH) over the background values established for each parameter identified in Condition VII-A.D.1 each time groundwater quality is determined at each well. In determining whether such a change has occurred, the

Permittee must compare the groundwater quality at each groundwater monitoring well identified in Condition VII-A.C.1 to the background value derived in accordance with the statistical procedures specified in the approved permit application.

5. The Permittee shall perform the evaluations described in Conditions VII-A.E.1, VII-A.E.3, and VII-A.E.4 within sixty (60) days after completion of semi-annual sampling.

F. GROUNDWATER ELEVATION

1. The Permittee shall determine the groundwater surface elevation referenced to Ft-MSL at each well each time groundwater is sampled in accordance with Condition VII-A.I.3.

2. The Permittee shall report the surveyed elevation of "stick-up" referenced to Ft-MSL when the well is installed (with as-built diagrams) and every five (5) years, or at the request of the Illinois EPA, or whenever the elevation changes in accordance with Condition VII-A.I.5.

3. Elevation, as referenced to Ft-MSL, of the bottom of each monitoring well (Storet No. 72020), is to be reported at least annually. The mandatory measurement shall be taken during the second semi-annual sampling event each year.

G. SAMPLING AND ANALYTICAL PROCEDURES

1. The Permittee shall use the techniques and procedures described in the approved permit application, except as modified below, when obtaining and analyzing samples from the groundwater monitoring wells described in Condition VII-A.C.1.

   a. Samples shall be collected using the techniques described in the approved permit application.

   b. Samples shall be preserved and shipped (when shipped off-site for analysis) in accordance with the procedures specified in the approved permit application.

   c. Samples shall be analyzed in accordance with the procedures specified in the approved permit application.

   d. Samples shall be tracked and controlled using the chain of custody procedures specified in the approved permit application.

2. Purging of groundwater must continue until field parameters (pH, specific conductance, temperature, and turbidity) have stabilized within approximately 10% over at least two (2) measurements collected over three (3) to five (5) minute intervals. If a well is purged to dryness or is purged such that the full recovery exceeds two (2) hours, the well should be sampled as soon as sufficient volume of groundwater has entered the well to enable the collection of the necessary groundwater samples.

3. Purged groundwater must be collected, containerized, and disposed of properly. Water collected during purging activities must be collected then immediately managed as leachate.

4. Analytical methods to be utilized by the facility must be in accordance with the latest promulgated version of USEPA's "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" (SW-846).

5. Quality assurance/quality control procedures which meet the general requirements of SW-846 must be implemented during all sampling and analysis efforts. In addition, sample collection, handling, preservation, preparation, and analysis must be conducted in accordance with the procedures set forth in SW-846.

H. STATISTICAL PROCEDURES

When evaluating the monitoring results in accordance with Condition VII-A.E, the Permittee shall use the following procedures:

1. The Permittee shall compare each parameter value from a sampling event to the parameter background values established for that well.

2. The Permittee shall utilize the Average Replicate T-test for all statistical comparisons when a mean and standard deviations are developed.

3. Where the PQL is used for a background value a tolerance range of two (2) times the PQL will be established. If an observed value is above the tolerance range or any two (2) or more parameter values for that well exceed the established PQL, the Permittee shall repeat the procedure within ten (10) days after receiving the laboratory data with a fresh sample from that well. If the observed value from the second sampling again fails any of the comparisons, the Permittee shall conclude that a significant increase has occurred.

4. The Permittee shall review monitoring results from four (4) consecutive sampling events to determine if increasing or decreasing pH trends occur. If four (4) consecutive events of an increasing or decreasing trend is noted, then the Permittee shall collect a confirmation sample for reanalysis from the monitoring well. If the observed value from the second round of sampling again fails the

above-described procedure, then the Permittee shall conclude that a statistically significant change has occurred.

I. REPORTING AND RECORDKEEEPING

1. The Permittee shall enter all monitoring, testing, and analytical data obtained in accordance with Conditions VII-A.D, VII-A.E, VII-A.F, VII-A.G and VII-A.H. in the facility's operating record. The data must include all computations, calculated means, variances, t-statistic values and t-statistic results or results of statistical test that the Illinois EPA has determined to be equivalent.

2. Samples collected to meet the requirements of the groundwater monitoring program described in Conditions VII-A.D, VII-A.E, VII-A.F, and VII-A.H shall be collected and reported, as identified in the following table. All additional data collected for the groundwater monitoring program (as specified in Conditions VII-A.D, VII-A.E, VII-A.F, and VII-A.H) shall also be submitted to the Illinois EPA at the address listed in Condition VII-A.C.5 in accordance with this schedule.

Samples to be collected during the months of:	Results submitted to Illinois EPA by the following	Parameters to be monitored:
April - June	July 15	List G1
October - December	January 15	List G1

3. Groundwater surface elevation, measured pursuant to Condition VII-A.F.1, shall be collected semi-annually and submitted to the Illinois EPA in accordance with the schedule in Condition VII-A.I.2.

4. The Permittee shall report the groundwater flow rate and direction in the shallow zone as required by Condition VII-A.E.2 by July 15 each year.

5. The Permittee shall report the surveyed elevation, as required by Condition VII-A.F.2 of the top of the well casing "stick-up," referenced to Ft-MSL in accordance with the following schedule:

   a. For wells identified in Condition VII-A.C.1, 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 semi-annual sampling event), or whenever the elevation changes.

6. Elevation of the bottom of each monitoring well (Storet No. 72020) identified in Condition VII-A.C.1, as referenced to Ft-MSL, is to be reported at least annually in accordance with Condition VII-A.F.3. This measurement shall be taken during the second semi-annual sampling event each year.

7. Information required by Conditions VII-A.I.2, VII-A.I.3, VII-A.I.5, and VII-A.I.6 must be submitted in an electronic format. The information is to be submitted in accordance with the schedule found in Condition VII-A.I.2. Additional guidance regarding the submittal of the information in an electronic format can be found on the Illinois EPA's website.

8. 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 permit for identification purposes. Only one 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 submitted to the Illinois EPA. The form is not to be used for permit modification requests.

9. 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.

10. If the Permittee determines, pursuant to Condition VII-A.E.4, that there is statistically significant increase for any of the parameters specified in Condition VII-A.D.1 at any monitoring well in Condition VII-A.C.1 the Permittee shall:

    a. Notify the Illinois EPA in writing indicating what parameters and wells have shown statistically significant increases and provide all statistical calculations. This notification shall be submitted to the Illinois EPA within seven (7) days of the date that the increases are discovered.

    b. Sample the groundwater in the affected well(s) listed in Condition VII-A.C.1 and determine the concentration of all constituents identified in 35 Ill. Adm. Code 724, Appendix I, such that the results will accompany the permit modification required by Condition VII-A.I.10.d.

    c. For any 35 Ill. Adm. Code 724, Appendix I compounds found in the analysis pursuant to this Condition, the Permittee may resample within one (1) month and repeat the analysis for those compounds detected. If results of the second analysis confirm the initial results, then these

constituents will form the basis for compliance monitoring. If the Permittee does not resample for the compounds pursuant to this condition, the hazardous constituents found during the initial 35 Ill. Adm. Code 724, Appendix I analysis will form the basis for compliance monitoring.

d. Submit to the Illinois EPA a permit modification request to establish a compliance monitoring program meeting the requirements of 35 Ill. Adm. Code 724.199. The application shall be submitted to the Illinois EPA within ninety (90) days of the date that the exceedance is discovered. Furthermore, the application must include the following information:

i. An identification of the concentration of any 35 Ill. Adm. Code 724, Appendix I constituents found in the groundwater at each monitoring well;

ii. Any proposed changes to the groundwater monitoring system at the facility necessary to meet the requirements 35 Ill. Adm. Code 724.199;

iii. Any proposed changes to the monitoring frequency, sampling and analysis procedures, or methods or statistical procedures used at the facility necessary to meet the requirements of 35 Ill. Adm. Code 724.199; and

iv. For each hazardous constituent found, a proposed concentration limit under 35 Ill. Adm. Code 724.194(a)(1) or 724.194(a)(2), or a notice of intent to seek an alternate concentration limit for a hazardous constituent under 35 Ill. Adm. Code 724.194(b).

e. Submit to the Illinois EPA a corrective action feasibility plan to meet the requirements of 35 Ill. Adm. Code 724.200 unless the concentrations of all hazardous constituents identified under Condition VII-A.I.10.b are listed in 35 Ill. Adm. Code 620.410 and their concentrations do not exceed the respective Groundwater Quality Standards or the Permittee has sought alternate concentration limits under Condition VII-A.I.10.d.iv for every hazardous constituent identified under Condition VII-A.I.10.b. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.

f. Submit to the Illinois EPA all data necessary to justify any alternate concentration limit for a hazardous constituent sought under Condition VII-A.I.10.d.iv. This plan must be submitted to the Illinois EPA within 180 days of the date the increase is discovered.

11. If the Permittee determines, pursuant to Condition VII-A.E.4, that there is a statistically significant increase above the background values for the parameters specified in Condition VII-A.D.1, the Permittee may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. The Permittee shall submit a permit modification request in accordance with Condition VII-A.I.10.d unless the demonstration successfully shows that a source other than the regulated unit caused the increase or that the increase resulted from errors in sampling, analysis or evaluation and the Illinois EPA concurs.

    To make this demonstration, the Permittee shall:

    a. Notify the Illinois EPA in writing that they intend to make this demonstration. This notification must be submitted to the Illinois EPA within seven (7) days of the date that the increase is discovered.

    b. Submit a report to the Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation. This report must be submitted within ninety (90) days of the date that the increase is discovered.

    c. Submit to the Illinois EPA a permit modification request to make any appropriate changes to the shallow zone groundwater observation monitoring program in accordance with 35 Ill. Adm. Code 703, Subpart G. This permit modification request must be submitted within ninety (90) days of the date that the increase is discovered.

    d. Continue to monitor in accordance with the shallow zone groundwater observation monitoring program at the facility.

J. REQUEST FOR PERMIT MODIFICATION

1. If the Permittee determines that the shallow zone groundwater observation monitoring program no longer satisfies the requirements of 35 Ill. Adm. Code 724.198, the Permittee must, within ninety (90) days, submit a permit modification request to the Illinois EPA to make any appropriate changes to the program which will satisfy the regulations.

2. Conditions in this section of the permit may be modified in accordance with 35 Ill. Adm. Code 705.128 if there is cause for such modification, as defined in 35 Ill. Adm. Code 702.184. Causes for modification identified in this section 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 issuance, and new regulations.

SECTION VIII: 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 Ill. Adm. Code 702.181)

2. PERMIT ACTIONS. This permit may be modified, reissued or revoked for cause as specified in 35 Ill. Adm. Code 703.270 through 703.273 and Section 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 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 includes 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 702.149)

13. MONITORING AND RECORDS. (35 Ill. Adm. Code 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 Ill. Adm. Code 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 must 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 must 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 Ill. Adm. Code 702.150)

14. REPORTING PLANNED CHANGES. The Permittee must 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 Ill. Adm. Code 703.280. (35 Ill. Adm. Codes 702.152(a))

15. CONSTRUCTION CERTIFICATION. For a new hazardous waste management (HWM) facility, the Permittee must not commence treatment, storage or disposal of hazardous waste; and for a facility being modified the Permittee must 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 Ill. Adm. Code 703.247)

16. ANTICIPATED NONCOMPLIANCE. The Permittee must 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 Ill. Adm. Code 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 Ill. Adm. Code 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 Ill. Adm. Code 703.260)

18. MONITORING REPORTS. Monitoring results must be reported at the intervals specified in the permit. (35 Ill. Adm. Code 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 Ill. Adm. Code 702.162. (35 Ill. Adm. Code 702.152(e))

20. TWENTY-FOUR HOUR REPORTING.

a. The Permittee must report to the Illinois EPA any noncompliance with the permit which may endanger 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 must 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 must 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 must 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 Ill. Adm. Code 702.152(f) and 703.245(b))

21. OTHER NONCOMPLIANCE. The Permittee must report all instances of noncompliance not otherwise required to be reported under Conditions VIII.14, VIII.15 and VIII.16, at the time monitoring reports, as required by this permit, are submitted. The reports must contain the information listed in Condition VIII.20. (35 Ill. Adm. Code 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 must promptly submit such facts or information. (35 Ill. Adm. Code 702.152(h))

23. REPORTING REQUIREMENTS. The following reports required by 35 Ill. Adm. Code Part 724 must be submitted in addition to those required by 35 Ill. Adm. Code 702.152 (reporting requirements):

    a. Manifest discrepancy report: if a significant discrepancy in a manifest is discovered, the Permittee must attempt to reconcile the discrepancy with the waste generator or transporter. If the discrepancy is not resolved within fifteen (15) days after receiving the waste, the Permittee must immediately submit to the Illinois EPA a letter describing the discrepancy and attempts to reconcile it and a copy of the manifest or shipping paper at issue. (35 Ill. Adm. Code 724.172(b))

    b. Unmanifested waste report: The Permittee must submit to the Illinois EPA within fifteen (15) days of receipt of unmanifested waste an unmanifested waste report on EPA form 8700-13B. (35 Ill. Adm. Code 724.176)

    c. Annual report: an annual report must be submitted covering facility activities during the previous calendar year. (35 Ill. Adm. Code 724.175)

24. SUBMITTAL OF REPORTS OR OTHER INFORMATION. All written reports or other written information required to be submitted by the terms of this permit must be sent to:

    Illinois Environmental Protection Agency
    Bureau of Land #33
    Permit Section
    1021 North Grand Avenue East
    Post Office Box 19276
    Springfield, Illinois 62794-9276

25. SIGNATORY REQUIREMENT. All permit applications, reports or information submitted to the Illinois EPA must be signed and certified as required by 35 Ill. Adm. Code 702.126. (35 Ill. Adm. Code 702.151)

26. CONFIDENTIAL INFORMATION. Any claim of confidentiality must be asserted in accordance with 35 Ill. Adm. Code 702.103 and 35 Ill. Adm. Code Part 161.

27. 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. Waste analysis plan as required by 35 Ill. Adm. Code 724.113(b) and this permit.

    b. Personnel training documents and records as required by 35 Ill. Adm. Code 724.116(d) and this permit.

    c. Contingency plan as required by 35 Ill. Adm. Code 724.153(a) and this permit.

d. Closure plan as required by 35 Ill. Adm. Code 724.212(a) and this permit.

e. Cost estimate for facility closure as required by 35 Ill. Adm. Code 724.242(d) and this permit.

f. Operating record as required by 35 Ill. Adm. Code 724.173 and this permit.

g. Inspection schedules as required by 35 Ill. Adm. Code 724.115(b) and this permit.

28. WASTE MINIMIZATION. The Permittee must certify at least annually that the Permittee has a program in place to reduce the volume and toxicity of hazardous waste that he generates to the degree determined by the Permittee to be economically practicable, and the proposed method of treatment, storage, or disposal is that practicable method currently available to the Permittee which minimizes the present and future threat to human health and the environment, in accordance with 35 Ill. Adm. Code 724.173(b)(9).

GENERAL FACILITY STANDARDS

29. NOTICE OF WASTE FROM A FOREIGN SOURCE. The Permittee who has arranged to receive hazardous waste from a foreign source must notify the Illinois EPA in writing at least four (4) weeks in advance of the date the waste is expected at the facility. (35 Ill. Adm. Code 724.112(a))

30. NOTICE OF WASTE FROM OFF-SITE. The Permittee who receives hazardous waste from an off-site source (except where the Permittee is also the generator), must inform the generator in writing that the Permittee has the appropriate permits for, and will accept, the waste the generator is shipping. The Permittee must keep a copy of this written notice as part of the facility operating record. (35 Ill. Adm. Code 724.112(b))

31. GENERAL WASTE ANALYSIS. The Permittee must comply with the procedures described in the approved waste analysis plan. (35 Ill. Adm. Code 724.113)

32. SECURITY. The Permittee must comply with the security provisions of 35 Ill. Adm. Code 724.114(b) and (c).

33. GENERAL INSPECTION REQUIREMENTS. The Permittee must follow the approved inspection schedule. The Permittee must remedy any deterioration or malfunction discovered by an inspection as required by 35 Ill. Adm. Code 724.115(c). Records of inspections must be kept as required by 35 Ill. Adm. Code 724.115(d).

34. PERSONNEL TRAINING. The Permittee must conduct personnel training as required by 35 Ill. Adm. Code 724.116 and must maintain training documents and records as required by 35 Ill. Adm. Code 724.116(d) and (e).

35. GENERAL REQUIREMENTS FOR IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTE. The Permittee must comply with the requirements of 35 Ill. Adm. Code 724.117.

36. CLOSURE REQUIREMENTS FOR ACCUMULATION AREAS. The Permittee shall close container storage areas, tanks, drip pads, or containment buildings used for the accumulation of on-site generated hazardous waste in accordance with the requirements identified in 35 Ill. Adm. Code 722.117(a)(8). This requirement is applicable to storage areas used on or after this section was amended at 44 Ill. Reg. 15263, effective September 3, 2020.

PREPAREDNESS AND PREVENTION

37. DESIGN AND OPERATION OF FACILITY. The Permittee must 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 Ill. Adm. Code 724.131)

38. REQUIRED EQUIPMENT. The Permittee must equip the facility with the equipment set forth in the approved contingency plan, as required by 35 Ill. Adm. Code 724.132.

39. TESTING AND MAINTENANCE OF EQUIPMENT. The Permittee must 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 Ill. Adm. Code 724.133)

40. ACCESS TO COMMUNICATIONS OR ALARM SYSTEM. The Permittee must maintain access to the communications or alarm system as required by 35 Ill. Adm. Code 724.134.

41. REQUIRED AISLE SPACE. The Permittee must maintain aisle space as required by 35 Ill. Adm. Code 724.135 and National Fire Protection Association (NFPA) requirements.

42. ARRANGEMENTS WITH STATE AND LOCAL AUTHORITIES AND EMERGENCY RESPONSE CONTRACTORS. The Permittee must 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 Ill. Adm. Code 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.

CONTINGENCY PLAN

43. IMPLEMENTATION OF PLAN. The provisions of the contingency plan must be carried out by the Permittee immediately whenever there is a fire, explosion or release of

hazardous waste or hazardous waste constituents which could threaten human health or the environment (35 Ill. Adm. Code 724.151(b)). At a minimum, this includes any fire or explosion which occurs in an area where hazardous waste is being managed (treated, stored or disposed) (35 Ill. Adm. Code 703.241). Within fifteen (15) days of any incident that requires implementation of the contingency plan, the owner or operator must submit a written report to the Illinois EPA as required by 35 Ill. Adm. Code 724.156(j).

44. COPIES OF PLAN. A copy of the contingency plan, including any revisions, must be maintained at the facility and submitted to all local police and fire departments, hospitals and State and local emergency response teams as required by 35 Ill. Adm. Code 724.153.

45. AMENDMENTS TO PLAN. The Permittee must review and immediately amend, if necessary, the contingency plan, as required by 35 Ill. Adm. Code 724.154.

46. EMERGENCY COORDINATOR. A trained emergency coordinator must be available at all times in case of an emergency as required by 35 Ill. Adm. Code 724.155 and 724.156.

MANIFEST SYSTEM RECORD KEEPING AND REPORTING

47. MANIFEST SYSTEM. The Permittee must comply with the manifest requirements of 35 Ill. Adm. Code 724.171, 724.172 and 724.176.

48. OPERATING RECORD. The Permittee must maintain a written operating record at the facility in accordance with 35 Ill. Adm. Code 724.173.

49. ANNUAL REPORT. The Permittee must prepare and submit an annual report to the Illinois EPA prior to March 1st of each year in accordance with the requirements of 35 Ill. Adm. Code 724.175.

CLOSURE

50. PERFORMANCE STANDARD. The Permittee must close the facility as required by 35 Ill. Adm. Code 724.211 and in accordance with the approved closure plan.

51. AMENDMENT TO CLOSURE PLAN. The Permittee must amend the closure plan whenever there is a change in the expected year of closure or whenever a change in the facility operation plans or facility design affects the closure plan pursuant to 35 Ill. Adm. Code 724.212(c).

52. NOTIFICATION OF CLOSURE. The Permittee must notify the Illinois EPA at least forty-five (45) days prior to the date it expects to begin closure. (35 Ill. Adm. Code 724.212(d))

53. TIME ALLOWED FOR CLOSURE. After receiving the final volume of hazardous waste, the Permittee must treat or remove from the site all hazardous waste and complete

closure activities in accordance with the schedule(s) specified in the closure plan. (35 Ill. Adm. Code 724.213)

54. DISPOSAL AND/OR DECONTAMINATION OF EQUIPMENT. When closure is completed, the Permittee must decontaminate and/or dispose of all facility equipment and structures as required by the approved closure plan. (35 Ill. Adm. Code 724.214)

55. CERTIFICATION OF CLOSURE. When closure is completed, the Permittee must submit certification to the Illinois EPA in accordance with 35 Ill. Adm. Code 724.215 that the facility has been closed as specified by the approved closure plan.

56. COST ESTIMATE FOR FACILITY CLOSURE. The Permittee's original closure cost estimate, prepared in accordance with 35 Ill. Adm. Code 724.242, must be:

a. Adjusted for inflation sixty (60) days prior to the anniversary date of the establishment of the financial instrument(s) used to comply with Section 724.243. However, if the owner/operator is using the financial test or corporate guarantee, it must be updated for inflation within thirty (30) days after close of the firm's fiscal year, and before the submission of updated information to the Illinois EPA as specified in Section 724.243(f).

b. Revised no later than thirty (30) days after the Illinois EPA has approved a request to modify the closure plan, if the change in the closure plan increases the cost of closure.

c. Kept on record at the facility and updated. (35 Ill. Adm. Code 724.242)

d. Made immediately available to Illinois EPA personnel upon Illinois EPA request.

57. FINANCIAL ASSURANCE FOR FACILITY CLOSURE. The Permittee must demonstrate compliance with 35 Ill. Adm. Code 724.243 by providing documentation of financial assurance, as required by 35 Ill. Adm. Code 724.251, in at least the amount of the cost estimates required by Condition VIII.55. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 Ill. Adm. Code 724.243.

Financial assurance documents submitted to 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

58. LIABILITY REQUIREMENTS. The Permittee must demonstrate continuous compliance with the requirements of 35 Ill. Adm. Code 724.247 and the documentation requirements of 35 Ill. Adm. Code 724.251.

59. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 Ill. Adm. Code 724.248 whenever necessary.

LAND DISPOSAL RESTRICTIONS

60. DISPOSAL PROHIBITION. Any waste identified in 35 Ill. Adm. Code 728, Subpart C, or any mixture of such a waste with nonrestricted wastes, is prohibited from land disposal unless it meets the standards of 35 Ill. Adm. Code 728, Subpart D, or unless it meets the requirements for exemptions under 35 Ill. Adm. Code 728, Subpart C. "Land disposal" means placement in or on the land and includes, but is not limited to, placement in a landfill, surface impoundment, waste pile, injection well, land treatment facility, or vault intended for disposal.

61. DILUTION PROHIBITION. The Permittee must not in any way dilute a restricted waste or residual from treatment of a restricted waste as a substitute for adequate treatment in order to achieve compliance with 35 Ill. Adm. Code 728, Subpart D (35 Ill. Adm. Code 728.103).

62. WASTE ANALYSIS.

    a. The Permittee must test his waste or extract developed, using the test method identified in Title 40 Code of Federal Regulations (40 CFR) 268, Appendix I, or use knowledge of the waste, to determine if the waste is restricted from land disposal.

    b. For any waste with treatment standards expressed as concentrations in the waste extract, the Permittee must test the treatment residues, or an extract of such residues developed using the test method described in 40 CFR 268, Appendix I, to assure that the treatment residues or extract meet the applicable treatment standard.

    c. If the treatment residues do not meet the treatment standards, or if the Permittee ships any restricted wastes to a different facility, the Permittee must comply with the requirements applicable to generators in 35 Ill. Adm. Code 728.107 and 728.150(a)(1).

63. STORAGE RESTRICTIONS

    a. The Permittee must not store hazardous wastes restricted from land disposal under 35 Ill. Adm. Code Part 728, Subpart C unless such wastes are stored only in

containers or tanks, and are stored solely for the purpose of the accumulation of such quantities as is necessary to facilitate proper recovery, treatment, or disposal, and: (1) each container is clearly marked to identify its contents and the date each period of accumulation begins; (2) each tank is clearly marked to identify its contents, the quantity of each hazardous waste received, and the date each period of accumulation begins, as required by 35 Ill. Adm. Code 728.150.

b. The Permittee must comply with the operating record requirements of 35 Ill. Adm. Code 724.173.

64. NEW DETERMINATIONS OF PROHIBITED WASTES

Wastes which are prohibited from land disposal under 35 Ill. Adm. Code 728, Subpart C, or for which treatment standards have been established under 35 Ill. Adm. Code 728, Subpart D, subsequent to the date of issuance of this permit, shall be subject to Conditions VIII.60 through VIII.63.

POST-CLOSURE

65. 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.

66. 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).

67. 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 60 days prior to each anniversary of the date on which the first post-closure cost estimate was prepared or if using the financial test or corporate guarantee, within 30 days after close of the firm's fiscal year. This permit condition is applicable throughout the entirety of the post-closure care period.

b. Revised whenever there is a change in the facility's post-closure plan increasing the cost of the post-closure plan.

c. Kept on record at the facility and updated. (35 IAC 724.244).

a. Maintained at the value approved by Illinois EPA with annual adjustment for inflation during the post-closure care period and cannot be decreased unless approved by the Illinois EPA in a permit modification.

68. FINANCIAL ASSURANCE FOR POST-CLOSURE CARE. The Permittee shall demonstrate compliance with 35 IAC 724.245 and 703.241(a)(2) by providing documentation of financial assurance, as required by 35 IAC 724.251, in at least the amount of the cost estimates required by the Permit Condition 67. This financial assurance shall be maintained at such value throughout the post-closure care period and shall be adjusted accordingly pursuant to Permit Condition 67. Changes in financial assurance mechanisms must be approved by the Illinois EPA pursuant to 35 IAC 724.245.

Financial assurance documents submitted to Illinois EPA should be directed to the following address:

Illinois Environmental Protection Illinois EPA
Bureau of Land #24
Financial Assurance Program
1021 North Grand Avenue East
P.O. Box 19276
Springfield, IL 62794-9276

69. INCAPACITY OF OWNERS OR OPERATORS, GUARANTORS, OR FINANCIAL INSTITUTIONS. The Permittee shall comply with 35 IAC 724.248 whenever necessary.

SECTION IX: REPORTING AND NOTIFICATION REQUIREMENTS

The reporting and notification requirements of each section of the RCRA permit are summarized below. This summary is provided to highlight the various reporting and notification requirements of this permit.

Condition	Submittal	Due Date
Section II: CONTAINERS		
H.1	Notify Illinois EPA of intention to close the container storage area	45 days prior to the date closure is expected to begin
H.1	Submit sampling and analysis plan for review	45 days prior to the date closure is expected to begin
H.4	Submit application for modification of permit and post-closure care plan	Within 30 days after determination that the container storage area cannot be clean closed
H.5	Submit financial assurance to include modification required in Condition II.H.4	Within 30 days after permit is modified
H.6	Submit certification for closure of container storage area	Within 60 days after closure is completed
SECTION III: TANK SYSTEMS		
F.3.g	Results of tank integrity assessment	Within 60 days after inspection
G.1	Report to Illinois EPA Peoria FOS of any leak or spill of 1 pound or greater.	Within 24-hours of leak or spill
G.2	Report to Illinois EPA on release and Permittee's response	Within 30 days after leak or spill occurs
G.3	Certification of major repairs	Within 7 days from returning tank system to service
H.1	Notify Illinois EPA of intent to close	45 days prior to the date closure is expected to begin
H.1	Submit sampling and analysis plan	45 days prior to the date closure is expected to begin
H.4	Submit application for modification of permit and post-closure care plan	Within 30 days after determination that the tank system cannot be clean closed
H.5	Submit financial assurance to include modification required in Condition III.H.4	Within 30 days after permit is modified
H.6	Submit certification for closure of tank system	Within 60 days after closure is completed

Condition	Submittal	Due Date
J.1	Submit certification of construction to Illinois EPA	Within 30 days after completion of any new tank system construction
SECTION IV: CONTAINMENT BUILDING		
F.1	Notify Illinois EPA of intent to close the containment building	45 days prior to the date closure is expected to begin
F.1	Submit sampling and analysis plan	45 days prior to the date closure is expected to begin
F.4	Submit application for modification of permit and post-closure care plan	Within 30 days of determination containment building cannot be clean closed
F.5	Submit financial assurance to include modification required in Condition IV.F.4	Within 30 days after permit is modified
F.6	Submit certification for closure of containment building	Within 60 days after closure is completed
G.1.d	Notify Illinois EPA of release	Within 7 days after discovery
G.3	Certification of repairs	In accordance with the schedule submitted
SECTION V: SURFACE IMPOUNMENTS		
D.1	Notify Illinois EPA of leak in dike or sudden drop in liquid level	Within 7 days after detection
E.2	Submit a P.E. certification of dike's structural integrity	Prior to resuming service to an impoundment which has been removed from service for more than 6 months
H.1	Notify Illinois EPA of intent to close the surface impoundment	60 days prior to the date closure is expected to begin
H.1	Submit sampling and analysis plan	60 days prior to the date closure is expected to begin
H.5	Submit application for modification of permit and post-closure care plan	Within 30 days of determination surface impoundment cannot be clean closed
H.6	Submit financial assurance to include modification required in Condition V.H.5	Within 30 days after permit is modified
H.7	Submit certification of closure of surface impoundment	Within 60 days after closure is completed
SECTION VI: POST-CLOSURE		
F.2	Request permit modification to remove the hazardous waste, liner, or contaminated soil	Prior to removing the liner or wastes

Condition	Submittal	Due Date
F.3	Submit proposed Environmental Covenant	One year prior to end of post-closure care period
F.4	Certification of completion of post-closure and Post-Closure Documentation Report	60 days after completion of post-closure care
SECTION VII: GROUNDWATER DETECTION MONITORING PROGRAM		
I.2	Groundwater monitoring data and statistical calculations required semi-annually. Samples Collected During: April- June October-December	 Due July 15 (List G1& G2) Due January 15 (List G1)
I.3	Groundwater surface elevation	Semi-annually
I.4	Groundwater flow rate and direction	Annually due July 15
I.5	Surveyed elevations	Every 5 years or at the request of Illinois EPA
I.6	Elevation of the bottom of each well	Annually due July 15
I.10.a	Notify Illinois EPA in writing of statistically significant increase	Within 7 days the increase was discovered
I.10.b	Sample groundwater in all wells for Appendix I constituents	Immediately after increase is discovered
I.10.d	Apply for permit modification establishing compliance monitoring program	Within 90 days the increase was discovered
I.10.e	Provide Illinois EPA with corrective action feasibility plan	Within 180 days the increase was discovered
I.11.a	Notify Illinois EPA in writing of intent to make demonstration	Within 7 days the increase was discovered
I.11.b	Submit a report to Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or resulted from error	Within 90 days the increase was discovered
I.11.c	Submit to Illinois EPA application to change detection monitoring program	Within 90 days the increase was discovered
SECTION VII-A: SHALLOW ZONE GROUNDWATER OBSERVATION MONITORING PROGRAM		
I.2	Groundwater monitoring data and statistical calculations required semi-annually. Samples Collected During: April- June October-December	 Due July 15 Due January 15
I.3	Groundwater surface elevation	Semi-annually
I.4	Groundwater flow rate and direction	Annually due July 15
I.5	Surveyed elevation	Every 5 years or at the request of Illinois EPA or whenever the elevation

Condition	Submittal	Due Date
I.5 (cont.)		changes. In addition, for new wells, at the time of installation and then every 5 years or whenever the elevation changes
I.6	Elevation of the bottom of each well	Annually due July 15
I.10.a	Notify Illinois EPA in writing of statistically significant increase	Within 7 days the increase was discovered
I.10.b	Sample groundwater in all wells for Appendix I constituents	Immediately after increase is discovered
I.10.d	Apply for permit modification establishing compliance monitoring program	Within 90 days the increase was discovered
I.10.e	Provide Illinois EPA with corrective action feasibility plan	Within 180 days the increase was discovered
I.11.a	Notify Illinois EPA in writing of intent to make demonstration	Within 7 days the increase was discovered
I.11.b	Submit a report to Illinois EPA which demonstrates that a source other than a regulated unit caused the increase, or resulted from error	Within 90 days the increase was discovered
I.11.c	Submit to Illinois EPA application to change detection monitoring program	Within 90 days the increase was discovered
SECTION VIII: STANDARD CONDITIONS		
6	Complete application for a new permit	180 days prior to permit expiration
11	Provide information requested by Illinois EPA and copies of records required to be kept by this permit	Within a 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	As soon as possible
17	Application for permit modification indicating permit is to be transferred	At least 90 days prior to transfer date
19	Submission of any information required in a compliance schedule	14 days after each schedule date
20	Report to the Illinois EPA any non-compliance which may endanger health or environment:	
	By telephone	24 hours after discovery, and
	In writing	5 days after discovery
21	Report all other instances of non-compliance	March 1 of each year along with Annual Report

Condition	Submittal	Due Date
29	Notify Illinois EPA in writing of expected receipt of hazardous waste from foreign source	At least 4 weeks prior to receipt of waste
43	Implementation of contingency plan:	
	Notify appropriate State and local agencies with designated response roles	As needed
	Notify appropriate local officials	Immediately, if emergency coordinator's assessment indicates evacuation of local area is advisable
	Notify the Illinois EPA (217/782-3637) or Illinois EMA (217/782-7860) if emergency coordinator determines there has been a release, fire or explosion which could threaten human health or the environment, outside the facility	Immediately after determination made
	Notify Illinois EPA and appropriate State and local authorities, in writing, that facility is in compliance with 35 Ill. Adm. Code 724.156(h)	Prior to resuming operation in affected areas
	Report to Illinois EPA details regarding incident which required implementation of contingency plan	Within 15 days after event
49	Submit annual report required by 35 Ill. Adm. Code 724.175	March 1st of each year
51	Application for permit modification amending closure plan	60 days prior to proposed change, or no later than 60 days after unexpected event has occurred
52	Notify Illinois EPA date expect to begin closure	45 days prior to date expect closure to begin
53	Submit closure certification	Within 60 days after completion of closure
56(a) and 67(a)	Adjust closure cost estimate for inflation	Within 60 days prior to anniversary date or 30 days after the close of the facility's fiscal year
56(b) and 67(b)	Revision of closure cost estimate	30 days after Illinois EPA approval
57 and 69	Change in financial assurance mechanism for closure	As required by 35 Ill. Adm. Code 724.243
58	Change in coverage for sudden and non-sudden accidental occurrences	As required by 35 Ill. Adm. Code 724.247

Condition	Submittal	Due Date
59	Notify Illinois EPA of commencement of voluntary or involuntary bankruptcy proceedings	Within 10 days after commencement of proceeding
SECTION X: SPECIAL CONDITIONS		
A.1	Current 39i certification and supporting documents	With all applications for a permit
B.1	Submit revised cost estimate for post-closure and corrective action costs	Within 60 days of effective date of permit
SECTION XI: CORRECTIVE ACTION FOR SWMUs		
D.1	Notify Illinois EPA of newly identified SWMU(s)/AOC(s)	Within 30 days of discovery
D.3	SWMU Assessment Plan	Within 90 days after receipt of Illinois EPA's request
E.	Notify Illinois EPA of release from SWMU	Within 30 days of discovery
F.3	Submit financial assurance for corrective action cost estimate	Within 60 days after cost estimate is approved

SECTION X: SPECIAL CONDITIONS

A. Prior Conduct

1. The Permittee shall submit current 39(i) certifications and supporting documentation with all applications for a permit.

B. Compliance Schedule

1. Cost Estimates: Within sixty (60) days of the effective date of this Permit,

   a. The Permittee shall submit a revised post-closure cost estimate to meet the required minimum of thirty (30) years post-closure care costs for the closed landfill, as a Class 1* permit modification. The Permittee must submit financial assurance for the post-closure cost estimate within sixty (60) days of Illinois EPA's approval of the cost estimate.

   b. The Permittee shall include a corrective action cost estimate for inspection and maintenance of the closed Pre-RCRA Landfill. The Permittee must submit financial assurance for corrective action cost within sixty (60) days of Illinois EPA's approval of the cost estimate.

   c. All cost estimates must be updated to the current year.

2. Detailed Closure Plan for the Waste Stabilization Facility (WSF): Within sixty (60) days of the effective date of this Permit, the Permittee must submit a detailed closure plan for the WSF, including all units listed in Condition IV.B.2, as a Class 1* permit modification. The Permittee shall use the Illinois EPA's Guidance for Preparing RCRA Closure Plans, which can be found on the Illinois EPA's website.

3. Point of Compliance: Within ninety (90) days of the effective date of this Permit submit a request to revise groundwater designations in Condition VII.C.1 to add a sufficient number of point of compliance wells, as a Class 1* permit modification. The request must reevaluate the point of compliance for the Groundwater Detection Monitoring Program to meet the minimum requirements of 35 Ill. Adm. Code 724.195 and 724.197(a) to adequately allow for the detection of contamination when hazardous waste or hazardous constituents have migrated from the hazardous waste management area to the uppermost aquifer.

SECTION XI: CORRECTIVE ACTION FOR SOLID WASTE MANAGEMENT UNITS

A. INTRODUCTION

1. In accordance with Section 3004(u) of RCRA and 35 Ill. Adm. Code 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 constituents, listed in 35 Ill. Adm. Code 721, Appendix H from any solid waste management unit (SWMU) at its facility near Peoria, Illinois.

2. The original USEPA RCRA permit, effective November 4, 1987, contained, among other things, corrective action requirements for one (1) SWMU, a unit referred to as the "pre-RCRA closed landfill". In addition, the Permittee has evaluated two other areas of concern as part of its corrective action responsibilities during the term of the permit. A summary of the corrective action activities completed under the initial RCRA permit overseen by USEPA is provided in Attachment G to this permit.

3. Illinois EPA has authority for imposing corrective action requirements at RCRA permitted facilities and thus will now be responsible for overseeing future corrective action activities at this facility.

4. The Permittee has adequately addressed its corrective action responsibilities for the areas evaluated during the original RCRA permit. However, this permit requires the Permittee continue to provide post-closure care of the final cover at the closed pre-RCRA Landfill using the same procedures established for the closed landfill portions of this facility receiving post-closure care in accordance with Section VI.

5. The Permittee must provide corrective action, as appropriate, for any future releases from SWMUs, new SWMUs, or any Area(s) of Concern (AOCs) identified under Condition XI.D at the facility.

6. The requirements of 35 Ill. Adm. Code Part 742 must be met in determining remediation objectives for all corrective action activities.

7. The Permittee shall incorporate, as necessary, climate adaptation considerations into the corrective action required at this facility in accordance with the applicable USEPA guidance(s) regarding climate change under RCRA corrective action.

B. CONTINUED CORRECTIVE ACTION REQUIREMENTS

1. The Permittee shall conduct post-closure inspections of the final cover system of the closed Pre-RCRA Landfill in accordance with the requirements set forth in Condition VI.D.

4. The Permittee must provide adequate maintenance of the final cover system of the

closed Pre-RCRA Landfill in accordance with the requirements set forth in Condition VI.D.

4. Prior to a request for a no further action (NFA) for the closed Pre-RCRA Landfill, the Permittee must make a demonstration similar to the requirements described in Condition VI.F.3 for the hazardous waste landfill under post-closure care. Such demonstration must include a proposed environmental covenant (EC) and long-term management plan for the closed Pre-RCRA Landfill in order to demonstrate completion of RCRA corrective action.

C. INTERIM MEASURES

At any time during the course of this permit, 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 an investigation 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 corrective measures study (CMS).

1. 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. The 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. The design, construction, and maintenance requirements;

   c. A schedule for design and construction; and

   d. A schedule for progress reports.

2. 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 shall not affect the schedule for implementation of any other portion of the permit.

3. 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.

D. REQUIREMENTS FOR ADDRESSING NEWLY IDENTIFIED SWMU(s) AND AOC(s)

1. The Permittee shall notify the Illinois EPA in writing of any newly identified SWMU or area of concern (AOC) 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 or AOC in relation to other SWMUs or AOCs 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 or 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)/AOC(s). This SWMU Assessment Plan must 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, can yield representative samples and must include parameters sufficient to identify migration of hazardous waste and hazardous constituents from the newly identified SWMU(s)/AOC(s) 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.

4. After the Permittee submits the SWMU Assessment Plan, the Illinois EPA shall either approve, approve with conditions, or disapprove the Plan in writing. If the Plan is approved, or approved with conditions, the Permittee shall begin to implement the Plan within forty-five (45) days of receiving such written notification. 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 Alan 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 must develop remedial objectives for the SWMU/AOC in accordance with 35 Ill. Adm. Code Part 742; such objectives are subject are subject to Illinois EPA review and approval.

7. The Permittee must implement a Corrective Measures Program, as necessary, to properly address any contamination encountered during the assessment which exceeds the approved remediation objectives for the SWMU/AOC. It must also be necessary to implement a Corrective Measures Program to support the approved remediation objectives (such as the establishment of any required engineered barriers or institutional controls).

8. All efforts carried out at a newly identified SWMU(s)/AOC(s) must meet the requirements of 35 Ill. Adm. Code 724.201.

E. 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) or RCRA Facility Investigation (RFI) 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. This notice must contain the information identified in Condition XI.D.1. Upon the Illinois EPA's written request, the Permittee shall determine the nature and extent of the contamination by following the procedures set forth in Condition XI.D.2. All Illinois EPA action on such future releases shall be subject to the appeal provisions of Sections 39(a) and 40(a) of the Illinois Environmental Protection Act.

F. FINANCIAL ASSURANCE

35 Ill. Adm. Code 724.201 requires that financial assurance be established for completing required corrective action at SWMUs:

1. Within thirty (30) days of the Illinois EPA's approval of a corrective action investigation plan or remediation workplan, the Permittee shall submit to Illinois EPA

for review and approval a cost estimate for conducting the corrective action required. Within sixty (60) days after these cost estimates are approved, the Permittee shall meet the requirements of 35 Ill. Adm. Code 724.201 and provide financial assurance to Illinois EPA in amount of the approved cost estimate.

2. The Permittee shall demonstrate compliance with the financial assurance requirements of 35 Ill. Adm. Code 724.201 by providing documentation of financial assurance using a mechanism specified in 35 Ill. Adm. Code 724.243, in at least the amount of the approved corrective action cost estimate. The words "completion of corrective action" shall be substituted for "closure and/or post-closure", as appropriate in the financial instrument specified in 35 Ill. Adm. Code 724.251. The Illinois EPA may accept financial assurance for completion of corrective action in combination with another financial mechanism that is acceptable under 35 Ill. Adm. Code 724.246 at its discretion.

3. The financial assurance requirements of 35 Ill. Adm. Code 724.201 must also be met for any investigative or corrective action efforts carried out in accordance with Section XI.D or Section XI.E. Detailed cost estimates must be developed for any activities carried out under this Section and must accompany any workplan/report submitted to Illinois EPA for review and approval. Appropriate documentation of financial assurance in at least the amount of the approved cost estimate must be submitted to Illinois EPA within sixty (60) days after the cost estimates are approved.

4. Financial assurance for corrective action must be updated, as necessary, to reflect the current status of the RCRA corrective action program at this facility.

5. Within sixty (60) days of the effective date of this permit, the Permittee must establish adequate financial assurance for post-closure care and maintenance of the final cover system over the closed Pre-RCRA Landfill. This post-closure care effort must continue throughout the entire post-closure care period required for the areas of the site subject to Section VI (Post-Closure).

ATTACHMENT A

GENERAL INSPECTION SCHEDULE

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

GENERAL INSPECTION SCHEDULE

EQUIPMENT	INSPECTION ELEMENT	INSPECTION FREQUENCY
Groundwater monitoring wells	Check for damage, destruction by heavy equipment	Weekly or after storms
Leachate detection systems	Check for damage, proper operation Check for presence of liquids	Weekly or after storms
Safety and Emergency Equipment (Refer to Section G Contingency Plan, for numbers, locations, and capabilities.)		
Personnel Protective/First Aid		
Respirator cartridges	Accessibility, adequate supply, deterioration/damage, tightness of connections	Weekly
5-minute emergency escape units	Accessibility, adequate supply, deterioration/damage, proper operation	Weekly
30-minute emergency escape unit	Accessibility, adequate supply, deterioration/damage, proper operation	Weekly
Compressed air cylinders	Adequate supply, deterioration/damage, proper operation	Weekly
First aid kits	Accessibility, adequate supply	Weekly
Fire blankets	Accessibility, adequate supply, deterioration/damage	Weekly
Emergency showers	Accessibility, adequate supply, deterioration/damage	Weekly
Portable emergency eyewash	Accessibility, adequate supply, deterioration/damage	Weekly
Fire Control		
5-lb. dry chemical fire extinguishers	Determine if extinguishers are in proper location	Weekly
10-lb. dry chemical fire Extinguishers	Determine if extinguisher has been used	Weekly
20-lb. dry chemical fire extinguishers	See page 6 for inspection	Monthly/Weekly
25-lb. dry chemical fire extinguishers	See page 6 for inspection	Monthly/Weekly
25-lb. CO2 fire extinguishers	See page 6 for inspection	Monthly/Weekly
Spill Control/Cleanup		
540 gpm centrifugal pumps	Accessibility, deterioration/damage, proper operation	Weekly
300-foot hose	Accessibility, deterioration/ damage	Weekly
10 pkg. sorbant booms	Accessibility, adequate supply deterioration/damage	Weekly
10 pkg. sorbant pads	Accessibility, adequate supply, deterioration/damage	Weekly
Earthmoving equipment(crawler dozers, rubber-tired scrapers, hydraulic backhoe)	Deterioration/damage, proper Operation	As per maintenance inspection schedule for each equipment item
2000-gal. water truck with pressure pump, hose, nozzles	Deterioration/damage, proper operation	

EQUIPMENT	INSPECTION ELEMENT	INSPECTION FREQUENCY
Pressure washers	Deterioration/damage, proper operation	
Emergency Communication/Alarms		
Telephones	Accessibility, deterioration proper operation	Daily
Private band radio	Accessibility, adequate supply, deterioration/damage, proper operation	Daily
Alarm System	Accessibility, deterioration/damage, proper operation	Daily
Security Devices		
Fence and gates	Inspect entire perimeter for breaches, corrosion	Daily.
	Ensure gates open and close freely.	Daily or when in use
	Check for proper gate lock function	Daily or when in use
Warning signs	Check for visibility, legibility	Weekly
Detex clocks and key stations	Guard check for proper operation	Hourly during guard shifts
Operation and Structural Equipment – Surface Impoundments		
Liner inspection during construction and installation	(See Section F-2b(2))	Upon opening each impoundment
Capacity	Ensure that 2' freeboard is maintained	Daily
Leak Detection System	Check for leakage in collection sump	Daily
	Leakage pumps, transmittal line and electrical to ensure proper functioning	Weekly
Earthen Structures (Liner Foundation, Berms and Dikes)	Check for deterioration mal-functions, erosion, and settlement	Weekly
Liner	Check for liner slippage, tears and leaks	Weekly
Cover and liner inspection during construction and installation	(See Section F-2b(2))	Upon opening and closing each landfill cell
Run-on and runoff control systems	Check for deterioration malfunctions or improper operation, i.e., erosion settlement, obstructions	Weekly and after storms
Wind dispersal control systems	Check for proper functioning, i.e., need for additional dampening with water truck	Weekly and after storms
Leachate collection	Visual inspection of leachate level in storage unit	Weekly and afterstorms
	Visual inspection of leachate lines in manholes	Weekly and after storms
	Leachate pumps, transmittal lines and electrical to ensure proper functioning	Weekly and after storms
	Manhole structure for deterioration and leveling	Weekly and after storms
	Check for exposed leachate collection lines on floor	Weekly and after storms
	Check for wet areas on floor of cell	Weekly and after storms

EQUIPMENT	INSPECTION ELEMENT	INSPECTION FREQUENCY
Tanks T-1 to T-4	Check overfilling equipment	Daily
	Check data from monitoring equipment	Daily
	Check corrosion, erosion and leaks	Weekly
	Check immediate area for obvious signs of leakage	Weekly
	Inspection of the inside of the tanks by emptying and entering	Annual
Containers	Identify proper labeling	Daily
	Check for leaks	Daily
	Check for detioration	Daily
	Check for proper aisle space	Daily
	Check all items above when container is not in use	Weekly
Container staging/storage area	Check for cracks, spilling and gaps in base, concrete slab	Weekly
	Check for deterioration or damage to sealant from spill or traffic	Weekly
	Check for leakage from the roll-offs	Weekly
	Check that drums are covered	Weekly
	Check for proper placement	Weekly
	Check for adequacy of aisle space	Weekly
Solids Storage Building (tanks)		
Outside Storage Silos		
Unloading/loading area	Check for evidence of spills or releases in unloading area	After each truck/tankloading/unloading
	Check for removal of spill absorbent and cleanup materials	Daily
	Check for cracks and gaps in base, concrete slab and sump	Daily
Storage Tanks/Containment Area	Check for evidence of spilled material	Daily
	Check for cracks and gaps in base, dike and sumps	Daily
	Check for evidence of releases outside containment	Daily
Storage Tanks	Check tank integrity	Annually
Associated piping/system, fittings, joints and seams	Check for evidence of corrosion/leaks	Daily

TYPES OF PROBLEMS		
EQUIPMENT/AREA INSPECTED	**INSPECTION PROCEDURES**	**INSPECTION FREQUENCY**
CONTAINMENT BUILDING		
Run-on and runoff control systems	Check for deterioration, malfunctions or improper operation, i.e., erosion, settlement, obstructions	Weekly and after storms
Wind dispersal control	Check for proper functioning, i.e., need for additional dampening with water truck	Weekly and after storms
Leak collection and removal system	Check for presence of leachate	Weekly and afterstorms
	Check for proper functioning	Weekly and after storms
SECURITY DEVICES		
Door Locks	Check for proper door lock function	Weekly
Warning Signs	Check for visibility, legibility	Weekly
OPERATING AND STRUCTURAL EQUIPMENT		
Loading and unloading areas	Check for evidence of spilled material on slab	Daily when in use and after each use
Front-end loader	Check hydraulic fluid level	Daily when in use
	Check for smooth operation	Daily when in use
Storage areas, concrete floor	Check for evidence of spilled materials	Daily when in use, otherwise weekly
Secondary containment systems	Check for evidence of spilled material in drains and sumps	Daily when in use, otherwise weekly
Soldification area	Check for evidence of spilled material on floor and in floor drain	Daily when in use, otherwise weekly
Pumps	As per manufacturer's specifications	Weekly
Drum crusher	As per manufacturer's specifications	Daily when in use
Conveyors	Check for proper operation	Daily when in use
Mixer	As per manufacturer's specifications	Daily when in use

ATTACHMENT B

POST-CLOSURE INSPECTION SCHEDULE

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

POST-CLOSURE INSPECTION SCHEDULE

1. Final Cover

Items to be inspected semi-annually and problems to look for include:

Seepage
Fire, smoke, fumes, gases (other than gas vents)
Settling, cracking of cover soil
Subsidence of cover, pooling
Erosion, gullies, soil loss
Rodent burrows
Lost or poor grass cover
Need for mowing, fertilizing grass
Tree sapling growth

2. Leachate Collection and Removal System

The leachate collection and removal system will be inspected for the following items and problems:

Level of leachate near level of inlet pipe (remove)
Sediments in collection sump (remove)
Pump corrosion, encrustation, failure (replace)
Clogged collection drain pipes (clean, flush)
Degradation of collection riser/manhole (replace, repair)

3. Groundwater Monitoring System

Inspection items and problems will include:

Well casing encrustation, corrosion (replace if inoperative);
Well screen encrustation, corrosion (replace if inoperative);
Pump encrustation, corrosion, failure (replace as required);
Soil erosion around the well (replace soil as required).

4. Run-On and Run-Off Control Systems

Run-on and run-off control system items and problems to be inspected include:
Erosion of drainage ditches, dikes, etc.
Settlement of drainage ditches, dikes, etc.
Obstructions in drainage ditches, collection sumps
Failure of berms, dikes
Grass too high or too low

5. Surveyed Benchmarks

Surveyed benchmarks will be inspected to ensure that they are present and undamaged.

6. Access Control

The six-foot high chain link fence with warning signs will be inspected for the following:

Gaps, corrosion
Condition and presence of warning signs

7. Gas Collection and Venting System

The gas collection system vents and well will be inspected for clogging

ATTACHMENT C

WASTE LISTS AND HAZARDOUS WASTE IDENTIFICATION NUMBERS

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

WASTE LISTS AND HAZADOUS WASTE IDENTIFICATION NUMBERS

Table	Process Code	Process	Section in Permit
C-1	S01	Container Storage	II
C-1	S02	Tank Storage	III
C-1	S06	Containment Building	IV
C-2	S04	Surface Impoundment Storage	V
C-1	T01	Treatment in Tanks	III
C-1	D80	Landfill Disposal	VI*
C-1	T04	Chemical, Physical and Biological Treatment	III

*Post-closure requirements only

Table C-1 - Characteristic Waste	
Waste Code	**Description**
D002	Corrosive pH ≤2.0 or ≥ 12.5
D004	Arsenic
D005	Barium
D018	Benzene
D006	Cadmium
D019	Carbon Tetrachloride
D020	Chlordane
D021	Chlorobenzene
D022	Chloroform
D007	Chromium
D023	o-Cresol
D024	m-Cresol
D025	p-Cresol
D026	Cresol
D016	2,4-D
D027	1,4-Dichlorobenzene
D028	1,2-Dichlorobenzene
D029	1,1-Dichloroethylene
D030	2,4-Dinitrotoluene
D012	Endrin
D031	Heptachlor (and its hydroxide)
D032	Hexachlorobenzene
D033	Hexachloro-1,3- butadiene
D034	Hexachloroethane
D008	Lead
D013	Lindane
D009	Mercury
D014	Methoxychlor
D035	Methyl ethyl ketone
D036	Nitrobenzene
D037	Pentachlorophenol
D038	Pyridine
D010	Selenium
D011	Silver
D039	Tetrachloroethylene
D015	Toxaphene
D040	Trichloroethylene
D041	2,4,5-Trichlorophenol
D042	2,4,6-Trichlorophenol
D017	2,4,5-TP (Silvex)
D043	Vinyl Chloride

Table C-1 (Cont.) - Hazardous Waste From Non-Specific Sources	
Code	**Description**
F001	The following spent halogenated solvents used in degreasing tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures and blends used in degreasing containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane; and 1,1,2-trichloroethane; all spent solvent mixtures and blends containing, before use, a total of ten percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F003	The following spent non-halogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures and blends containing, before use, only the above spent non-halogenated solvents; and all spent solvent mixtures and blends containing, before use, one or more of the above non-halongenated solvents and a total of ten percent or more (by volume) of one or more of those solvents listed in F001, F002, F004 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F004	The following spent non-halogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures and blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F005	The following spent non-halogenated solvents: toluene, methyl ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol and 2-nitropropane; all spent solvent mixtures and blends, containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002 or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc plating (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.
*F007	Spent cyanide plating bath solutions from electroplating operations.
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.
*F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive conversion coating process.
F024	Process wastes including but not limited to, distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five with varying amounts of positions of chlorine substitution. (This listing does not include wastewaters, wastewater treatment sludges, spent catalysts and wastes listed in this Section or Section 721.132.)
F025	Condensed light ends, spent filters and filter aids, and spent dessicant wastes from the production of certain chlorinated aliphatic hydrocarbons by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts of positions of chlorine substitution.
F028	Residues resulting from the incineration or thermal treatment of soil contaminated with hazardous waste numbers F020, F021, F022, F023, F026 and F027.
F032	Wastewaters, process residuals, preservative drippage and spent formulations from wood preserving processes generated at plants that currently use or have previously used chlorophenolic formulations (except potentially cross-contaminated wastes that have had the F032 waste code deleted in accordance with 261.35 and where the generator does not resume or initiate use of chlorophenolic formulations). This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.
F034	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use creosote formulations. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.
F035	Wastewaters, process residuals, preservative drippage, and spent formulations from wood preserving processes generated at plants that use inorganic preservatives containing arsenic or chromium. This listing does not include K001 bottom sediment sludge from the treatment of wastewater from wood preserving processes that use creosote and/or pentachlorophenol.
F037	Petroleum refinery primary oil/water/solids separation sludge (gravitational separation).
F038	Petroleum refinery secondary (emulsified) oil/water/solids separation sludge (physical and/or chemical separation.
F039	Leachate -- multi-source.

*reactive sulfide and/or reactive cyanide levels <100 ppm each.

Table C-1 (Cont.) - Wood Preservation	
Code	**Description**
K001	Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.
Inorganic Pigments	
Code	**Description**
K002	Wastewater treatment sludge from the production of chrome yellow and orange pigments.
K003	Wastewater treatment sludge from the production of molybdate orange pigments.
K004	Wastewater treatment sludge from the production of zinc yellow pigments.
K005	Wastewater treatment sludge from the production of chrome green pigments.
K006	Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).
K007	Wastewater treatment sludge from the production of iron blue pigments.
K008	Oven residue from the production of chrome oxide green pigments.
Organic Chemicals	
Code	**Description**
K009	Distillation bottoms from the production of acetaldehyde from ethylene.
K010	Distillation side cuts from the production of acetaldehyde from ethylene.
K011	Bottom stream from the wastewater stripper in the production of acrylonitrile.
K013	Bottom stream from the acetronitrile column in the production of acrylonitrile.
K014	Bottoms from the acetontrile purification column in the production of acrylonitrile.
K015	Still bottoms from the distillation of benzyl chloride.
K016	Heavy ends or distillation residues from the production of carbon tetrachloride.
K017	Heavy ends (still bottoms) from the purification column in the production of epichlorohydrin.
K018	Heavy ends from the fractionation column in ethyl chloride production.
K019	Heavy ends from the distillation of ethylene dichloride in ethylene dichloride production.
K020	Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.
K021	Aqueous spent antimony catalyst waste from fluoromethanes production.
K022	Distillation bottom tars from the production of phenol/acetone from cumene.
K023	Distillation light ends from the production of phthalic anhydride from naphthalene.
K024	Distillation bottoms from the production of phthalic anhydride from naphthalene.
K093	Distillation light ends from the production of phthalic anhydride from ortho-xylene.
K094	Distillation bottoms from the production of phthalic anhydride from ortho-xylene.
K025	Distillation bottoms from the production of nitrobenzene by the nitration of benzene.
K026	Stripping still tails from the production of methyl ethyl pyridines.
K027	Centrifuge and distillation residues from toluene diisocyanate production.
K028	Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.
K029	Waste from the product stream stripper in the production of 1,1,1- trichloroethane.
K095	Distillation bottoms from the production of 1,1,1-trichloroethane.
K096	Heavy ends from the heavy ends column from the production of 1,1,1- trichloroethane.
K030	Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.
K083	Distillation bottoms from aniline production.
K103	Process residues from aniline extraction from the production of aniline.
K104	Combined wastewater streams generated from nitrobenzene/aniline production.
K085	Distillation or fractionation column bottoms from the production of chlorobenzenes.
K105	Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.
K107	Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydralides.
K108	Condensed column overheads from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.
K109	Spent filter cartridges from the product purficiation from the production of 1,1-dimethylhydrazine (UDHM) from carboxylic acid hydrazides.
K110	Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.
K111	Product wastewaters from the production of dinitrotoluene via nitration of toluene.

Table C-1 – Organic Chemicals (Cont.)	
Code	**Description**
K112	Reaction by-product water from the drying column in the production of toluene-diamine via hydrogenation of dinitrotoluene.
K113	Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitroluene.
K114	Vicinals from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.
K115	Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.
K116	Organic condensate from the solvent recovery column in the production of toluene diisocyanate via phosgenation of toluenediamine.
K117	Wastewater from the reactor vent gas scrubber in the production of ethylene dibromide via bromination of ethene.
K118	Spent adsorbent solids from purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.
K136	Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.
K140	Floor sweepings, off-specification product and spent filter media from the production of 2,4,6-tribromophenol.
K157	Wastewaters (including scrubber waters, condenser waters, washwaters, and separation waters) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)
K158	Baghouse dusts and filter/separation solids from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)
K159	Organics from the treatment of thiocarbamate wastes.
K161	Purification solids (including filtration, evaporation, and centrifugation solids), bag house dust and floor sweepings from the production of dithiocarbamate acids and their salts. (This listing does not include K125 or K126.)
K174	Wastewater treatment sludges from the production of ethylene dichloride or vinyl chloride monomer (including sludges that result from commingled ethylene dichloride or vinyl chloride monomer wastewater and other wastewater), unless the sludges meet the following conditions: (1) the sludges are disposed of in a RCRA Subtitle C (42 USC 6921-6939e) or non-hazardous landfill licensed or permitted by a state or the federal government; (2) the sludges are not otherwise placed on the land prior to final disposal; and (3) the generator maintains documentation demonstrating that the waste was either disposed of in an on-site landfill or consigned to a transporter or disposal facility that provided a written commitment to dispose of the waste in an off-site landfill. Upon a showing by the government that a respondent in any enforcement action brought to enforce the requirements of Subtitle C of this Part managed wastewater treatment sludges from the production of vinyl chloride monomer or ethylene dichloride, the respondent must demonstrate that it meets the conditions of the exclusion that are set forth above. In doing so, the respondent must provide appropriate documentation that the terms of the exclusion were made (e.g., contracts between the generator and the landfill owner or operator, invoices documenting delivery of waste to landfill, etc.)
K175	Wastewater treatment sludges from the production of vinyl chloride monitoring mercuric chloride catalyst in an acetylene-based process.

Table C-1 (Cont.) - Inorganic Chemicals Production Wastes	
Code	**Description**
K071	Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.
K073	Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.
K106	Wastewater treatment sludge from the mercury cell process in chlorine production.
K176	Baghouse filters from the production of antimony oxide, including filters from the production of intermediates (e.g., antimony metals or crude antimony oxide).
K177	Slag from the production of antimony oxide that is speculatively accumulated or disposed of, including slag from the production of intermediates (e.g., antimony metal or crude antimony oxide).
K178	Residues from manufacturing and manufacturing-site storage of ferric chloride from acids formed during the production of titanium dioxide using the chloride-ilmenite process.
K181	Nonwastewaters from the production of dyes or pigments (including nonwastewaters commingled at the point of generation with nonwastewaters from other processes) that, at the point of generation, contain mass loadings of any of the constituents identified in subsection (c) of this Section that are equal to or greater than the corresponding subsection (c) levels, as determined on a calendar year basis. These wastes will not be hazardous if the nonwastewaters are managed in one of the following ways: 1) They are disposed of in a municipal solid waste landfill unit that is subject to the design criteria in 35 Ill. Adm. Code 811.303 through 811.309 and 811.315 through 811.317 and Subpart E of 35 Ill. Adm. Code 811 or 35 Ill. Adm. Code 814.302 and 814.402; 2) They are disposed of in a hazardous waste landfill unit that is subject to either 35 Ill. Adm. Code 724.401 or 725.401; 3) They are disposed of in other municipal solid waste landfill units that meet the design criteria in 35 Ill. Adm. Code 811.303 through 811.309 and 811.315 through 811.317 and Subpart E of 35 Ill. Adm. Code 811 or 35 Ill. Adm. Code 814.302 and 814.402, 35 Ill. Adm. Code 724.401, or 35 Ill. Adm. Code 725.401; or 4) They are treated in a combustion unit that is permitted under 415 ILCS 5/39(d), or an onsite combustion unit that is permitted under 415 ILCS 5/39.5. For the purposes of this listing, dyes or pigments production is defined in subsection (b)(1) of this Section. Subsection (d) of this Section describes the process for demonstrating that a facility's nonwastewaters are not K181 waste. This listing does not apply to wastes that are otherwise identified as hazardous under Sections 721.121 through 721.124 and 721.131 through 721.133 at the point of generation. Also, the listing does not apply to wastes generated before any annual mass loading limit is met, as set forth in subsection (c) of this Section.
Pesticides Production Wastes	
Code	**Description**
K031	By-product salts generated in the production of MSMA and cacodylic acid.
K032	Wastewater treatment sludge from the production of chlordane.
K033	Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.
K034	Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.
K097	Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.
K035	Wastewater treatment sludges generated in the production of creosote.
K036	Still bottoms from toluene reclamation distillation in the production of disulfoton.
K037	Wastewater treatment sludges from the production of disulfoton.
K038	Wastewater from the washing and stripping of phorate production.
K039	Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.
K040	Wastewater treatment sludge from the production of phorate.
K041	Wastewater treatment sludge from the production of toxaphene.
K098	Untreated process wastewater from the production of toxaphene.
K042	Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.
K043	2,6-Dichlorophenol waste from the production of 2,4-D.
K099	Untreated wastewater from the production of 2,4-D.
K123	Process wastewater (including supernates, filtrates and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.
K124	Reactor vent scrubber water from the production of tetrachlorobenzene in the production of 2,4,5-T.
K125	Filtration, evaporation and centrifugation solids from the production of ethylenebisdithiocarbamic acid and its salts.
K126	Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylenebisdithiocarbamic acid and its salts.
K131	Wastewater from the reactor and spent sulfuric acid from the acid dryer from the production of methyl bromide.
K132	Spent absorbent and wastewater separator solids from the production of methyl bromide.

Table C-1 (Cont.) Explosives Production Wastes	
Code	Description
*K044	Wastewater treatment sludges from the manufacturing and processing of explosives.
K045	Spent carbon from the treatment of wastewater containing explosives.
*K046	Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.
K047	Pink/red water from TNT operations.
*reactive levels <100 ppm	
Petroleum Refining Wastes	
Code	Description
K048	Dissolved air flotation (DAF) float from the petroleum refining industry.
K049	Slop oil emulsion solids from the petroleum refining industry.
K050	Heat exchanger bundle cleaning sludge from the petroleum refining industry.
K051	API separator sludge from the petroleum refining industry.
K052	Tank bottoms (leaded) from the petroleum refining industry.
K169	Crude oil storage tank sediment from petroleum refining operations.
K170	Clarified slurry oil tank sediment or in-line filter/separation solids from petroleum refining operations.
K171	Spent hydrotreating catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).
K172	Spent hydrorefining catalyst from petroleum refining operations, including guard beds used to desulfurize feeds to other catalytic reactors (this listing does not include inert support media).
Iron and Steel Production Wastes	
K061	Emission control dust/sludge from the primary production of steel in electric furnaces.
K062	Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (SIC Codes 331 and 332) (as defined in 35 Ill. Adm. Code 720.110).
Primary Copper	
K064	Acid plant blowdown slurry or sludge resulting from the thickening of blowdown slurry from primary copper production.
Primary Lead	
K065	Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.
Primary Zinc	
K066	After June 30, 1990, sludge from treatment of process wastewater or acid plant blowdown from primary zinc productions.
Primary Aluminum	
K088	Spent potliners from primary aluminum reduction.
Ferroalloys:	F
K090	Emission control dust or sludge from ferrochromiumsilicon production.
K091	Emission control dust or sludge from ferro chromium production.
Secondary Lead:	F
K069	Emission control dust/sludge from secondary lead smelting.
K100	Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.
Veterinary Pharmaceuticals	
K084	Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K101	Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
K102	Residue from use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.
Ink Formulation:	F
K086	Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps and stabilizers containing chromium and lead.

Table C-1 (Cont.) Coking	
K060	Ammonia still lime sludge from coking operations.
K087	Decanter tank tar sludge from coking operations.
K141	Process residues from the recovery of coal tar, including, but not limited to, collection sump residues from the production of coke from coal or the recovery of coke by-products produced from coal. This listing does not include K087 (decanter tank tar sludges from coking operations).
K142	Tar storage tank residues from the production of coke from coal or from the recovery of coke by-products produced from coal.
K143	Process residues from the recovery of light oil, including, but not limited to, those generated in stills, decanters, and wash oil recovery units from the recovery of coke by-products produced from coal.
K144	Wastewater sump residues from light oil refining, including, but not limited to, intercepting or contamination sump sludges from the

	recovery of coke by-products produced from coal.
K145	Residues from napthalene collection and recovery operations from the recovery of coke by-products produced from coal.
K147	Tar storage tank residues from coal tar refining.
K148	Residues from coal tar distillation, including, but not limited to still bottoms.
K149	Distillation bottoms from the production of a-(or methyl-)chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups. (This waste does not include still bottoms from the distillation of benzyl chloride).
K150	Organic residuals, excluding spent carbon adsorbent, from the spent chlorine gas and hydrochloric acid recovery processes associated with the production of a-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.
K151	Wastewater treatment sludges, excluding neutralization and biological sludges, generated during the treatment of wastewaters from the production of a-(or methyl-) chlorinated toluenes, ring-chlorinated toluenes, benzoyl chlorides, and compounds with mixtures of these functional groups.
K156	Organic waste (including heavy ends, still bottoms, light ends, spent solvents, filtrates, and decantates) from the production of carbamates and carbamoyl oximes. (This listing does not apply to wastes generated from the manufacture of 3-iodo-2-propynyl n-butylcarbamate.)

Table C-1 (Cont.) P Wastes	
Code	**Substance**
P023	Acetaldehyde, chloro-
P002	Acetamide, N-(aminothioxomethyl)-
P057	Acetamide, 2-fluoro-
P058	Acetic acid, fluoro-, sodium salt
P002	1-Acetyl-2-thiourea
P003	Acrolein
P070	Aldicarb
P203	Aldicarb sulfone
P004	Aldrin
P005	Allyl alcohol
P006	Aluminum phosphide (R,T)
P007	5-(Aminomethyl)-3-isoxazolol
P008	4-Aminopyridine
P009	Ammonium picrate (R)
P119	Ammonium vanadate
P099	Argentate (1-), bis(cyano-C)-, potassium
P010	Arsenic acid H_3AsO_4
P012	Arsenic oxide As_2O_3
P011	Arsenic oxide As_2O_5
P011	Arsenic pentoxide
P012	Arsenic trioxide
P038	Arsine, diethyl-
P036	Arsonous dichloride, phenyl-
P054	Aziridine
P067	Aziridine, 2-methyl
P013	Barium cyanide
P024	Benzenamine, 4-chloro-
P077	Benzenamine, 4-nitro-
P028	Benzene, (chloromethyl)-
P042	1,2-Benzenediol, 4-[1-hydroxy-2-(methyl-Mamino)ethyl]-,(R)-
P046	Benzeneethanamine,alpha,alpha-dimethyl-
P014	Benzenethiol
P127	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-, methylcarbamate
P188	Benzoic acid, 2-hydroxy-, compound with (3aS-cis)-1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethylpyrrolo(2,3-b)indol-5-yl methylcarbamate ester (1:1)
P001	2H-1-Benzopyran-2-one, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations greater than 0.3%
P028	Benzyl chloride
P015	Beryllium
P017	Bromoacetone
P018	Brucine
P045	2-Butanone,3,3-dimethyl-1-(methylthio),-O-[methylamino) carbonyl]oxime
P021	Calcium cyanide
P021	Calcium cyanide $Ca(CN)_2$
P189	Carbamic acid, [(dibutylamino)-thio]methyl-, 2,3-dihydro-2,2-dimethyl-7-benzofuranyl ester
P191	Carbamic acid, dimethyl-, 1-((dimethyl-amino)carbonyl)-5-methyl-1H-pyrazol-3-yl ester
P192	Carbamic acid, dimethyl-, 3-methyl-1-(1-methylethyl)-1H-pyrazol-5-yl ester
P190	Carbamic acid, methyl-, 3-methylphenyl ester
P127	Carbofuran
P022	Carbon disulfide
P095	Carbonic dichloride
P023	Chloroacetaldehyde
P189	Carbosulfan
P024	p-Chloroaniline
P026	1-(o-Chlorophenyl) thiourea
P027	3-Chloropropionitrile

Table C-1 (Cont.) – P Wastes	
Code	**Substance**
P029	Copper cyanide
P029	Copper cyanide CuCN
P202	m-Cumenyl methylcarbamate
P030	Cyanides (soluble cyanide salts), not otherwise specified
P031	Cyanogen
P033	Cyanogen chloride CNCl
P034	2-Cyclohexyl-4, 6-dinitrophenol
P016	Dichloromethyl ether
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P041	Diethyl-p-nitrophenyl phosphate
P040	O,O-Diethyl O-pyrazinylphosphorothioate
P043	Diisopropylfluorophosphate (DFP)
P004	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10- hexachloro-1,4,4a,5,8,8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5alpha, 8alpha, 8abeta)-
P060	1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10- hexachloro-1,4,4a,5,8, 8a-hexahydro-, (1alpha, 4alpha, 4abeta, 5beta, 8beta, 8abeta)-
P037	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6, 9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2aalpha, 3beta, 6beta, 6aalpha, 7beta, 7aalpha)-
P051	2,7:3,6-Dimethanonaphth [2,3-b]oxirene, 3,4,5,6, 9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1aalpha, 2beta, 2abeta, 3alpha, 6alpha, 6beta, 7beta, 7aalpha)-, and metabolites
P044	Dimethoate
P046	alpha, alpha-Dimethyl phenethylamine
P191	Dimetilan
P047	4,6-Dinitro-o-cresol and salts
P048	2,4-Dinitrophenol
P020	Dinoseb
P085	Diphosphoramide, octamethyl-
P111	Diphosphoric acid, tetraethyl ester
P039	Disulfoton
P049	Dithiobiuret
P185	1,3-Dithiolane-2-carboxaldehyde, 2,4-dimethyl-, O-[(methylamino)- carbonyl]oxime
P050	Endosulfan
P088	Endothall
P051	Endrin
P051	Endrin, and metabolites
P042	Epinephrine
P031	Ethanedinitrile
P066	Ethanimidothioic acid, N-[[(methylamino) carbonyl]oxy]-, methylester
P194	Ethanimidothioc acid, 2-(dimethylamino)-N-(((methylamino)carbonyl)oxy)-2-oxo-, methyl ester
P101	Ethyl cyanide
P054	Ethylenimine
P097	Famphur
P056	Fluorine
P057	Fluoroacetamide
P058	Fluoroacetic acid, sodium salt
P198	Formetanate hydrochloride
P197	Formparanate
P065	Fulminic acid, mercury(2+) salt (R,T)
P059	Heptachlor
P062	Hexaethyl tetraphosphate
P116	Hydrazinecarbothioamide
P068	Hydrazine, methyl-
P063	Hydrocyanic acid
P063	Hydrogen cyanide

Table C-1 (Cont.) – P Wastes	
Code	**Substance**
P096	Hydrogen phosphide
P060	Isodrin
P192	Isolan
P202	3-Isopropylphenyl-N-methylcarbamate
P007	3(2H)-Isoxazolone, 5-(aminomethyl)-
P196	Manganese, bis(dimethylcarbamodithioato-S,S')-
P196	Manganese dimethyldithiocarbamate
P092	Mercury, (acetato-O)phenyl-
P065	Mercury fulminate (R,T)
P082	Methanamine, N-methyl-N-nitroso-
P064	Methane, isocyanato-
P016	Methane, oxybis[chloro-
P112	Methane, tetranitro- (R)
P118	Methanethiol, trichloro-
P198	Methanimidamide, N,N-dimethyl-N'-[3-[[(methylamino)-carbonyl)oxy]phenyl)-, monohydrochloride
P197	Methanimidamide, N,N-dimethyl-N'-[2-methyl-4-[[(methylamino)carbonyl]oxy]phenyl]-
P050	6,9-Methano-2,4,3-benzodioxathiepen, 6,7,8,9, 10,10-hexachloro-1,5,5a,6,9,9a-hexahydro-,3-oxide
P059	4,7-Methano-1H-indene, 1,4,5,6,7,8,8-heptachloro-3a,4,7, 7a-tetrahydro-
P199	Methiocarb
P066	Methomyl
P068	Methyl hydrazine
P064	Methyl isocyanate
P069	2-Methyllactonitrile
P071	Methyl parathion
P190	Metolcarb
P128	Mexacarbate
P072	alpha-Naphthylthiourea
P073	Nickel carbonyl
P073	Nickel carbonyl $Ni(CO)_4$, (T-4)-
P074	Nickel cyanide
P074	Nickel cyanide $Ni(CN)_2$
P075	Nicotine, and salts
P076	Nitric oxide
P077	p-Nitroaniline
P078	Nitrogen dioxide
P076	Nitrogen oxide NO
P078	Nitrogen oxide NO_2
P081	Nitroglycerine (R)
P082	N-Nitrosodimethylamine
P084	N-Nitrosomethylvinylamine
P085	Octamethylpyrophosphoramide
P087	Osmium oxide OsO_4, (T-4)-
P087	Osmium tetroxide
P194	Oxamyl
P088	7-Oxabicyclo[2.2.1] heptane-2,3-dicarboxylic acid
P089	Parathion
P034	Phenol, 2-cyclohexyl-4,6-dinitro-
P048	Phenol, 2,4-dinitro-
P047	Phenol, 2,-methyl-4,6-dinitro-, and salts
P020	Phenol, 2,-(1-methylpropyl)-4,6-trinitro-
P009	Phenol, 2,4,6-trinitro-, ammonium salt (R)
P128	Phenol, 4-(dimethylamino)-3,5-dimethyl-, methylcarbamate (ester)
P199	Phenol, (3,5-dimethyl-4-(methylthio)-, methylcarbamate
P202	Phenol, 3-(1-methylethyl)-, methyl carbamate
P201	Phenol, 3-methyl-5-(1-methylethyl)-, methyl carbamate

Table C-1 (Cont.) – P Wastes	
Code	**Substance**
P092	Phenylmercury acetate
P093	Phenylthiourea
P094	Phorate
P095	Phosgene
P096	Phosphine
P041	Phosphoric acid, diethyl 4-nitrophenyl ester
P039	Phosphorodithioic acid, 0,0-diethyl S-[2- (ethylthio)ethyl] ester
P094	Phosphorodithioic acid, 0,0-diethyl S-[(ethyl thio)methyl] ester
P044	Phosphorodithioic acid, O,O-dimethyl S-[2-(methylamino)- 2-oxoethyl]ester
P043	Phosphorofluoridic acid, bis(1-methylethyl)ester
P089	Phosphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester
P040	Phosphorothioic acid, O,O-diethyl O-pyrazinyl ester
P097	Phosphorothioic acid, O-[4-[dimethylamino) sulfonyl)]phenyl]O, O-dimethyl ester
P071	Phosphorothioic acid, 0,0-dimethyl O-(4-nitrophenyl)ester
P204	Physostigmine
P188	Physostigmine salicylate
P110	Plumbane, tetraethyl-
P098	Potassium cyanide
P098	Potassium cyanide KCN
P099	Potassium silver cyanide
P201	Promecarb
P203	Propanal, 2-methyl-2-(methyl-sulfonyl)-, O-((methylamino)carbonyl) oxime
P070	Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino) carbonyl]oxime
P101	Propanenitrile
P027	Propanenitrile, 3-chloro-
P069	Propanenitrile, 2-hydroxy-2-methyl-
P081	1,2,3-Propanetriol, trinitrate- (R)
P017	2-Propanone, 1-bromo-
P102	Propargyl alcohol
P003	2-Propenal
P005	2-Propen-1-ol
P067	1,2-Propylenimine
P102	2-Propyn-1-ol
P008	4-Pyridinamine
P204	Pyrrolo[2,3-b]indol-5-ol, 1,2,3,3a,8,8a-hexahydro-1,3a,8-trimethyl-, methylcarbamate (ester), (3aS-cis)-
P075	Pyridine, 3-(1-methy-2-pyrrolidinyl)-, (S-) and salts
P114	Selenious acid, dithallium (1+) salt
P103	Selenourea
P104	Silver cyanide
P104	Silver cyanide AgCN
P105	Sodium azide
P106	Sodium cyanide
P106	Sodium cyanide NaCN
P108	Strychnidin-10-one, and salts
P018	Strychnidin-10-one, 2,3-dimethoxy-
P108	Strychnine and salts
P115	Sulfuric acid, dithallium (1+) salt
P109	Tetraethyldithiopyrophosphate
P110	Tetraethyl lead
P111	Tetraethylpyrophosphate
P112	Tetranitromethane (R)
P062	Tetraphosphoric acid, hexaethyl ester
P113	Thallic oxide
P113	Thallium oxide Tl_2O_3

Table C-1 (Cont.) – P Wastes	
Code	**Substance**
P114	Thallium(I) selenite
P115	Thallium (I) sulfate
P109	Thiodiphosphoric acid, tetraethyl ester
P045	Thiofanox
P049	Thioimidodicarbonic diamide $[(H_2N)C(S)]_2$ NH
P014	Thiophenol
P116	Thiosemicarbazide
P026	Thiourea, (2-chlorophenyl)-
P072	Thiourea, 1-naphthalenyl-
P093	Thiourea, phenyl-
P185	Tirpate
P123	Toxaphene
P118	Trichloromethanethiol
P119	Vanadic acid, ammonium salt
P120	Vanadium oxide V_2O_5
P120	Vanadium pentoxide
P084	Vinylamine, N-methyl-N-nitroso-
P001	Warfarin, and salts, when present at concentration greater than 0.3%
P185	Tripate
P121	Zinc Cyanide Zn $(CN)_2$
P122	Zinc phosphide Zn_3P_2-, when present at concentrations greater than 10% (R, T)
P205	Zinc, bis(dimethylcarbamodithioato-S,S')-
U Wastes	
Code	**Substance**
U001	Acetaldehyde (I)
U034	Acetaldehyde, trichloro-
U187	Acetamide, N-(4-ethoxyphenyl)-
U005	Acetamide, N-9H-fluoren-2-yl-
U240	Acetic acid, (2,4-dichlorophenoxy)-,salts and esters
U112	Acetic acid, ethyl ester (I)
U144	Acetic acid, lead (2+) salt
U214	Acetic acid, thallium(1+)salt See F027 Acetic acid, (2,4,5-trichlorophenoxy)-
U002	Acetone (I)
U003	Acetonitrile (I,T)
U004	Acetophenone
U005	2-Acetylaminofluorene
U006	Acetyl chloride (C,R,T)
U007	Acrylamide
U008	Acrylic acid (I)
U009	Acrylonitrile
U011	Amitrole
U012	Aniline (I,T)
U136	Arsinic acid, dimethyl-
U014	Auramine
U015	Azaserine
U365	H-Azepine-1-carbothioic acid, hexahydro-, S-ethyl ester
U010	-Azirino[2',3':3,4]pyrrolo[1,2-a]indole-4,7-dione, 6-amino-8-[[(aminocarbonyl)oxy]methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-, [1a-S-(1aalpha, 8beta, 8a 8balpha)]-
U280	Barban
U278	Bendiocarb
U364	Bendiocarb phenol
U271	Benomyl

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U157	Benz[j]aceanthrylene, 1,2-dihydro-3-methyl-
U016	Benz(c)acridine
U017	Benzal chloride
U192	Benzamide, 3, 5-dichloro-N-(1,1-dimethyl-2-propynyl)-
U018	Benz[a]anthracene
U094	Benz[a]anthracene, 7,12-dimethyl-
U012	Benzenamine (I,T)
U014	Benzenamine, 4,4'-carbonimidoylbis[N,N-dimethyl-
U049	Benzenamine, 4-chloro-2-methyl-,hydrochloride
U093	Benzenamine, N,N-dimethyl-4-(phenylazo)-
U328	Benzenamine, 2-methyl-
U353	Benzenamine, 4-methyl-
U158	Benzenamine, 4,4'-methylenebis[2-chloro-
U222	Benzenamine, 2-methyl-, hydrochloride
U181	Benzenamine, 2-methyl-5-nitro
U019	Benzene (I,T)
U038	Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha- hydroxy-, ethyl ester
U030	Benzene, 1-bromo-4-phenoxy-
U035	Benzenebutanoic acid, 4-[bis(2-chloroethyl) amino]-
U037	Benzene, chloro-
U221	Benzenediamine, ar-methyl-
U028	1,2-Benzenedicarboxylic acid, bis(2-ethylhexyl) ester
U069	1,2-Benzenedicarboxylic acid, dibutyl ester
U088	1,2-Benzenedicarboxylic acid, diethyl ester
U102	1,2-Benzenedicarboxylic acid, dimethyl ester
U107	1,2-Benzenedicarboxylic acid, dioctyl ester
U070	Benzene, 1,2-dichloro-
U071	Benzene, 1,3-dichloro-
U072	Benzene, 1,4-dichloro-
U060	Benzene, 1,1'-(2,2-dichloroethylidene)bis [4-chloro-
U017	Benzene, (dichloromethyl)-
U223	Benzene, 1,3-diisocyanatomethyl-(R,T)
U239	Benzene, dimethyl-(I,T)
U201	1,3-Benzenediol
U127	Benzene, hexachloro-
U056	Benzene, hexahydro-(I)
U220	Benzene, methyl-
U105	Benzene, 1-methyl 2,4-dinitro-
U106	Benzene, 2-methyl-1,3-dinitro-
U055	Benzene, (1-methylethyl)-(I)
U169	Benzene, nitro-
U183	Benzene, pentachloro-
U185	Benzene, pentachloronitro-
U020	Benzenesulfonic acid chloride (C,R)
U020	Benzenesulfonyl chloride(C,R)
U207	Benzene, 1,2,4,5-tetrachloro-
U061	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-chloro-
U247	Benzene, 1,1'-(2,2,2-trichloroethylidene)bis[4-methoxy-
U023	Benzene,(trichloromethyl)-
U234	Benzene, 1,3,5-trinitro-
U021	Benzidene
U202	1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide, and salts
U278	1,3-Benzodioxol-4-ol, 2,2-dimethyl-, methyl carbamate
U364	1,3-Benzodioxol-4-ol, 2,2-dimethyl-

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U203	1,3-Benzodioxole,5-(2-propenyl)-
U141	1,3-Benzodioxole,5-(1-propenyl)-
U090	1,3-Benzodioxole,5-propyl-
U367	7-Benzofuranol, 2,3-dihydro-2,2-dimethyl-
U064	Benzo[rst]pentaphene
U248	2H-1-Benzopyran-2-one,4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations of 0.3% or les
U022	Benzo[a]pyrene
U197	p-Benzoquinone
U023	Benzotrichloride (C,R,T)
U085	2,2'-Bioxirane
U021	[1,1'-Biphenyl]-4,4'-diamine
U073	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dichloro-
U091	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethoxy-
U095	[1,1'-Biphenyl]-4,4'-diamine, 3,3'-dimethyl-
U401	Bis(dimethylthiocarbamoyl) sulfide
U400	Bix(pentamethylene)thiuram tetrasulfide
U225	Bromoform
U030	4-Bromophenyl phenyl ether
U128	1,3-Butadiene, 1,1,2,3,4,4-hexachloro-
U172	1-Butanamine, N-butyl-N-nitroso-
U031	1-Butanol (I)
U159	2-Butanone (I,T)
U160	2-Butanone, peroxide (R,T)
U053	2-Butenal
U074	2-Butene, 1,4-dichloro- (I,T)
U143	2-Butenoic acid, 2-methyl-,7-[[2,3-dihydroxy-2-(1- methoxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5, 7a-tetrahydro-1H-pyrrolizin-1-yl ester, [1S-[1alpha(Z), (2S*,3R*), 7aalpha]]-
U031	n-Butyl alcohol (I)
U392	Butylate
U136	Cacodylic acid
U032	Calcium chromate
U372	Carbamic acid, 1H-benzimidazol-2-yl, methyl ester
U271	Carbamic acid, [1-[(butylamino)carbonyl]-1H-benzimidazol-2-yl]-, methyl ester
U375	Carbamic acid, butyl-, 3-iodo-2-propynyl ester
U280	Carbamic acid, (3-chlorophenyl)-, 4-chloro-2-butynyl ester
U373	Carbamic acid, phenyl-, 1-methylethyl ester
U409	Carbamic acid, [1,2-phenylenebis (iminocarbonothioyl)]bis-, dimethyl ester
U238	Carbamic acid, ethyl ester
U178	Carbamic acid, methylnitroso-, ethyl ester
U097	Carbamic chloride, dimethyl-
U379	Carbamodithioic acid, dibutyl, sodium salt
U277	Carbamodithioic acid, dibutyl-, 2-chloro-2-propenyl ester
U381	Carbamodithioic acid, dibutyl-, sodium salt
U383	Carbamodithioic acid, dimethyl, potassium salt
U382	Carbamodithioic acid, dimethyl-, sodium salt
U376	Carbamodithioic acid, dimethyl-, tetraanhydrosulfide with orthothioselenious acid
U378	Carbamodithioic acid, (hydroxymethyl)methyl-, monopotassium salt
U384	Carbamodithioic acid, methyl-, monosodium salt
U377	Carbamodithioic acid, methyl-, monopotassium salt
U389	Carbamothioic acid, bis(1-methylethyl)-, S-(2,3,3-trchloro-2-propenyl) ester
U392	Carbamodithioic acid, bis(2-methylpropyl)-, S-ethyl ester
U391	Carbamodithioic acid, butylethyl-, S-propyl ester
U386	Carbamodithioic acid, cyclohexylethyl-, S-ethyl ester
U390	Carbamodithioic acid, dipropyl-, S-ethyl ester

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U387	Carbamothioic acid, dipropyl-, S-(phenylmethyl) ester
U385	Carbamodithioic acid, dipropyl-, S-propyl ester
U114	Carbamodithioic acid,1,2-ethanediylbis-, salts and esters
U062	Carbamothioic acid, bis(1-methylethyl)-, S-(2, 3-dichloro-2-propenyl)ester
U279	Carbaryl
U372	Carbendazim
U367	Carbofuran phenol
U215	Carbonic acid, dithallium (1+) salt
U033	Carbonic difluoride
U156	Carbonochloridic acid, methyl ester (I,T)
U033	Carbon oxyfluoride (R,T)
U211	Carbon tetrachloride
U034	Chloral
U035	Chlorambucil
U036	Chlordane alpha and gamma isomers
U026	Chlornaphazine
U037	Chlorobenzene
U038	Chlorobenzilate
U039	p-Chloro-m-cresol
U042	2-Chloroethyl vinyl ether
U044	Chloroform
U046	Chloromethyl methyl ether
U047	beta-Chloronaphthalene
U048	o-Chlorophenol
U049	4-chloro-o-toluidine, hydrochloride
U032	Chromic acid H_2CrO_4, calcium salt
U050	Chrysene
U393	Copper, bis(dimethylcarbamodithioato-S,S')-,
U393	Copper dimethyldithiocarbamate
U051	Creosote
U052	Cresol (Cresylic acid)
U053	Crotonaldehyde
U055	Cumeme (I)
U246	Cyanogen bromide CNBr
U386	Cycloate
U197	2,5-Cyclohexadienediene-1,4-dione
U056	Cyclohexane (I)
U129	Cyclohexane, 1,2,3,4,5,6-hexachloro-, (1alpha, 2alpha,3beta,4alpha,5alpha,6beta)-
U057	Cyclohexanone (I)
U130	1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	Cyclophosphamide
U240	2,4-D, salts and esters
U059	Daunomycin
U366	Dazomet
U060	DDD
U061	DDT
U062	Diallate
U063	Dibenz[a,h]anthracene
U064	Dibenzo[a,i]pyrene
U066	1,2-Dibromo-3-chloropropane
U069	Dibutyl phthalate
U070	o-Dichlorobenzene
U071	m-Dichlorobenzene
U072	p-Dichlorobenzene
U073	3,3'-Dichlorobenzidine

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U074	1,4-Dichloro-2-butene (I,T)
U075	Dichlorodifluoromethane
U078	1,1-Dichloroethylene
U079	1,2-Dichloroethylene
U025	Dichloroethyl ether
U027	Dichloroisopropyl ether
U024	Dichloromethoxy ethane
U081	2,4-Dichlorophenol
U082	2,6-Dichlorophenol
U084	1,3-Dichloropropene
U085	1,2:3,4-Diepoxybutane (I,T)
U395	Diethylene glycol, dicarbamate
U108	1,4-Diethyleneoxide
U028	Diethylhexyl phthalate
U086	N,N-Diethylhydrazine
U087	O,O-Diethyl S-methyl dithiophosphate
U088	Diethyl phthalate
U089	Diethylstilbestrol
U090	Dihydrosafrole
U091	3,3'-Dimethoxybenzidine
U092	Dimethylamine (I)
U093	p-Dimethylaminoazobenzene
U094	7,12-Dimethylbenz[a]anthracene
U095	3,3'-Dimethylbenzidine
U096	alpha, alpha-Dimethylbenzylhydroperoxide (R)
U097	Dimethylcarbamoyl chloride
U098	1,1-Dimethylhydrazine
U099	1,2-Dimethylhydrazine
U101	2,4-Dimethylphenol
U102	Dimethyl phthalate
U103	Dimethyl sulfate
U105	2,4-Dinitrotoluene
U106	2,6-Dinitrotoluene
U107	Di-n-octyl phthalate
U108	1,4-Dioxane
U109	1,2-Diphenylhydrazine
U110	Dipropylamine (I)
U111	Di-n-propylnitrosamine
U403	Disulfiram
U041	Epichlorohydrin
U390	EPTC
U001	Ethanal (I)
U174	Ethanamine, N-ethyl-N-nitroso-
U155	1,2-Ethanediamine,N,N-dimethyl-N'-2-pyridinyl-N'-(2- thienylmethyl)-
U404	Ethanamine, N,N-diethyl-
U410	Ethanimidothioic acid, N,N'- [thiobis[(methylimino)carbonyloxy]]bis-, dimethyl ester
U394	Ethanimidothioic acid, 2-(dimethylamino)-N-hydroxy-2-oxo-, methyl ester
U067	Ethane, 1,2-dibromo-
U076	Ethane, 1,1-dichloro-
U077	Ethane, 1,2-dichloro-
U131	Ethane, hexachloro-
U024	Ethane, 1,1'-[methylenebis(oxy)]bis[2-chloro-
U117	Ethane, 1,1'-oxybis- (I)
U025	Ethane, 1,1'-oxybis[2-chloro-

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U184	Ethane, pentachloro-
U208	Ethane, 1,1,1,2-tetrachloro-
U209	Ethane, 1,1,2,2-tetrachloro-
U218	Ethanethioamide
U226	Ethane, 1,1,1-trichloro-
U227	Ethane, 1,1,2-trichloro-
U359	Ethanol, 2-ethoxy-
U173	Ethanol, 2,2'-(nitrosoimino)bis-
U395	Ethanol, 2,2'-oxybis-, dicarbamate
U004	Ethanone, 1-phenyl-
U043	Ethene, chloro-
U042	Ethene, (2-chloroethoxy)-
U078	Ethene, 1,1-dichloro-
U079	Ethene, 1,2-dichloro-, (E)-
U210	Ethene, tetrachloro-
U228	Ethene, trichloro-
U112	Ethyl acetate (I)
U113	Ethyl acrylate (I)
U238	Ethyl carbamate (urethane)
U117	Ethyl ether
U114	Ethylenebis dithiocarbamic acid, salts and esters
U067	Ethylene dibromide
U077	Ethylene dichloride
U359	Ethylene glycol monoethyl ether
U115	Ethylene oxide (I,T)
U116	Ethylenethiourea
U076	Ethylidene dichloride
U118	Ethyl methacrylate
U119	Ethyl methanesulfonate
U407	Ethyl Ziram
U396	Ferbam
U120	Fluoranthene
U122	Formaldehyde
U123	Formic acid (C,T)
U124	Furan (I)
U125	2-Furancarboxaldehyde (I)
U147	2,5-Furandione
U213	Furan, tetrahydro- (I)
U125	Furfural (I)
U124	Furfuran (I)
U206	Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-,D-
U206	D-Glucose, 2-deoxy-2[[(methylnitrosoamino)-carbonyl]amino]-
U126	Glycidylaldehyde
U163	Guanidine, N-methyl-N'-nitro-N-nitroso-
U127	Hexachlorobenzene
U128	Hexachlorobutadiene
U130	Hexachlorocyclopentadiene
U131	Hexachloroethane
U132	Hexachlorophene
U243	Hexachloropropene
U133	Hydrazine (R,T)
U086	Hydrazine, 1,2-diethyl-
U098	Hydrazine, 1,1-dimethyl-
U099	Hydrazine, 1,2-dimethyl-

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U109	Hydrazine, 1,2-Diphenyl-
U134	Hydrofluoric acid (C,T)
U134	Hydrogen fluoride (C,T)
U135	Hydrogen sulfide
U135	Hydrogen sulfide H_2S
U096	Hydroperoxide, 1-methyl-1-phenylethyl- (R)
U116	2-Imidazolidinethione
U137	Indeno[1,2,3-cd]pyrene
U375	3-Iodo-2-propynyl n-butylcarbamate
U396	Iron, tris(dimethylcarbamodithioato-S,S')-,
U190	1,3-Isobenzofurandione
U140	Isobutyl alcohol (I,T)
U141	Isosafrole
U142	Kepone
U143	Lasiocarpene
U144	Lead acetate
U145	Lead, bis(acetato-0)tetrahydroxytri-
U145	Lead phosphate
U146	Lead subacetate
U129	Lindane
U163	MNNG
U147	Maleic anhydride
U148	Maleic hydrazide
U149	Malononitrile
U150	Melphalan
U151	Mercury
U384	Metam Sodium
U152	Methacrylonitrile (I,T)
U092	Methanamine, N-methyl- (I)
U029	Methane, bromo-
U045	Methane, chloro- (I,T)
U046	Methane, chloromethoxy-
U068	Methane, dibromo-
U080	Methane, dichloro-
U075	Methane, dichlorodifluoro-
U138	Methane, iodo-
U119	Methanesulfonic acid, ethyl ester
U211	Methane, tetrachloro-
U153	Methanethiol (I,T)
U225	Methane, tribromo-
U044	Methane, trichloro-
U121	Methane, trichlorofluoro-
U036	4,7-Methan-1H-indene,1,2,4,5,6,7,8,8-octa chloro-2,3,3a,4,7,7a-hexahydro-
U154	Methanol (I)
U155	Methapyrilene
U142	1,3,4-Metheno-2H-cyclobuta[cd]pentalen-2-one, 1,1a,3,3a,4,5,5,5a,5b, 6-decachlorooctahydro-
U247	Methoxychlor
U154	Methyl alcohol (I)
U029	Methyl bromide
U186	1-Methylbutadiene (I)
U045	Methyl chloride (I,T)
U156	Methyl chlorocarbonate (I,T)
U226	Methylchloroform
U157	3-Methylcholanthrene

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U158	4,4'-Methylenebis(2-chloroaniline)
U068	Methylene bromide
U080	Methylene chloride
U159	Methyl ethyl ketone (MEK) (I,T)
U160	Methyl ethyl ketone peroxide (R,T)
U138	Methyl iodide
U161	Methyl isobutyl ketone (I)
U162	Methyl methacrylate (I,T)
U161	4-Methyl-2-pentanone (I)
U164	Methylthiouracil
U010	Mitomycin C
U365	Molinate
U279	1-Naphthalenol, methylcarbamate
U059	5,12-Naphthacenedione, (8S-cis)-8-acetyl-10-[(3 -amino-2,3,6-trideoxy-alpha-L-lyxo-hexapyranosyl)oxyl]- 7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-
U167	1-Naphthalenamine
U168	2-Naphthalenamine
U026	Naphthaleneamine, N,N'-bis(2-chloroethyl)-
U165	Naphthalene
U047	Naphthalene, 2-chloro-
U166	1,4-Naphthalenedione
U236	2,7-Naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-[1,1'- biphenyl]-4,4'-diyl)bis(azo)bis[5-amino-4-hydroxy]-, salt
U166	1,4-Naphthoquinone
U167	alpha-Naphthylamine
U168	beta-Naphthylamine
U217	Nitric acid, thallium (1+) salt
U169	Nitrobenzene (I,T)
U170	p-Nitrophenol
U171	2-Nitropropane (I,T)
U172	N-Nitrosodi-n-butylamine
U173	N-Nitrosodiethanolamine
U174	N-Nitrosodiethylamine
U176	N-Nitroso-N-ethylurea
U177	N-Nitroso-N-methylurea
U178	N-Nitroso-N-methylurethane
U179	N-Nitrosopiperidine
U180	N-Nitrosopyrrolidine
U181	5-Nitro-o-toluidine
U193	1,2-Oxathiolane, 2,2-dioxide
U058	2H-1,3,2-Oxazaphosphorine-2-amine, N,N-bis(2-chloroethyl) tetrahydro-, 2-oxide
U115	Oxirane (I,T)
U126	Oxiranecarboxyaldehyde
U041	Oxirane, (chloromethyl)-
U182	Paraldehyde
U391	Pebulate
U183	Pentachlorobenzene
U184	Pentachloroethane
U185	Pentachloronitrobenzene (PCNB) See F027 Pentachlorophenol
U161	Pentanol, 4-methyl-
U186	1,3-Pentadiene (I)
U187	Phenacetin
U188	Phenol
U048	Phenol, 2-chloro-
U039	Phenol, 4-chloro-3-methyl-
U081	Phenol, 2,4-dichloro-

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U082	Phenol, 2,6-dichloro-
U089	Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)-
U101	Phenol, 2,4-dimethyl-
U052	Phenol, methyl-
U132	Phenol, 2,2'-methylenebis [3,4,6-trichloro-
U170	Phenol, 4-nitro-
See F02	Phenol, pentachloro-
See F02	Phenol, 2,3,4,6-tetrachloro-
See F02	Phenol, 2,4,5-trichloro-
See F02	Phenol, 2,4,6-trichloro-
U411	Phenol, 2-(1-methylethoxy)-, methylcarbamate
U150	L-Phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	Phosphoric acid, lead (2+) salt (2:3)
U087	Phosphorodithioic acid, O,O-diethyl S-methyl ester
U189	Phosphorus sulfide (R)
U190	Phthalic anhydride
U191	2-Picoline
U179	Piperidine, 1-nitroso-
U400	Piperidine, 1,1'-(tetrathiodicarbonothioyl)-bis-
U383	Potassium dimethyldithiocarbomate
U378	Potassium n-hydroxymethyl- n-methyldi-thiocarbamate
U377	Potassium n-methyldithiocarbamate
U192	Pronamide
U194	1-Propanamine (I,T)
U111	1-Propanamine, N-nitroso-N-propyl-
U110	1-Propanamine, N-propyl-(I)
U066	Propane, 1,2-dibromo-3-chloro-
U083	Propane, 11-dichloro
U149	Propanedinitrile
U171	Propane, 2-nitro- (I,T)
U027	Propane, 2,2'-oxybis [2-chloro-See F027Propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U193	1,3-Propane sultone
U235	1-Propanol, 2,3-dibromo-, phosphate (3:1)
U140	1-Propanol, 2-methyl- (I,T)
U002	2-Propanone (I)
U007	2-Propenamide
U084	1-Propene, 1,3-dichloro-
U243	1-Propene, 1,1,2,3,3,3-hexachloro-
U009	2-Propenenitrile
U152	2-Propenenitrile, 2-methyl- (I,T)
U008	2-Propenoic acid (I)
U113	2-Propenoic acid, ethyl ester (I)
U118	2-Propenoic acid, 2-methyl-, ethyl ester
U162	2-Propenoic acid, 2-methyl-, methyl ester (I,T)
U373	Propham See F027Propionic acid, 2-(2,4,5-trichlorophenoxy)-
U411	Propoxur
U194	n-Propylamine (I,T)
U083	Propylene dichloride
U387	Prosulfocarb
U148	3,6-Pyridazinedione, 1,2-dihydro-
U196	Pyridine
U191	Pyridine, 2-methyl-
U237	2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-

Table C-1 (Cont.) – U Wastes	
Code	**Substance**
U180	Pyrrolidine, 1-nitroso
U200	Reserpine
U201	Resorcinol
U202	Saccharin and salts
U203	Safrole
U204	Selenious acid
U204	Selenium dioxide
U205	Selenium sulfide
U205	Selenium disulfide SeS_2 (R,T)
U376	Selenium, tetrakis(dimethylyldithiocarbamate)
U015	L-Serine, diazoacetate (ester) See F027 Silvex (2,4,5-TP)
U379	Sodium dibutyldithiocarbamate
U381	Sodium diethyldithiocarbamate
U382	Sodium dimethyldithiocarbamate
U206	Streptozotocin
U277	Sulfallate
U103	Sulfuric acid, dimethyl ester
U189	Sulfur phosphide (R) See F027 2,4,5-T
U402	Tetrabutylthiuram disulfide
U207	1,2,4,5-Tetrachlorobenzene
U208	1,1,1,2-Tetrachloroethane
U209	1,1,2,2-Tetrachloroethane
U210	Tetrachloroethylene - See F027 2,3,4,6-Tetrachlorophenol
U213	Tetrahydrofuran (I)
U401	Tetramethylthiuram monosulfide
U214	Thallium (I) acetate
U215	Thallium (I) carbonate
U216	Thallium (I) chloride
U216	Thallium (I) chloride T1Cl
U217	Thallium (I) nitrate
U366	2H-1,3,5-Thiadiazine- 2-thione, tetrahydro-3,5-dimethyl-
U218	Thioacetamide
U410	Thiodicarb
U153	Thiomethanol (I,T)
U244	Thioperoxydicarbonic diamide $[(H_2N)C(S)]_2S_2$, tetramethyl-
U402	Thioperoxydicarbonic diamide, tetrabutyl
U403	Thioperoxydicarbonic diamide, tetraethyl
U409	Thiophanate-methyl
U219	Thiourea
U244	Thiram
U220	Toluene
U221	Toluenediamine
U223	Toluene diisocyanate (R,T)
U328	o-Toluidine
U353	p-toluidine
U222	o-Toluidine hydrochloride
U389	Triallate
U011	1H-1,2,4-Triazol-3-amine
U408	2,4,6-Tribromophenol
U227	1,1,2-Trichloroethane
U404	Triethylamine
U228	Trichloroethylene
U121	Trichloromonofluoromethane - See F027 2,4,5-Trichlorophenol See F027 2,4,6-Trichlorophenol
U234	1,3,5-Trinitrobenzene (R,T)

Table C-1 – U Wastes	
Code	**Substance**
U182	1,3,5-Trioxane, 2,4,6-trimethyl-
U235	Tris(2,3-dibromopropyl) phosphate
U236	Trypan blue
U237	Uracil mustard
U176	Urea, N-ethyl-N-nitroso-
U177	Urea, N-methyl-N-nitroso-
U385	Vernolate
U043	Vinyl chloride
U248	Warfarin, and salts, when present at concentrations of 0.3% or less
U239	Xylene (I)
U200	Yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxybenzoyl)oxy]-,methyl ester,
U407	Zinc, bis(diethylcarbamodithioato-S,S')-
U249	Zinc phosphide Zn_3P_2, when present at concentrations of 10% or less

Table C-2 – Surface Impoundment Storage	
Code	**Waste Description**
F039	Leachate resulting from the treatment, storage, or disposal of wastes classified by more than one waste code under Subpart D, or from a mixture of wastes classified under Subparts C and D. (Leachate resulting from the management of one or more of the following USEPA hazardous wastes and no other hazardous wastes retains its hazardous waste code(s): F020, F021, F022, F023, F026, F027, or F028.)

ATTACHMENT D

AVERAGED REPLICATE T-TEST

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

Averaged Replicate T-Test

The following statistical procedures must be followed as referenced in Sections VI and VI-A.

1) Average the replicate indicator values for each sampling event using the arithmetic mean (X) as follows:

$$Xr = \frac{X_1 + X_2 \ldots + X_n}{n}$$

X = each replicate value
n = the number of replicates
Xr = averaged replicate value

2) Calculate the background mean ($\bar{X}_b$) for each indicator parameter, using the averaged replicate values (X_r) from each background sampling event determined in paragraph 1 above as follows:

$$\bar{X}_b = \frac{X_{r1} + X_{r2} \ldots X_{rN}}{N}$$

X_r = each averaged replicate value
N = the number of average replicate values (which is equal to the number of back ground sampling events)
$\bar{X}_b$ = background mean

3) Calculate the background variance (S_b^2) of the averaged replicate values (X_r) determined in paragraph 1 using:

$$S_b^2 = \frac{(X_{r1} - \bar{X}_b)^2 + (X_{r2} - \bar{X}_b)^2 \ldots + (X_{rN} - \bar{X}_b)^2}{N-1}$$

4) For detection monitoring, an average replicate value should be calculated for each indicator parameter. The arithmetic mean of the replicate values (Xm) is calculated for each monitoring well being evaluated as follows:

$$X_m = \frac{X_{r1} + X_{r2} + \ldots + X_{rn}}{n}$$

5) Calculate the t-statistic (t*) as follows:

$$t^* = \frac{X_m - \bar{X}_b}{S_b\,(1 + 1/mb)^{1/2}}$$

S_b = the standard deviation or $(S_b^2)^{1/2}$
mb = the number of background sampling events (e.g. for four (4) quarters of background sampling, mb would equal four (4). If two background wells are utilized mb would equal eight (8)).

6) Determine the comparison t value (tc) from table 1 using:

a) 0.05 level of significance
b) mb-1 as the degrees of freedom
c) values from the one-tailed column (for pH use the two-tailed values)

7) If the absolute value of t* is >tc then the permittee must conclude that a statistically significant change has occurred.

Table 1
Standard T-Tables 0.05 Level of Significance

Degrees of freedom	t-values (one-tail)	t-values (two tail)
1	6.314	12.706
2	2.920	4.303
3	2.353	3.182
4	2.132	2.776
5	2.015	2.571
6	1.943	2.447
7	1.895	2.365
8	1.860	2.306
9	1.833	2.262
10	1.812	2.228
11	1.796	2.201
12	1.782	2.179
13	1.771	2.160
14	1.761	2.145
15	1.753	2.131
16	1.746	2.120
17	1.740	2.110
18	1.734	2.101
19	1.729	2.093
20	1.725	2.086
21	1.721	2.080
22	1.717	2.074
23	1.714	2.069
24	1.711	2.064
25	1.708	2.060
30	1.697	2.042
40	1.684	2.021

Adopted from Table III of "Statistical Tables for Biological Agricultural and Medical Research" (1947. R.A. Fisher and F. Yates)

ATTACHMENT E

CLOSURE AND POST-CLOSURE COST ESTIMATES

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

CLOSURE AND POST-CLOSURE COST ESTIMATES

1. The approved closure cost estimate is $616,812 as indicated in Appendix I-2 of the approved permit application. This cost estimate in 2017 dollars is broken down as follows:

Hazardous Waste Management Unit	**Estimated Closure Cost (in 2017 dollars)**
Containers	$30,673
Tank Systems Tank T-4 Hydraulic stabilization mixer	 $24,355 $ 4,143
Runoff Retention Basin	$359,640
Containment Building	$198,010
Landfill	0
Totals	$616,812

2. The approved post-closure cost estimate at the time of issuance of this renewed RCRA permit is $3,342,258 (in 2019 dollars) as provided in Appendix I-8 of the approved permit application which has been adjusted for inflation. These estimates must be used when establishing financial assurance in accordance with 35 Ill. Adm. Code 724, Subpart G. However, the post-closure cost estimate must be updated in accordance with Condition X.B.1 to maintain thirty (30) years of post-closure care until a certification of post-closure care is accepted by the Illinois EPA.

ATTACHMENT F

CERTIFICATION DOCUMENTATION FOR CONSTRUCTION

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

CERTIFICATION DOCUMENTATION FOR CONSTRUCTION

When submitting certifications required by this RCRA permit for construction of any new unit, please complete the attached certification form. One (1) original submittal and form with "wet" signatures and two (2) copies of the submittal must be provided to the Illinois EPA. This will help to ensure that the submittal reaches its proper destination, and the certification will meet the regulatory requirements. Sending one of the two copies directly to the Illinois EPA's Field Operations Section (FOS) is acceptable if all copies have a completed form attached and the facility advises the Illinois EPA Permit Section, in writing, that a copy has been sent to FOS.

A documentation report and as-built drawings (sealed and signed by a qualified Illinois licensed Professional Engineer) must be included with this certification. Information necessary to document the construction of the unit and to support the certification must be contained within the report. This report should include a thorough description of all construction data and drawings and should be formatted in a logical and orderly manner. The construction documentation report must contain at least the following items:

1. An introduction and summary which describes the scope and purpose of the project;

2. A description of all construction activities, including quality assurance and quality control;

3. As-built drawings of unit and a description of any deviations from the plans and specifications approved in the permit;

4. A description of the test methods used and justification for any deviations from standard test methods;

5. A summary of test results, identification of any samples which did not meet the specifications and the corrective action and retesting which was undertaken in response to any failing test results;

6. Any necessary information associated with construction of the unit to document that construction was in accordance with the plans and specifications approved by the permit;

7. Information specifically required by the permit; and

8. Any available photographs of the unit.

CONSTRUCTION CERTIFICATION

This statement is to be completed by both the owner/operator and the qualified Illinois licensed professional engineer upon completion of construction in accordance with 35 Ill. Adm. Code Section 702.126. Submit one copy of the certification with original signatures and two additional copies. Forward these certification statements and any information required by the permit to the following address:

Illinois Environmental Protection Illinois EPA
Bureau of Land, Permit Section #33
1021 North Grand Avenue East
Springfield, Illinois 62702

FACILITY NAME: Peoria Disposal Company
IEPA's SITE CODE: LPC No. 14381320003
U.S. EPA ID NO.: ILD000805812
PART B PERMIT LOG NO. B-24R2
PERMIT (OR MODIFICATION) ISSUANCE DATE:
PERMIT CONDITION NO. REQUIRING CERTIFICATION:

The _____ has been constructed in accordance with the specifications in the Permit. Documentation that the construction was in accordance with the permit is contained in the enclosed report. I certify under penalty of law that this document and all attachments were prepared under my direction of 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.

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

ATTACHMENT G

OVERVIEW OF RCRA CORRECTIVE ACTION ACTIVITIES

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

Overview of RCRA Corrective Action Activities

1.0 Introduction

This attachment documents the history of RCRA corrective action activities completed to date at the Peoria Disposal Company (PDC) (a subsidiary of GFL Environmental) facility near Peoria, Illinois. These activities have been completed with the oversight from both USEPA and the Illinois EPA. There is a figure at the end of this document which depicts the location of the solid waste management units (SWMUs) and other areas of concern at the facility evaluated during this corrective action program.

2.0 Brief Chronology of Initial Corrective Action Activities at Facility

The following is a brief chronological history of the initial corrective action activities at the Peoria Disposal Company facility:

1. On July 11, 1985 the USEPA received the Certification of Solid Waste Management Units submitted by PDC

2. On November 15, 1985 the USEPA completed the Facility Management Plan and the RCRA Facility Assessment.

3. On September 30, 1987, the Illinois EPA and USEPA issued a joint final RCRA permit to Peoria Disposal Company for treatment, storage, and/or disposal in containers, tanks, waste piles, surface impoundments, and landfills. Among other things, the USEPA portion of the permit required the facility to conduct corrective action, as appropriate, on one SWMU—the Pre-RCRA Closed Landfill.

3.0 Brief Description of SWMUs

A SWMU known as the Pre-RCRA Landfill was addressed under the corrective action provisions of the original RCRA permit issued to the facility in 1987. In addition, two additional releases were reported to USEPA in 1991 and 1995. These releases were also addressed under provisions of the facility's RCRA permit. A more detailed discussion of this SWMU and these two releases is provided in Sections 3.1 thru 3.3 below.

3.1 Pre-RCRA Landfill

The Pre-RCRA landfill is a closed landfill owned and operated by Peoria Disposal Company from its inception as a landfill. The unit was operated as a municipal waste landfill serving the City of Peoria and the Peoria County area. Operations began in 1968, under the regulatory jurisdiction of the Peoria County Health Department. In 1974, an operating permit (1974-36-OP) was issued by the Illinois EPA to the facility to manage municipal refuse, excluding liquid or hazardous waste unless authorized by supplemental permit. An additional permit (1978-2564) was issued which allowed for landfilling operations and identified closure materials to be used.

Operations were completed in January 1980. The site then was covered and closed in accordance to permit requirements. The plat of survey of the closed facility was recorded in accordance with the requirements of the State of Illinois in October 1980. The site was monitored for the required three (3) year period.

PDC completed an RFI for this unit and on June 27, 1991, USEPA determined that corrective action was complete at this unit.

3.2 Groundwater Contamination at Well G140 Discovered in June 1991.

On July 12, 1991, PDC sent a letter to the Illinois EPA indicating that an apparent statistically significant increase above background for 1,1-dichloroethane had been observed in groundwater samples from monitoring well G140 (a well which must be monitored as part of the groundwater monitoring program set forth in the facility's RCRA permit). In addition, on August 7, 1991, PDC sent a letter to USEPA indicating that low level of vinyl chloride (8.7 ug/l) and 1,1-dichloroethane (15ug/l) were detected in groundwater samples collected from well G140.

PDC conducted an investigation to determine the source of the detected contamination and monitored the groundwater quality in well G140 on a monthly basis for more than one (1) year. Vinyl chloride was not detected in any of these subsequent monitoring efforts and vinyl chloride was not detected above the PQL of concern as set forth in the facility's RCRA permit. As such, it was determined that no release had occurred and that PDC should revert back to quarterly monitoring at well G140 in accordance with their RCRA permit.

3.3 June 1995 Surface Release from Pre-RCRA Landfill

On June 2, 1995, a leachate seep was observed at the Pre-RCRA landfill. This seep was found to be originating from an erosion gully on the landfill which had penetrated the soil cover over the landfill. PDC took action to prevent the flow of any leachate from the site and also took action to fill in and repair the eroded area.

The Illinois EPA inspected this area on June 2, 1995. PDC notified USEPA of this release in a July 5, 1995 letter. Based upon a review of available information, it appears PDC adequately addressed this release.

ATTACHMENT H

CLOSURE CERTIFICATION STATEMENT

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

CERTIFICATION OF COMPLETION OF RCRA CLOSURE

Peoria Disposal Company (1438120003) – Peoria County
USEPA ID: ILD000805812
RCRA Closure Log No. B-24R2

To meet the requirements of 35 Ill. Adm. Code 724.215, this statement is to be completed by both a responsible officer of the owner/operator (as defined in 35 Ill. Adm. Code 702.126) and by a qualified Illinois licensed professional engineer upon completion of closure of the _____. Submit one copy of the certification with original signatures and two additional copies.

The hazardous waste management unit, known as the _____, at Peoria Disposal Company has been closed in accordance with the specifications in the approved closure plan. A report documenting that closure has been carried out in accordance with the approved closure plan is attached.

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.

A 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 ILCS5/44(h))

Facility Name	**Printed Name of Responsible Officer**
Signature of Owner/Operator Responsible Officer **Date**	**Printed Title of Responsible Officer**
Signature of Licensed P.E. **Date**	**Printed Name of Licensed P.E. and Illinois License Number**
Mailing Address of P.E.:	**Licensed P.E.'s Seal:**

ATTACHMENT I

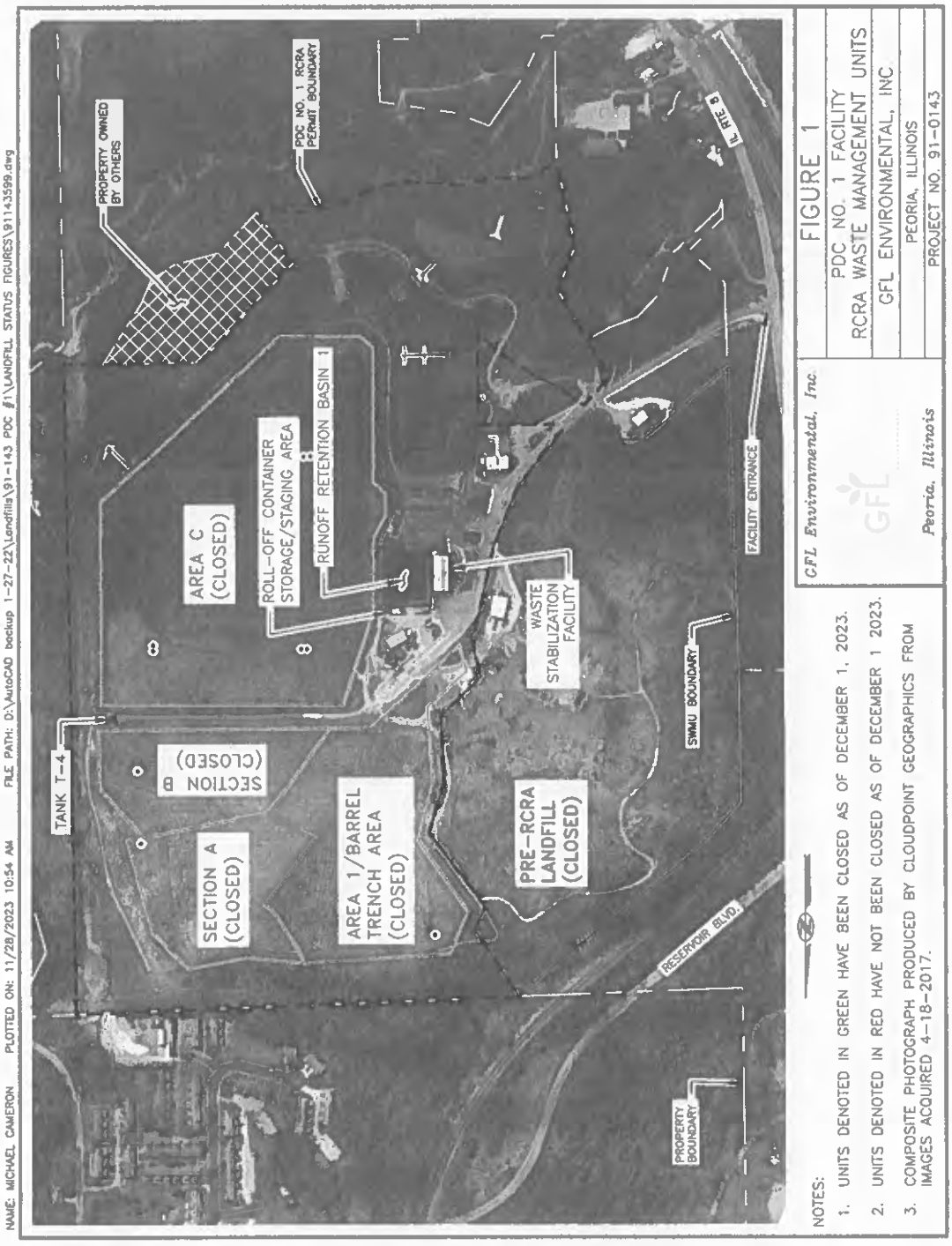
FACILITY DIAGRAM

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

FACILITY DIAGRAM



ATTACHMENT J

APPROVED PERMIT APPLICATION

1438120003 – Peoria County

Peoria Disposal Company

ILD000805812

APPROVED PERMIT APPLICATION

This permit is based on the information in the approved permit application. The approved permit application consists of the following documents:

Document	Date	Date Received
RCRA Permit Application (Second Renewal)	August 3, 2017	August 4, 2017
Response to completeness review	November 6, 2017	November 7, 2017
Additional Information	June 17, 2019	June 18, 2019